

Marine Finfish Farm Management Plan Minimum Compliance Requirements

The following document outlines the minimum compliance requirements for marine finfish aquaculture operations in Nova Scotia. The minimum compliance requirements are organized by Farm Management Plan (FMP) section.

Section 2.0: Stocking Level

Before initial stocking or restocking of an aquaculture site, the population number to be stocked must be reported and approved. This section outlines the stocking plan for the site for the time period covered within the FMP and provides information required to assess the stocking level. This section includes a production plan, site diagram, fallowing plan, and production reporting information.

Subject	Species	Minimum compliance requirement
2.1 Production plan	<i>All finfish</i>	<ul style="list-style-type: none"> Production plan must be provided
2.1 Species and year class	<i>Atlantic salmon</i>	<ul style="list-style-type: none"> One year-class stocking
	<i>Rainbow Trout</i>	<ul style="list-style-type: none"> Up to a maximum of two year-classes stocked
	<i>Other species</i>	<ul style="list-style-type: none"> Subject to review by Chief Aquatic Animal Health Veterinarian or Veterinary Administrator
2.2 Site plan	<i>All finfish</i>	<ul style="list-style-type: none"> Scaled site diagram must be provided
2.3 Historical environmental monitoring and production information	<i>Atlantic salmon</i>	<ul style="list-style-type: none"> Historical production levels and environmental monitoring results (two previous production cycles minimum) provided upon stocking request
	<i>Rainbow Trout</i>	<ul style="list-style-type: none"> Historical production levels and environmental monitoring results (four previous years minimum) provided upon stocking request
	<i>Other species</i>	<ul style="list-style-type: none"> Historical production levels and environmental monitoring results provided according to request by NSDFA
2.4 Aquaculture Management Area (if AMA is established)	<i>All finfish</i>	<ul style="list-style-type: none"> Written AMA agreements with other licence holders if required by the Minister
2.5 Fallowing plan (for sites NOT within an AMA)	<i>Atlantic salmon</i>	<ul style="list-style-type: none"> Maximum of 36 months continuous stocking Fallowing period according to stocking cycle length, as described
	<i>Rainbow Trout</i>	<ul style="list-style-type: none"> Maximum of two consecutive year class stockings before fallowing Fallowing period according to stocking cycle length, as described
	<i>Other species</i>	<ul style="list-style-type: none"> Subject to review by Chief Aquatic Animal Health Veterinarian or Veterinary Administrator
2.5 Fallowing plan (for sites within an AMA)	<i>Atlantic salmon</i>	<ul style="list-style-type: none"> Fallowing according to AMA agreement
	<i>Rainbow Trout</i>	<ul style="list-style-type: none"> Fallowing according to AMA agreement
	<i>Other species</i>	<ul style="list-style-type: none"> Fallowing according to AMA agreement
2.6 Inventory control and reporting	<i>All finfish</i>	<ul style="list-style-type: none"> Reporting of stocking level upon request

Section 5.0: Description of Inputs

This section describes the physical components and material elements of the farm. These inputs affect all components covered within the FMP, including Fish Health Management, Containment Management, Farm Operations, and Environmental Monitoring.

Subject	Species	Minimum compliance requirement
5.1 Site, infrastructure and holding system	<i>All finfish</i>	<ul style="list-style-type: none">• Provide technical specifications of containment equipment and infrastructure• Describe installation processes for containment equipment and infrastructure• The design of the structures in place for containment management follow requirements as defined in AMR 15(g)
5.4 Veterinary service provider	<i>All finfish</i>	<ul style="list-style-type: none">• Provide name of veterinary service provider

Section 6.0: Procedures for Fish Health Management and Containment Management

This section defines the procedures and plans required for meeting compliance requirements common for all operations (as defined by species) to ensure they meet the AMR requirements for Fish Health Management and Containment Management. Topics affecting fish health are often relevant for containment management and vice versa, so that the procedures relevant to these aspects have been combined within this template plan.

Subject	Species	Minimum compliance requirement
6.1 Bird deterrence	<i>All finfish</i>	<ul style="list-style-type: none"> • Bird deterrent strategies described
6.2 Predator management	<i>All finfish</i>	<ul style="list-style-type: none"> • Predator deterrent strategies described
6.3 Equipment maintenance	<i>All finfish</i>	<ul style="list-style-type: none"> • Removal of nets from the water after each production cycle for cleaning, disinfection, and testing • Up to date net inventory records • Up to date net history records • Up to date net testing records • Net biofouling control strategy(ies) described • On-site net repair kit • Net repair procedure described • Up to date net inspection records • Net mesh sizing strategy described • Net changing procedure described • Records to support application of net changing SOP • Minimum weekly bird net inspections • Up to date inspection and history records for bird nets • Biannual mooring and anchor inspection • Up to date inspection and repair records (moorings and anchors) • Biannual grid system inspection • Inspection and repair records (grid system)
6.4 Equipment inspection	<i>All finfish</i>	<ul style="list-style-type: none"> • Weekly surface inspections • Up to date surface inspection records (to include enclosure nets, bird nets, predator nets, moorings and anchors, and grid) • Below-water net inspection (every 60 days) • Up to date below-water net inspection records (to include enclosure nets, predator nets) • Biannual below-water infrastructure inspection • Up to date below-water infrastructure inspection records (to include moorings and anchors, and grid)

Section 6.0: Procedures for Fish Health Management and Containment Management

Subject	Species	Minimum compliance requirement
6.5 Response to a breach of containment	<i>All finfish</i>	<ul style="list-style-type: none"> • Areas of potential impact of a breach described • Procedures to respond to a breach described • Immediate notification of knowledge or suspicion of a breach
6.6 Unusual event and severe weather response	<i>All finfish</i>	<ul style="list-style-type: none"> • Strategy for responding to unusual events described • Strategy for responding to severe weather described
6.7 Biosecurity	<i>All finfish</i>	<ul style="list-style-type: none"> • Wharf usage biosecurity SOP described • Up to date records demonstrating application of wharf usage biosecurity SOP • Cleaning and disinfection standard operating procedures described • Up to date records demonstrating application of cleaning and disinfection SOP • Staff and visitor cleaning and disinfection standard operating procedures described • Up to date records demonstrating application of staff and visitor cleaning and disinfection SOP
6.8 Feeding	<i>All finfish</i>	<ul style="list-style-type: none"> • Structured monthly feeding schedule • Recorded feed consumption and up to date calculated feeding rate records
6.9 Pest management	<i>All finfish</i>	<ul style="list-style-type: none"> • Pest management strategy described • Pest management records
6.10 Waste management	<i>All finfish</i>	<ul style="list-style-type: none"> • Strategy to manage waste described • Blood water and offal containment and treatment strategy that assures the killing or rendering of pathogens of concern inert
6.11 Water quality	<i>All finfish</i>	<ul style="list-style-type: none"> • Up to date daily and monthly water quality monitoring and recording of oxygen and temperature • Described algae monitoring regime and up to date records of algae monitoring according to regime • Strategies for responding to low oxygen, low and high temperatures, and suspected algae effects on fish health described
6.12 Mortality collection	<i>All finfish</i>	<ul style="list-style-type: none"> • Described mortality collection procedures that include all aspects of storage and disposal • Records supporting application of mortality collection SOP • Described mortality collection schedule- a minimum of one mortality dive for each of the stocked cages per week is mandatory • Up to date mortality collection records • Classification of all mortalities • Up to date records of mortality classification

Section 6.0: Procedures for Fish Health Management and Containment Management

Subject	Species	Minimum compliance requirement
6.13 Fish handling	<i>All finfish</i>	<ul style="list-style-type: none"> • Euthanasia method(s) described • Anesthesia method described • List anesthetics • Described mean weight determination procedure • Records supporting application of mean weight determination SOP • Described grading or splitting procedure (if applicable) • Records supporting application of grading or splitting procedure • Described harvesting procedure • Records supporting application of harvesting procedure
6.14 Transport	<i>All finfish</i>	<ul style="list-style-type: none"> • Defined live transport procedure • Certificate of Health for Transfer (COHFT) permit for all live transfers (refer to Section 6.19.5) • All pertinent Federal transfer permits • Records supporting application of live transport procedure • Defined dead fish transport procedure • Fish transport biosecurity procedures described • Records supporting application of fish transport biosecurity procedures
6.15 Broodstock	<i>All finfish</i>	<ul style="list-style-type: none"> • Described method for egg and milt collection • Described egg disinfection procedures • Up to date egg disinfection records • Egg and milt records to identify parentage or batch
6.16 Vaccination	<i>All finfish</i>	<ul style="list-style-type: none"> • Vaccination status described
6.17 Stock treatment	<i>All finfish</i>	<ul style="list-style-type: none"> • Up to date stock treatment records • Reporting of antibiotic use to the Province • Reporting of products to treat sea lice to the Province
6.18 Sea lice management	<i>Atlantic salmon and Rainbow trout</i>	<ul style="list-style-type: none"> • At a minimum, weekly sea lice counts from April 1 to January 15th of each year • Personnel to perform sea lice counts must be trained and records of training kept • Sea lice counts records kept on file and made available for review within 7 days of count • If weekly sea lice count is not complete an explanation for the omission must be recorded in the sea lice count record • Site access for auditors during sea lice counting, if requested • Sea lice treatments applied according to Farm Management Plan (unless deviations from this schedule were approved) • Sea lice treatment plans approved by Chief Aquatic Animal Health Veterinarian • Record of sea lice treatment • Sea lice biosecurity procedures described

Section 6.0: Procedures for Fish Health Management and Containment Management

Subject	Species	Minimum compliance requirement
6.19 Disease surveillance	<i>All finfish</i>	<ul style="list-style-type: none"> • Adherence to and documentation of routine surveillance • Adherence to minimum sampling and testing requirements for fish transfers from a marine site (if applicable) • Adherence to the Health Policy for the Transfer of Live Cultured Fish in Atlantic Canada • Possession of a Certificate of Fish Health for Transfer permit during and post transport • Use of an approved laboratory for testing • Possession of health records for current stock
6.19.9 Mandatory reporting	<i>All finfish</i>	<ul style="list-style-type: none"> • Reporting of provincially reportable diseases • Reporting of mass mortality events • Reporting of significant mortality events of unknown etiology
6.19.10 Managing disease outbreaks	<i>All finfish</i>	<ul style="list-style-type: none"> • Adherence to authority requests during disease outbreak (if applicable) • Adherence to a Quarantine Order (if ordered) • Disease management measures approved by Chief Aquatic Animal Health Veterinarian

Section 7.0: Hazard Assessment for Fish Health Management and Containment Management

This section allows the completion of hazard analyses to define procedures that have critical control points necessary for effective Fish Health and Containment Management. These supplement the procedures described in Section 7 by ensuring that operation specific hazards are accounted for in the FMP.

Subject	Species	Minimum compliance requirement
7.1 Hazard analysis for Fish Health Management	<i>All finfish</i>	<ul style="list-style-type: none">• A hazard analysis of the production process must be completed for Fish Health Management• Each procedure contained in a Farm Management Plan must include any of the following that apply to with respect to that procedure:<ul style="list-style-type: none">a) Critical control pointsb) Critical control limitsc) Details about how the procedure is monitoredd) Details about corrective actions to be taken
7.2 Hazard analysis for Containment Management	<i>All finfish</i>	<ul style="list-style-type: none">• A hazard analysis of the production process must be completed for Containment Management• Each procedure contained in a Farm Management Plan must include any of the following that apply to with respect to that procedure:<ul style="list-style-type: none">a) Critical control pointsb) Critical control limitsc) Details about how the procedure is monitoredd) Details about corrective actions to be taken

Section 8.0: Farm Operations

This section describes aspects that demonstrate responsible operation of a marine shellfish operation. The FMP must include information and procedures that are consistent with industry best practices relating to the following:

Subject	Species	Minimum compliance requirement
8.1 Supply storage	<i>All finfish</i>	<ul style="list-style-type: none">• Strategy for the storage and disposal of fuel described• Strategy for the storage and disposal of lubricants and chemicals described
8.2 Accumulated refuse and decommissioned farm supplies and equipment	<i>All finfish</i>	<ul style="list-style-type: none">• Strategy to deal with accumulated refuse and decommissioned farm supplies and equipment described• Immediate reporting to NSDFA and DFO regarding equipment dropped to the bottom
8.3 Retrieving loose gear	<i>All finfish</i>	<ul style="list-style-type: none">• Strategy for retrieval of loose gear or debris described
8.4 Maintaining the site in good order	<i>All finfish</i>	<ul style="list-style-type: none">• Strategy to maintain the site in good order described
8.5 Noise	<i>All finfish</i>	<ul style="list-style-type: none">• Strategy to minimize noise disruption described

Section 9.0: Environmental Monitoring

This section defines the procedures and plans required for effective environmental monitoring of a marine finfish operation. A hazard analysis defines those procedures that can be put into place in the event that poor environmental performance is indicated by monitoring.

Subject	Species	Minimum compliance requirement
9.1.2, 9.1.3 Benthic monitoring, Level I	<i>All finfish</i>	<ul style="list-style-type: none"> • Annual Level I benthic monitoring for active sites • Electronic site diagram (kg fish/cage and number and location of proposed monitoring locations) submitted at least two weeks prior to monitoring • Anticipated monitoring date submitted at least two weeks prior to monitoring • Monitoring method submitted at least two weeks prior to monitoring
9.1.4 Benthic monitoring, Level II	<i>All finfish</i>	<ul style="list-style-type: none"> • Level II benthic monitoring for Hypoxic B and Anoxic sites • Electronic site diagram (kg fish/cage and number and location of proposed monitoring stations submitted within one week of monitoring • Monitoring to occur no later than 35 days after the date of the Level I monitoring event
9.1.5 Benthic monitoring, Level III	<i>All finfish</i>	<ul style="list-style-type: none"> • Level III monitoring for sites that consistently fail to meet oxic conditions • Compliance with enhanced monitoring regimen determined by AESMC in discussion with the site operator
9.1.7 Benthic monitoring procedures	<i>All finfish</i>	<ul style="list-style-type: none"> • Procedures for collection of samples for benthic monitoring provided
9.1.8 Video recording	<i>All finfish</i>	<ul style="list-style-type: none"> • Video recording procedures for benthic monitoring provided
9.1.9 Field observations	<i>All finfish</i>	<ul style="list-style-type: none"> • Recording of field observations during benthic monitoring
9.1.10 Analysis of sediment samples	<i>All finfish</i>	<ul style="list-style-type: none"> • List of chemicals and equipment to be used for EMP approved by NSDFA prior to monitoring season • Procedures for sediment sample analysis provided
9.1.11 Benthic monitoring reporting	<i>All finfish</i>	<ul style="list-style-type: none"> • For Level I monitoring, field observations, coordinate table, redox and sulfide analysis results reporting within 14 days of sediment collection • For Level I monitoring, all remaining sample analyses results (porosity and organic matter), video and grab log sheets, and photos and video recordings reporting within 21 days of sediment collection • For Level II monitoring, all reporting must be within 14 days of sample collection

Section 9.0: Environmental Monitoring

Subject	Species	Minimum compliance requirement
9.2 Mitigation plan	<i>All finfish</i>	<ul style="list-style-type: none"> • A hazard analysis of the production process must be completed for Environmental Impact to determine mitigation plan options to address poor environmental performance • Each mitigation procedure must include any of the following that apply to with respect to that procedure: <ul style="list-style-type: none"> a) Critical control points b) Critical control limits c) Details about how the procedure is monitored d) Details about corrective actions to be taken
9.3 Oxic condition remediation, for change from Oxic to Hypoxic A site classification	<i>All finfish</i>	<ul style="list-style-type: none"> • Mitigation plan and timeline for implementation described • Updated mitigation plan described
9.3 Oxic condition remediation, for change to Hypoxic B, or Anoxic site classifications	<i>All finfish</i>	<ul style="list-style-type: none"> • Level II monitoring conducted no later than 35 days after the Level I monitoring event • Results of Level II monitoring submitted no later than 14 days following monitoring • Updated mitigation plan submitted no later than 14 days following Level II monitoring • Compliance with additional directives from NSDFA to reduce environmental impact, if applicable.

Section 10.0: Record Keeping

This summarizes the minimum record keeping requirements for the operation, as determined by compliance requirements, procedures, and critical control points established within the risk analyses.

Subject	Species	Minimum compliance requirement
10.1 Compliance record requirements	<i>All species</i>	<ul style="list-style-type: none">• Records must be kept to verify adherence to the procedures and to demonstrate that effective action was taken at critical control points, when applicable.• Records must be kept for at least seven years from the date the record is created or updated• Records must be available when requested

Section 13.0: Record of Amendments

Once the FMP is approved, records must be kept by the aquaculture licence holder of any amendments to the FMP.

Subject	Species	Minimum compliance requirement
13.0 Record of Amendments	<i>All species</i>	<ul style="list-style-type: none">• Records must be kept of any amendments to the FMP