



New Brunswick Marine Aquaculture Finfish Health Policy

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Province of New Brunswick
POB 6000
Fredericton NB E3B 5H1
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1. Introduction

The New Brunswick Department of Agriculture and Aquaculture (NBDAA) is responsible for the effective management of aquaculture fish health within New Brunswick. An effective marine aquaculture finfish health management program is essential to the long-term economic and environmental sustainability of the marine aquaculture industry in New Brunswick. Effective fish health management is also necessary to provide industry, government, the investment community, interest groups, the general public and all other stakeholders with the assurance that finfish health is effectively managed and that the risk of loss due to disease is minimized.

This document provides the framework for health management for all cultured marine finfish stocks in New Brunswick. It is intended to support the long term sustainability of the aquaculture industry in New Brunswick, while protecting the greater public interest.

Key components

The Key Components of this Policy are:

- A. **Prevention of introduction:** preventing the introduction of a pathogen to a population of fish.
- B. **Health maintenance:** ensuring that good farming practices are used to promote the maintenance of healthy stocks.
- C. **Early detection and effective response to disease:** implementing an ongoing surveillance and monitoring program to ensure early detection of emerging fish health issues, as well as a timely and appropriate response when a potential disease risk is encountered.
- D. **Minimizing pathogen loading and inter-generational transfer:** minimizing the risk of disease transfer through practices such as year class separation and site fallowing.
- E. **Communication:** providing relevant and timely fish health information to key stakeholders so that appropriate action can be taken to minimize risk.
- F. **Research and education:** fostering and contributing to appropriate scientific research is essential to keeping the industry abreast of ongoing advances in fish health management and effectively transferring this information to industry and fish health professionals.

2. Principles

- The Marine Finfish Health Policy must demonstrate to all stakeholders that fish health in New Brunswick is being effectively managed to support the long-term sustainability of a strong aquaculture industry, while protecting the greater public interest.
- The Marine Finfish Health Policy provides key stakeholders – the industry, the investment and banking community, insurers, government, commercial and recreational fishery groups, the public and other stakeholder groups – with the assurance that fish health is being effectively managed to minimize potential losses due to disease.
- The Marine Aquaculture Finfish Health Policy emphasizes a long-term approach to assuring the health and sustainability of the industry.
- It is the general philosophy of this policy to minimize the risk of disease transfer between aquaculture facilities, while promoting sound fish health practices at individual sites.
- Communication and cooperation amongst stakeholders is essential to ensuring a coordinated and effective approach to fish health management.

- The timely collection, collation, and dissemination of relevant fish health related information to key stakeholders is a necessary component of effective disease management.
- Fish health management must be undertaken in an environmentally acceptable manner.
- The Marine Aquaculture Finfish Health Policy reflects the importance of a proactive response to emerging fish health issues.
- For the Marine Aquaculture Finfish Health Policy to be effective, all stakeholders must fulfil, and be held accountable for, their responsibilities and obligations, as outlined in this Policy.
- Enforcement actions are recognized by all stakeholders as a necessary measure to protect the industry and other stakeholder groups.
- The fish health protocols and compliance standards must be based upon sound scientific principles and the most current scientific information relative to each disease.
- Industry and government have a shared responsibility and commitment to:
 - i. Research and development related to fish health
 - ii. Continuing education and training related to fish health
- This Policy will be routinely reviewed and updated to reflect changes in the industry and the availability of new information.
- The Marine Aquaculture Finfish Health Policy provides for communication and cooperation with other regional, national and international fish health management initiatives and programs.

3. Definitions

See Appendix: Definitions

4. Mandate and responsibilities of stakeholders

4.1 *Aquaculture Act and Regulations*

The New Brunswick Marine Aquaculture Finfish Health Policy will be implemented under the auspices of the *New Brunswick Aquaculture Act* (Chapter A-9.2) 1988, and New Brunswick Regulation 91-158. The Act provides the Minister of Agriculture and Aquaculture with the legislative and regulatory authority to govern the New Brunswick aquaculture industry.

4.2 **Responsibilities of the Department of Agriculture and Aquaculture**

The New Brunswick Department of Agriculture and Aquaculture (NBDAA) has the legislative authority and responsibility for aquaculture development and fish health management under the *Aquaculture Act* and Regulations. The fundamental role of government in fish production is to provide the utmost confidence in the areas of fish health, public health, public good and investor confidence. The New Brunswick Marine Aquaculture Finfish Health Policy provides the framework for effective fish health management.

4.2.1 **Role of the NBDAA aquaculture veterinarian**

The NBDAA aquaculture veterinarian is responsible for the administration and auditing of provincial programs developed under the auspices of the Marine Aquaculture Finfish Health Policy.

The NBDAA aquaculture veterinarian will:

- pursue and investigate situations that he/she considers to be “high-risk” with regard to potential **diseases of concern**.

- act as the central communicator for the Marine Aquaculture Finfish Health Policy and provide critical information to the appropriate stakeholders.
- monitor compliance with the provincial programs under the auspices of the Marine Aquaculture Finfish Health Policy and will take appropriate action to ensure compliance.

4.3 Role of the license holder

The license holder is responsible for carrying out all activities and responsibilities as outlined in this document.

The license holder will:

- appoint/contract or employ an attending veterinarian
- identify the site's attending veterinarian to the NBDAA aquaculture veterinarian.
- immediately notify the NBDAA aquaculture veterinarian of any changes to the site's attending veterinarian.
- provide NBDAA with a signed agreement authorizing their attending veterinarian to disclose and provide all fish health information to the NBDAA aquaculture veterinarian.

This would include the full disclosure of all clinical findings, suspicion of infection or disease, laboratory results and their interpretation, unusual or unexplained mortality and any other information that is relevant to the fish health status of the site.

- ensure to the best of their ability that the attending veterinarian is completing their duties toward fulfilling the requirements of this policy, and fish health regulations.
- ensure that they are fulfilling their requirements of all fish health regulations or ministerial directives.

4.4 Role of the attending veterinarian

The attending veterinarian is responsible for carrying out all activities and responsibilities as outlined in the Marine Aquaculture Finfish Health Policy.

The attending veterinarian must maintain an appropriate veterinarian-client relationship with the license holder.

4.4.1 Attending veterinary authorization

NBDAA will introduce requirements for the attending veterinarians to be authorized in the near future.

To be eligible to participate in completing the duties outlined in the Marine Aquaculture Finfish Health Policy, a veterinarian must be a member in good standing of the New Brunswick Veterinary Medical Association and must receive "Veterinary Authorization" from the Minister of NBDAA. Once granted, this "Veterinary Authorization" may be suspended, revoked or cancelled by the Minister of NBDAA for the following reasons:

- failure to maintain full membership with the NBVMA.
- failure to fulfill all responsibilities and obligations under the Marine Aquaculture Finfish Health Policy.

4.5 Role of the Fish Health Technical Committee (FHTC)

The Fish Health Technical Committee is a technical advisory committee, whose primary role is to provide advice to the Minister of Agriculture and Aquaculture for the control and management of diseases. The FHTC was formed in an effort by both government and industry to respond to any disease threat to the finfish aquaculture industry.

The FHTC may also be involved in the periodic review of the Marine Aquaculture Finfish Health Policy to ensure that it reflects the most current scientific and fish health information.

4.6 Confidentiality

All fish health records and diagnostic results required by the Regulations, or requested by an inspector appointed under the *Aquaculture Act*, are deemed to be confidential in accordance with Section 29(2) of the *Aquaculture Act*.

4.7 Relationship to the Federal Fish Health Regulations or the National Aquatic Animal Health Program

Any standards or protocols developed under the New Brunswick Marine Aquaculture Finfish Health Policy are intended to be complementary to the current Federal Fish Health Protection Regulations (FHPR) or other federal legislation that may be utilized for the implementation of the National Aquatic Animal Health Program (NAAHP). Under the direction of the Canadian Food Inspection Agency (CFIA), the NAAHP will be developing national standards and protocols for fish health. Whereas the Federal Fish Health Protection Regulations relate primarily to preventing the introduction and spread of exotic salmonid diseases, the New Brunswick Marine Aquaculture Finfish Health Policy:

- addresses both exotic and endemic diseases of commercial significance to all marine finfish species within the New Brunswick aquaculture industry.
- may be modified to complement any proposed federal or regional fish health programs such as the proposed National Aquatic Animal Health Program.

4.8 Relationship to International Fish Health Regulations

NBDAA may implement additional monitoring and surveillance procedures in order to meet the requirements of international animal health organizations such as the World Organization for Animal Health (OIE).

4.9 Compliance and enforcement

The Department of Agriculture and Aquaculture (NBDAA) is the lead agency with respect to the enforcement of fish health legislation in New Brunswick as described in the *Aquaculture Act* and Regulations. The NBDAA has the authority and responsibility to ensure that all aquaculture facilities in the province are in compliance with the *Aquaculture Act* and Regulations.

Compliance with surveillance programs is essential to the success of the effective control of **Diseases of Concern**.

5. Marine finfish health management programs

Marine Finfish Health Management Programs will provide the operational framework of this policy for **diseases of concern**. An effective health management strategy requires a multi-faceted approach that takes into consideration the following key areas:

- 5.1 Prevention of introduction
- 5.2 Health maintenance
- 5.3 Early detection and effective response to disease
- 5.4 Minimizing pathogen loading and inter-generational transfer
- 5.5 Communication
- 5.6 Research and education

5.1 Prevention of introduction

As a first line of defence against diseases, it is essential to take all reasonable steps to minimize the risk of introducing disease and/or disease agents to aquaculture facilities.

5.1.1 Requirements for testing prior to movement

Prior to any fish and/or fish product (eggs and milt) movements, licence holders are required to follow the testing requirements as outlined in sections 15(1), 15(2), 16(1), 17, 18 and 21 of the New Brunswick Regulation 91-158 under the auspices of the *Aquaculture Act* (O.C.91-806).

In addition, the licence holders are required to obtain an Introductions and Transfer permit from Fisheries and Oceans Canada.

A review of the testing and surveillance requirements for movement, as outlined above, is underway to ensure that fish and biological products from fish (e.g. eggs and milt), that are transferred between locations, are healthy and do not pose an unacceptable risk when transferred. The review will take into account the federal and provincial requirements of adjoining jurisdictions with a view towards avoiding duplication and fostering a harmonized approach.

5.1.2 Operational standards – harvest vessels

Due to the nature of the activities carried out by harvest vessels, these vessels are considered “high risk” for the transfer of disease agents. It is important that strict hygiene and biosecurity standards be used aboard these vessels to prevent the transfer of disease causing agents between aquaculture sites. These risks are addressed by NBDAA’s **Harvest Vessel Operating Standards**, the **Harvest Vessel Certification** and the **Harvest Vessel Audit**. These documents are available through the Fish Health Unit located at the Regional NBDAA office.

5.1.3 Operational standards – processing facilities

Appropriate controls at fish processing facilities are essential to a successful fish health management program. The operational standards and guidelines for discharge from these facilities are set and enforced under the *Clean Environment Act* and Water Quality Regulations (NB Department of the Environment). In addition to effluent control the Department, in partnership with NB DENV, undertakes an in-depth **Processing Plant Biosecurity Audit**.

5.2 Health maintenance

Central to the success of an effective health management program, is the practice of sound husbandry techniques at aquaculture sites. Good operating and biosecurity practices not only minimize the risk of disease for the individual site but they also help to minimize the impact of disease on neighbouring sites and the industry overall.

5.2.1 Marine site biosecurity

Preventing the introduction of disease agents is a continuous challenge for the aquaculture industry, veterinarians and fish health professionals. Biosecurity usually involves disease surveillance, testing, disinfection, etc. Industry has adopted the ***New Brunswick Salmon Growers Environmental Policy and Codes of Practice***, which has a biosecurity component. In addition, the Department has outlined surveillance requirements in the ***ISA Management and Control Program*** and biosecurity requirements in the ***Cleaning and Disinfection Guidelines for the Control of Infectious Salmon Anemia (ISA)***.

5.3 Early detection and effective response to diseases of concern

Industry-wide monitoring and surveillance for potential fish health problems are necessary, as these activities provide critical information regarding the early detection of emerging fish health issues and the effectiveness of response. Early detection of disease or other fish health issues is often critical to the effective control and management of diseases. Fish health surveillance is structured around regular veterinary visits to marine sites. The Attending Veterinarian plays an essential role in this program and is responsible for providing the critical “link” between the license holder (farm) and the NBDAA. In addition, periodic passive monitoring or audits will be carried out by NBDAA.

Effective response to **diseases of concern** is based upon the activation of a prescribed **management and control program**, which will be produced for each disease. Upon the detection or suspicion of a **disease of concern**, the Minister of NBDAA or his/her designate may immediately designate an area as a “Controlled Aquaculture Area (CAA)” under the authority of subsection 19.2(1) of the *Aquaculture Act* {S.N.B. 1988, c. A-9.2}. Directions and measures identified by the Minister to prevent the spread of disease/disease agents to other areas will include, but not be limited to:

- Wharf and / or Beach Usage for all sites located in the area including, but not limited to the following activities: crew access, feed delivery, mort off-loading, net transportation, vessel maintenance/cleaning
- Frequency of private veterinary visits
- Minimum requirement for site fallow. Note that the stipulated requirement for fallow supersedes any lesser requirement for fallow which may be indicated for sites within an Aquaculture Bay Management Area designation made by the Minister
- Biosecurity measures involving equipment and vessel movement, harvesting practices, etc.

In addition to containing the **disease of concern** the CAA would allow for the development, activation and implementation of a **management and control program** for that listed disease without compromising other aquaculture areas.

It is important to note, that because of the complexity of aquatic animal diseases, the Minister of NBDAA or his/her designate may alter or modify detection and response initiatives in order to effectively meet the challenge of early detection and effective response to diseases.

As an example of the key components of a management and control program please refer to the **ISA Management and Control Program**, which can be obtained from NBDAA.

5.4 Minimizing pathogen loading and inter-generational transfer

5.4.1 Year class separation and fallowing

The practice of fallowing marine sites between crops or generations of fish is widely recognized as a preventative measure, which can significantly reduce the risk of passing a disease-causing agent from one generation of fish to the next. Fallowing a site or bay management area has the potential to significantly reduce, or even eliminate, the presence of specific pathogens at that site or bay management area.

With respect to Atlantic salmon farming, true single class farming and single year class Bay Management Areas have been established. This approach is recognized as a key pillar to reducing the risk of disease spread from one generation of fish to another.

5.5 Communication

Effective communication is critical to the successful management of disease. It is the objective of various programs under this Policy to provide relevant and timely fish health information to key stakeholders so that appropriate action can be taken to minimize disease risk and spread.

5.6 Research and education

Ongoing efforts in research and education are critical to the advancement and improvement of fish health management. NBDAA supports and is committed to advancing the understanding of fish health issues through collaborative research efforts with the federal government (Fisheries and Oceans Canada, Health Canada and the Canadian Food Inspection Agency) and industry. Transfer of these advances to industry, fish health professionals and other key stakeholders through targeted education and training initiatives is a priority for NBDAA. Results from research will be utilized to refine policy and program development and implementation.

NBDAA relies on the federal Department of Fisheries and Oceans, industry and other key stakeholder groups to share in this responsibility and commitment to fish health research and education.

6. Reporting of diseases/diseases of concern

It is recognized that the reporting of diseases is critical to their proper control and management. Diseases of concern are diseases which have socio-economic importance and require regulatory measures to control their spread and management. Diseases of concern will be further broken down into list 1 and list 2 reportable diseases noted below. For any list 1 or list 2 reportable disease, management and control programs will be developed (ISA Management and Control Program).

6.1 Reportable diseases

Under Section 19 of the *Aquaculture Act*, the licensee must immediately report the presence of disease or disease agents at their aquaculture site. The following sections define the criteria associated with the reportable diseases and the response and measures that will be considered. All diseases must be reported to the NBDAA aquaculture veterinarian within 7 days of diagnosis.

6.1.1 List 1 diseases

Any disease, which is exotic, easily transmitted or infectious and cannot be controlled through acceptable means or may pose a human health risk is deemed a list 1 disease. List 1 diseases include, but are not limited to exotic disease agents, endemic disease agents with no reasonable means of control, disease agents that pose a human health risk or unexplained mortality suspected of having an infectious cause with the potential to spread uncontrollably. List 1 diseases will generally require immediate quarantine and depopulation. Responses to such diseases may include, but are not limited to:

- notification of a response team,
- notification of the FHTC,
- notification of all New Brunswick marine license holders,
- notification of Canadian Food Inspection Agency
- the development and implementation of a site-specific control and containment plan at the farm or hatchery.

6.1.2 List 2 diseases

Any endemic disease to New Brunswick that is contagious, or may pose an economic hardship to the industry, but can generally be managed at the hatchery/farm level with acceptable practices, will be considered a list 2 disease. List 2 disease agents may include agents that are known to exist in the region and are not suspected of causing economic hardship but further information on distribution and effects are required. However, when control efforts are unsuccessful at the farm level, these diseases may pose an unacceptable risk to other hatcheries or farms. In such circumstances, List 2 diseases may require responses similar to list 1 diseases. Responses to such diseases may include, but are not limited to:

- increased monitoring for information gathering,
- increased active surveillance.

In response to the occurrence of a list 1 or list 2 disease, mandatory depopulation may be necessary to control or eradicate the disease. Compensation for mandatory depopulation is beyond the scope of this Policy.

6.2 Non-reportable diseases

Diseases caused by pathogens that are endemic to New Brunswick and that do not pose a risk of commercial significance are considered non-reportable diseases.

Appendix: Definitions

aquaculture

Rearing of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. The term “rearing” implies individual or corporate ownership of the organisms being reared and also implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, and protection from predators and disease.

broodstock

A population of fish/shellfish that will be used to provide gametes.

carrier state

A state of infection in which an infected host can communicate the infection in the absence of manifest disease; (OR) A state of infection whereby the fish carries and transmits the pathogen or agent without exhibiting signs of disease itself.

clinical disease

A condition or state of dysfunction of the body, that is readily apparent or obvious by gross inspection. Individual fish appear to be sick when they have clinical disease.

contagious infection

A transmissible infection that is spread only as the result of an intimate association or contact with infected animals or their excretions or secretions.

diagnostic test

Use of a test to discriminate animals that have the disease in question from those that have other diseases that compete with the disease of interest in the differential diagnosis (White, 1986). Diagnostic testing begins with diseased individuals.

disease

Any deviation from or interruption of the normal structure or function of any part, organ, or system (or combination thereof) of the body that is manifested by a characteristic set of signs, and whose etiology, pathology, and prognosis may be known or unknown.

disease agent/pathogen

A specific causative agent of disease, such as bacteria, virus or parasite.

effectiveness

A measure of how well a treatment works among those to whom it is offered (compare with efficacy).

efficacy

The power to produce effects of intended results. A measure of how well a treatment works among those who receive it (compare with effectiveness).

endemic disease

A disease that occurs with predictable regularity in a population with only relatively minor fluctuations in its frequency; (OR) A disease, which already exists in a defined region.

exotic disease

A disease, which has never been previously identified in a defined region.

farm

A facility or location, which is licensed to carry out aquaculture, such as a hatchery or marine site. Also understood to mean the farmer, owner, site manager or licence holder.

gametes

Sperm and ovarian fluids.

herd health/preventive medicine

Herd health/preventive medicine endeavours to use epidemiologic information to design optimal disease prevention strategies. Economic considerations, expressed either as cost-effectiveness or cost-benefit, frequently determine which strategy is most effective.

horizontal transmission

Transmission of an infectious agent directly from individual to individual.

infectious disease

A disease, which is associated with a biological agent (ie. bacteria, virus or parasite) and can be transmitted from one individual to another.

monitoring

A broad scale observation. It pertains to keeping a general watch for the appearance of threatening disease agents.

morbidity rates

Direct measures of the commonness of disease in a population. Examples are attack rate, incidence and prevalence.

mortality rates

An incidence rate in which the numerator is the number of deaths occurring in a population over a defined period of time. The denominator is the population at risk over that time period.

pathogenicity

A measure of an agent's ability to induce disease (see virulence).

population at risk

Population group in which an event could occur.

prevalence

The proportion of sampled individuals possessing a condition of interest at a given point in time.

reportable disease

Any disease identified as a List 1 or List 2 Disease.

risk

A statistical concept defining the expected frequency or probability of undesirable effects resulting from a specified exposure to known potential pathogens. It can also be defined as the probability of loss, injury or harm.

risk factors

Factors associated with an increased likelihood of acquiring disease.

screening

The presumptive identification of unrecognized disease or defect in apparently healthy populations.

sensitivity

Test sensitivity is defined as the likelihood of a positive test result in individuals known to have the disease or condition being sought.

sign

An indication of the existence of something; any objective evidence of a disease, i.e., such evidence as is perceptible to the examining physician, as opposed to the subjective sensations (symptoms) of the patient.

specificity

Test specificity is defined as the likelihood of a negative test result in individuals known to be free of the disease or condition being sought.

subclinical disease

A functional and/or anatomical abnormality of the body detectable only by laboratory tests or diagnostic aids. Individual fish affected by disease but changes not readily apparent.

surveillance

A narrow scale observation. Once having identified a particular threatening disease agent, imminent or already present, it pertains to the function of keeping a close watch, both for the appearance of an imminent threat, or for changes in behaviour of a disease agent already identified as being present.

vertical transmission

Transmission of an infectious agent from brood fish to offspring within the egg or milt.

veterinarian-client-patient relationship

Recognized by the Food and Drug Administration when a veterinarian in a practice (1) has seen the animals to be treated, (2) is familiar with the premises and management system and (3) has established a tentative diagnosis for the condition to be treated.

virulence

A measure of an agent's ability to induce severe disease (see pathogenicity).

