

NEWFOUNDLAND AND LABRADOR SUSTAINABLE AQUACULTURE **STRATEGY 2014**





MESSAGE FROM THE MINISTER



As Minister of Fisheries and Aquaculture, I am pleased to present the new Newfoundland and Labrador Sustainable Aquaculture Strategy 2014. This strategy will assist in ensuring the environmental, financial, and social sustainability of our aquaculture sector and builds on the previous strategy developed in 2000 and revised in 2005. The Department of Fisheries and Aquaculture is now implementing this modernized plan to continue the success of an industry that has become a key economic driver in Newfoundland and Labrador.

The Newfoundland and Labrador Sustainable Aquaculture Strategy 2014 will guide future policy and investment decisions aimed at fostering the success of the industry. It was developed from consultation with representatives from the industry, research groups, non-governmental organizations, Aboriginal organizations, municipalities, and the public. The three key areas where the strategy has been updated are: sustainable management practices, support capacity, and research and development.

The Provincial Government will update its approach to capacity building by assisting industry players with efforts to enhance communication with the public, while continuing to facilitate access to financial support, human resources, and international market opportunities necessary for continued success.

With respect to updating sustainable management practices, the Provincial Government will partner with industry to enhance regional management plans and implement an overarching aquatic animal health management plan.

In terms of research and development, the Provincial Government will work with industry and the Federal Government to support research and development initiatives that prevent and mitigate the spread of aquatic invasive species, promote the use of Bay Management Areas, and develop improved monitoring and evaluation of aquaculture sites throughout the province.

By focusing on these areas, the Provincial Government will foster an environment where current and potentially new players in the aquaculture business can thrive economically and follow national best practices.

This government is committed to fostering the long-term prosperity of Newfoundlanders and Labradorians. Supporting the success of the provincial aquaculture industry is central to that commitment. The aquaculture industry currently provides employment for approximately 1,000 people, and set a record \$197 million in annual production value in 2013. I am confident this updated strategy will help the aquaculture industry build on this success in the future.

A handwritten signature in black ink, appearing to read 'VAUGHN GRANTER', with a long horizontal flourish extending to the right.

VAUGHN GRANTER, MHA

Humber West

Minister of Fisheries and Aquaculture

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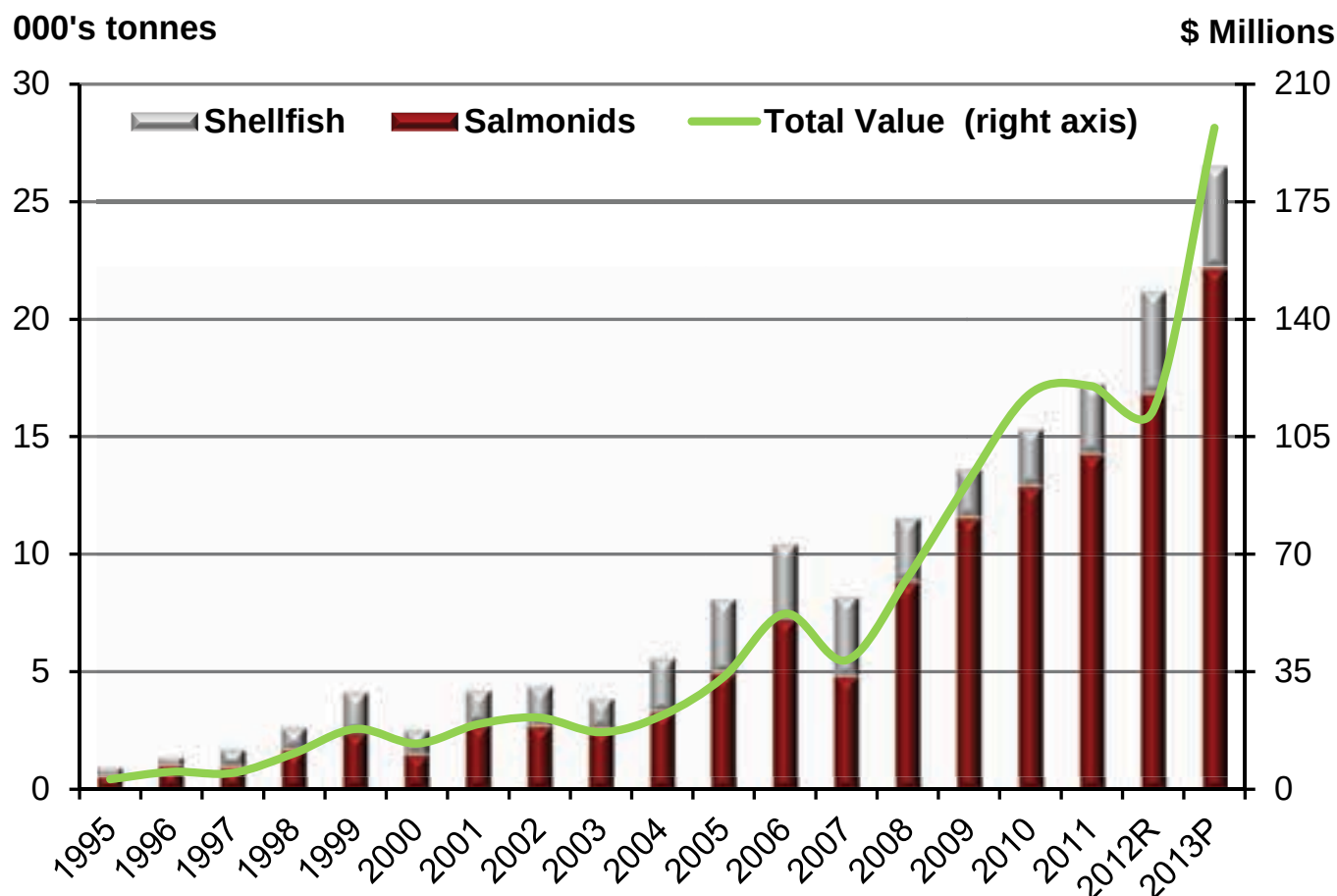


Introduction

The Province of Newfoundland and Labrador is home to an aquaculture industry that is focused on the production of salmon and mussels (see map on page 19). Since the adoption of the Newfoundland and Labrador Aquaculture Strategic Plan in 2000, total production and value have climbed from 2,718 tonnes worth \$13.6 million, to 26,551 tonnes valued at \$197 million in 2013. This growth has created socio-economic opportunities for rural communities in the Coast of Bays region and other areas of the province. Continued development, however, requires a renewed strategic vision to ensure aquaculture is sustainable. As a result, the Department of Fisheries and Aquaculture (DFA) has renewed its strategy for the sustainable development of the Newfoundland and Labrador aquaculture industry.

In developing this document, the Department of Fisheries and Aquaculture actively sought feedback on the strategic direction aquaculture should follow going forward. This included both face-to-face and online consultations that were held in November and December of 2013. A total of 122 participants were heard in this process.

Commercial Aquaculture Production in Newfoundland and Labrador



Note: Salmonid production is reported as head-on gutted weight.
Source: Fisheries and Oceans Canada (DFO); DFA

R = Revised; P = Preliminary

The Department of Fisheries and Aquaculture has developed a five-year strategy based on the concept of sustainability. Sustainability refers to efforts to improve the standard of living by protecting human health, conserving the environment, using resources efficiently, and advancing long-term economic competitiveness. It requires the integration of environmental, economic, and social priorities into policies and programs.

Sustainability is fundamental to the following strategic priorities, which form the core of the strategy:

- **Aquaculture Sustainable Management**
- **Aquaculture Support Capacity**
- **Aquaculture Research and Development**



Aquaculture Sustainable Management

DESCRIPTION

Aquaculture sustainable management includes those management practices that improve the standard of living by protecting human health; conserving the environment; using resources efficiently; and advancing long-term economic competitiveness. It requires the integration of environmental, economic, and social priorities into policies and programs. Key areas that contribute to sustainable management have been identified as priorities through the department's public consultation process. Each of these sustainable management priorities has become a fundamental component to the overall sustainability of the aquaculture industry and impacts the development and management of the industry. The Department of Fisheries and Aquaculture will facilitate the sustainable development of the aquaculture industry by proactively addressing each of these priority areas.

VISION

A vibrant aquaculture industry supported through sustainable management practices.

GOAL

The Newfoundland and Labrador Department of Fisheries and Aquaculture will support a sustainable aquaculture industry through continued development of sustainable management practices.

Aquaculture Sustainable Management Issue 1

Aquatic Animal Health Management

Since 2006, the aquaculture sector has grown quickly and 2013 marked record production values. The past two years have seen significant aquatic animal health challenges. The priorities that have been identified under this issue include the implementation of bay management areas; an updated Aquatic Animal Health Management Plan; biosecure infrastructure; surveillance; and biosecurity audit programs.

Objective:

To provide Newfoundland and Labrador aquaculture operators with professional, logistical, and financial support to address the current and future aquatic animal health and disease management needs for the Newfoundland and Labrador aquaculture industry. This will include research and development in the area of aquatic animal health.

Strategic Initiatives

- **Bay Management Area Development and Implementation (Years 1-5)**
 - DFA will further delineation and enhancement of Bay Management Areas (BMAs). BMAs are currently being used as a strategy to enhance biosecurity and mitigate pathogen presence and spread. These areas need to be further defined and oceanographic influences fully realized. This will be accomplished through the collection and analysis of oceanographic and epidemiologic data.

- **Revise and Implement Aquatic Animal Health Management Plan (Years 1-2)**
 - DFA will ensure the Newfoundland and Labrador Department of Fisheries and Aquaculture Aquatic Animal Health Management Plan will be updated to reflect current aquatic animal health policies and issues. The plan will guide aquatic animal health management for the Newfoundland and Labrador aquaculture industry, and be reviewed annually as new technologies and science advance in the field of aquatic animal health.
- **Biosecure Infrastructure and Logistics (Years 1-5)**
 - DFA will undertake the assessment, identification, prioritization, and costing of new infrastructure to support and maintain optimal biosecurity and therefore best practices for disease management. These include, but are not limited to, waste management; wharf infrastructure; human resources; mortality management; dry dock capacity; floating wharves; and cleaning and disinfection barges.
- **Surveillance and Biosecurity Audit Programs (Years 1-5)**
 - DFA will continue to conduct surveillance and biosecurity audit programs for the Newfoundland and Labrador aquaculture industry to meet the current and future needs of the industry.

Aquaculture Sustainable Management Issue 2

Aquaculture Waste Management Action Plan

Aquaculture operations generate a variety of waste products through different waste streams. The extent to which these waste products can be reduced, recycled, reused, and/or transformed is determined by a combination of biosecurity considerations, operational practices, available infrastructure, and market access.

Respecting finfish operations, over a production cycle a typical site will generate the following waste products that require waste management services:

- Biofouling (e.g., net washing activities)
- Equipment and packaging (e.g., rope, nets, feed bags, pallets, and litter)
- Fish carcasses/discards
- Bloodwater from harvesting and processing operations
- Sanitary waste

Respecting shellfish operations, over a production cycle a typical site will generate the following waste products that require waste management services:

- Equipment and packaging (e.g., damaged rope, buoys, and litter)
- Processing discards (e.g., undersized product and shells)
- Processing wastewater

Objective

By 2015, the Newfoundland and Labrador Department of Fisheries and Aquaculture will facilitate communication, intergovernmental partnerships, and mechanisms that will enable the biosecure disposal, reduction, recycling, reuse, and/or transformation of aquaculture waste products through an Aquaculture Waste Management Action Plan.

Strategic Initiatives

- **Stakeholder Engagement (Year 1)**

- DFA will engage the aquaculture industry and government stakeholders to facilitate communication and consensus building on waste management priorities and initiatives. In addition, input from municipal and regional authorities regarding the progress of the Government of Newfoundland and Labrador Waste Management Strategy is required.

- **Support Aquaculture Waste Management Initiatives (Years 2-5)**

- DFA will support, through current funding programs and collaboration with other government departments, aquaculture integrated waste management initiatives that improve the biosecure reduction, recycling, reuse, and/or transformation of aquaculture waste products in priority areas that are consistent with the Newfoundland and Labrador Waste Management Strategy and supported by aquaculture companies.

- **Aquaculture Waste Management Action Plan (Years 2-5)**

- DFA will work with industry to delineate the roles and responsibilities of stakeholders which will be outlined in strategic partnerships, key priorities, and issues with respect to waste stream initiatives. Financial support options will be identified for waste management projects that improve the biosecure reduction, recycling, reuse, and/or transformation of aquaculture waste products in priority areas that are consistent with the Newfoundland and Labrador Waste Management Strategy.





Aquaculture Sustainable Management Issue 3

Environmental Impacts

Aquaculture grow-out operations have an environmental impact in the areas in which they operate. Biofouling, faeces, feed, and drop-off (mussels) all add nutrients to the water and contribute to biochemical oxygen demand (BOD) and impacts on the benthic environment. The Department of Fisheries and Aquaculture works with other regulators to ensure environmental impacts are monitored and addressed.

Objective

The Newfoundland and Labrador Department of Fisheries and Aquaculture will work with regulatory and industry stakeholders to ensure implementation of aquaculture best practices that mitigate site specific environmental impacts and support policy and programs that facilitate orderly land use and industry development in aquaculture growing regions.

Strategic Initiatives:

- **Environmental Impact Mitigation Measures (Years 1-5)**
 - The Department of Fisheries and Aquaculture will engage Fisheries and Oceans Canada to develop measures to address environmental impacts through the Aquaculture Activities Regulations to be implemented in 2015-16.
- **Federal/Provincial Collaboration (Years 1-5)**
 - The Department of Fisheries and Aquaculture will continue to engage in the ongoing implementation of the Aquaculture Activities Regulations to identify areas of federal-provincial cooperation that require updating or renewal and will enhance mechanisms to ensure new site applications and existing licensed sites meet environmental monitoring requirements.
- **Environmental Considerations for Aquaculture Licensing (Years 1-2)**
 - The Department of Fisheries and Aquaculture will review and update the aquaculture licence applications and environmental guidance document to reflect current information requirements with respect to environmental monitoring.

Aquaculture Sustainable Management Issue 4

Wastewater Treatment

The Newfoundland and Labrador Department of Fisheries and Aquaculture has invested in processing plant wastewater treatment systems located in salmonid growing areas to enhance biosecurity. However, there are plants located outside of these areas that process aquaculture fish and there is a need to bring these wastewater treatment systems to the same standards as those in aquaculture growing areas.

Objective

The Newfoundland and Labrador Department of Fisheries and Aquaculture will protect the health of the Newfoundland and Labrador aquaculture industry by continually auditing processing plants located in the Coast of Bays region annually and supporting industry efforts to advance wastewater treatment at all processing plants that are licensed to process farmed salmonids.

Strategic Initiatives

- **Annual Biosecurity Audits (Years 1-5)**
 - DFA will continue to perform annual biosecurity audits, including dye tests, at all processing plants that operate in aquaculture salmon growing areas (e.g., the Coast of Bays region).
- **Processor Engagement (Years 1-2)**
 - DFA will engage processors of aquaculture finfish to support their goals of meeting the Canadian Food Inspection Agency standards to process high risk material.
- **Processor Support (Years 3-5)**
 - DFA will support processing plants that process aquaculture finfish that are currently not located within the aquaculture growing areas to ensure that the wastewater coming from these plants is biosecure.



Aquaculture Sustainable Management Issue 5

Farmed and Wild Fish Interactions

Despite significant planning and adherence to the Code of Containment, escapes of farmed salmonids do periodically occur. There is limited empirical data and information regarding the fate of escaped salmonids with respect to geographic distribution, survivability, and potential interactions with wild fish in Newfoundland and Labrador.

Objective

The Newfoundland and Labrador Department of Fisheries and Aquaculture will contribute to refining the Code of Containment to minimize the likelihood of escapes and will support and participate in, where appropriate, research and investigations into recapture methodologies, the fate of escaped salmonids, and potential interactions with wild fish in Newfoundland and Labrador.

Strategic Initiatives:

- **Ecological Risk Assessments (Years 1-5)**
 - DFA will support scientific efforts aimed at providing local information on identification of farmed salmonids in the wild and the relative ecological risks associated with finfish escapes.
- **North American Salmon Conservation Organization (NASCO) Compliance (Years 1-5)**
 - DFA will continue to comply with NASCO's requirement for zoning of farming and non-farming regions through identification of areas of the province that will remain aquaculture free.
- **Innovative Recapture Technology (Years 1-5)**
 - DFA, in conjunction with Fisheries and Oceans Canada and industry, develop strategies to optimize recapture technology to enhance rapid response time for escape events.



Aquaculture Support Capacity

DESCRIPTION

Aquaculture support capacity includes financial programs, human resource planning, infrastructure planning, governance renewal, and communication. Each of these support capacity priorities has become a fundamental component to the sustainability of the aquaculture industry and impacts the development and management of the industry. The Department of Fisheries and Aquaculture will facilitate the sustainable development of the aquaculture industry by proactively addressing each of these priority areas.

VISION

Enhanced aquaculture industry sustainability fostered through strategic support initiatives.

GOAL

The Newfoundland and Labrador Department of Fisheries and Aquaculture will provide timely and responsive support capacity to facilitate the sustainable management of the Newfoundland and Labrador aquaculture industry.

Aquaculture Support Capacity Issue 1

Aquaculture Financial Programs

Since the 1990s, the Department of Fisheries and Aquaculture has supported the aquaculture industry by providing grant programs, contribution agreements, loan guarantees, and equity programs. These programs have evolved over time in order to be responsive to the needs of industry. Since 2006, the aquaculture sector has advanced with record levels of production and value achieved in 2013. It is crucial that programs available to the aquaculture industry be timely and responsive to current and future needs.

Objective

Provide aquaculture operators with financial programs that address current needs and foster the long-term economic viability of the aquaculture industry in Newfoundland and Labrador.

Strategic Initiatives

- **Federal/Provincial Aquaculture Financial Program Working Group (Year 1)**
 - DFA will establish a working group of federal and provincial representatives to undertake an Aquaculture Financial Programs Evaluation.
 - The review will look at all federal and provincial aquaculture specific programs with respect to scope, eligibility criteria, administration, program uptake, and outcomes. In addition, consultation with other provincial jurisdictions and industry representatives will inform recommendations for amending current or developing new financial tools for the aquaculture industry.



Aquaculture Support Capacity Issue 2

Human Resources Plan

Aquaculture operators in this province are being challenged by employment issues that are common to other natural resource sectors. The most cited issues are similar to the traditional fishery and include an aging population with few new recruits coming into the system; more lucrative employment opportunities outside the region; non-competitive wages; and the migration of young families to urban centres. DFA will engage the Department of Advanced Education and Skills, and the Department of Finance, Economic and Statistics Branch, and work with aquaculture operators to develop and implement an Aquaculture Human Resources Plan.

Objective:

To develop and implement an Aquaculture Human Resources Plan to address the challenges being experienced by the aquaculture industry in Newfoundland and Labrador.

Strategic Initiatives

- **Aquaculture Labour Market Analysis (Year 1)**
 - DFA will develop an Aquaculture Labour Market Analysis Profile which will identify labour market issues through the analysis of the current labour supply, anticipated future labour requirements, and potential new labour entrants.
- **Aquaculture Training Capacity Review (Year 2)**
 - DFA will develop an Aquaculture Training Capacity Review which will profile currently available aquaculture training and include information on program delivery locations, duration, curriculum, completion rates, costs, and post-program employment results.
- **Aquaculture Attraction and Retention Strategy (Year 3)**
 - DFA will develop an Aquaculture Attraction and Retention Strategy which will be based upon the recommendations from the Aquaculture Labour Market Analysis Profile and the Aquaculture Training Capacity Review. The input of the Department of Advanced Education and Skills will be sought on current attraction and retention initiatives applicable to the aquaculture industry.

Aquaculture Support Capacity Issue 3

Aquaculture Infrastructure and Supply Chain Logistics Action Plan

In 2009, the Department of Fisheries and Aquaculture initiated work to enhance salmonid aquaculture infrastructure. As a result, approximately \$12 million has been invested in the construction of inflow wharves in the Coast of Bays region to enhance biosecurity. A similar approach will be used to identify both finfish and shellfish infrastructure requirements to enhance the sustainability of the provincial aquaculture industry and further enhance biosecurity.

Objective:

To identify current and future aquaculture infrastructure needs for the finfish and shellfish sectors of the Newfoundland and Labrador aquaculture industry while informing an Aquaculture Infrastructure and Supply Chain Logistics Action Plan.

Strategic Initiatives

- **Federal/Provincial Engagement (Year 1)**
 - DFA will engage federal and provincial agencies with responsibilities associated with land-based infrastructure, marine infrastructure, and supply chain logistics to address planning and implementation for future growth.
- **Aquaculture Infrastructure and Supply Chain Logistics Needs Assessment (Year 2)**
 - DFA will undertake an Aquaculture Infrastructure and Supply Chain Logistics Needs Assessment that identifies salmonid and mussel priority infrastructure needs based upon projected future growth, budget, initiative planning, and supply chain logistics. Similar to the 2009 infrastructure study, the aquaculture industry and affected communities will be engaged.
- **Aquaculture Infrastructure and Supply Chain Logistics Action Plan (Year 3)**
 - The Aquaculture Infrastructure and Supply Chain Logistics Needs Assessment will inform the development of the Aquaculture Infrastructure and Supply Chain Logistics Action Plan. This action plan will outline strategic partnerships and identify key priorities, issues, and approaches for addressing salmonid and mussel aquaculture infrastructure and supply chain logistics needs as we grow the industry in Newfoundland and Labrador.

Aquaculture Support Capacity Issue 4

Aquaculture Governance Renewal

Effective governance is critical for ensuring the aquaculture industry develops in a sustainable manner that allows the province to generate the maximum benefit from our coastal resources while preserving the integrity of the environment for future generations.

The aquaculture industry in Newfoundland and Labrador has experienced significant growth, and with that comes both challenges and opportunities. The provincial aquaculture governance framework must be aligned with the current status of the aquaculture industry to allow for the sustainable management of the industry.

Objective:

To develop and implement a robust aquaculture governance structure that adheres to industry-wide standards and best practices that address all aspects of sustainable management that are within the scope of the departmental mandate and lines of business.

Strategic Initiatives

- **Regulatory Improvement Plan (Years 1-2)**

- The Department of Fisheries and Aquaculture will undertake an Aquaculture Regulatory Improvement Plan to improve client relations and streamline business processes. This initiative will amend existing regulations and introduce new regulations as necessary.

- **Aquaculture Licensing Policy and Procedures Review (Year 1)**

- The Department of Fisheries and Aquaculture will undertake a complete review and modernization of the Licensing Policy and Procedures Manual, which outlines the policies and procedures for licensing aquaculture sites in Newfoundland and Labrador. The manual outlines roles, responsibilities, and administration protocols associated with the licensing process. Included in the manual is a list of approximately 30 policies. While portions of the document have been revised as required, the department has not undertaken a full review of the manual to date. This review will provide recommendations for updating and establishing policies that streamline the licensing administration process.

- **Canadian Council of Fisheries and Aquaculture Ministers (Years 1-5)**

- The Department of Fisheries and Aquaculture will continue to be actively engaged in the Strategic Management Committee (SMC) on Aquaculture. The SMC consists of senior level representation from Fisheries and Oceans Canada and provinces with aquaculture interests. Given that both Federal and Provincial Governments have differing but sometimes overlapping mandates with respect to aquaculture governance, this forum is crucial to addressing the impact of federal legislation, regulations, and policies on aquaculture at a provincial level.

Aquaculture Support Capacity Issue 5

Aquaculture Communications Plan

Since 2012 in particular, the aquaculture industry in Newfoundland and Labrador has become the subject of considerable public debate. Other aquaculture jurisdictions in Canada and globally have also been faced with public debate about the sustainability and environmental impacts of this industry. Newfoundland and Labrador is no different, and a proactive coordinated approach with the Newfoundland Aquaculture Industry Association is required to effectively communicate the facts regarding aquaculture.

Objective

To develop and implement an aquaculture communication approach that will engage all stakeholders and utilize proactive disclosure.

Strategic Initiatives

- **Aquaculture Public Reporting (Years 1-5)**

- The Department of Fisheries and Aquaculture will ensure openness and transparency, and regularly post the aquaculture statistics and other relative data and information on the provincial aquaculture industry. Specific innovative data collection tools such as the Sea Lice Decision Support System and others will complement the ongoing Aquaculture Sustainable Reporting Initiative of Fisheries and Oceans Canada, to which the Department of Fisheries and Aquaculture is a regular contributor.

- **Ministerial Advisory Council on Aquaculture (Years 1-5)**

- DFA will establish a Ministerial Advisory Council on Aquaculture which will consist of aquaculture stakeholders and provide a forum for dialogue with respect to aquaculture in Newfoundland and Labrador. A terms of reference will identify the roles, responsibilities, and other administrative considerations for the council.

- **Aquaculture Communications Strategy (Years 1-2)**

- DFA will develop an aquaculture communications strategy which will consider best practices in other jurisdictions and outline approaches for communicating proactive and reactive messaging on a provincial, national, and international level. To address the content of the strategy, the Newfoundland Aquaculture Industry Association will be engaged to determine business objectives for the aquaculture industry and respective roles for aquaculture communications.





Aquaculture Research and Development

DESCRIPTION

Research and development is a key ingredient to sustainability by encouraging evidence-based management decisions and enhanced industry competitiveness. Aquaculture research and development in support of industry development and management includes investment, human resources, innovation, fish health strategies, marketing assistance, and governance structures. Each of these research and development priorities has become a fundamental component to the sustainability of the aquaculture industry and impacts the development and management of the industry.

VISION

Aquaculture industry sustainability will be enhanced through research and development.

GOAL

The Newfoundland and Labrador Department of Fisheries and Aquaculture will provide research and development support to facilitate the sustainable management of the Newfoundland and Labrador aquaculture industry.

Aquaculture Research and Development Issue 1

Aquatic Animal Health

The past two years have seen significant fish health challenges and highlighted the need for aquatic animal health research and development. These research and development needs include, but are not limited to, alternative sea lice mitigation strategies; options for mortality disposal; diagnostic/laboratory evaluations; epidemiological and risk factor studies; oceanography; vaccine development; and biosecurity.

Objective

Provide aquaculture operators with professional, logistical, and financial support to address the current and future aquatic animal health needs for the Newfoundland and Labrador aquaculture industry.

Strategic Initiatives

- **Stakeholder Engagement (Years 1-5)**
 - DFA will support an aquatic animal health research forum with industry, academics, epidemiologists, oceanographic specialists, and veterinarians to obtain scientific data to further delineate BMAs and identify innovative technology and commercialization opportunities.
- **Program Support (Years 1-5)**
 - DFA will expand the eligibility criteria for the Fisheries Technology and New Opportunities Program to enable support for industry-led commercial demonstration and capital investments that will move innovative technology towards commercialization in the area of aquatic animal health.
- **Bay Management Areas (Years 1-5)**
 - DFA will continue BMA identification by conducting oceanographic and epidemiological data collection and analysis prior to new site development.
- **Fish Health Maintenance Strategies (Years 1-5)**
 - DFA will support research/trials into innovative equipment and strategies in support of fish health, such as sea lice mitigation.
- **Epidemiological Studies (Years 1-5)**
 - DFA will support epidemiological studies in the area of fish health, such as risk factor studies, clinical field trials, and network and spatial epidemiology.

Aquaculture Research and Development Issue 2

Aquaculture Research and Development Advisory Committee

The Department of Fisheries and Aquaculture will lead the establishment of an Aquaculture Research and Development Advisory Committee composed of representatives of all stakeholders in the aquaculture research and development community. This committee will evaluate the current research and development environment for aquaculture in Newfoundland and Labrador, as well as provide recommendations for future collaboration. The advisory committee structure will provide a regular venue for collaboration on interdisciplinary aquaculture research and development. To address specific industry research and development needs, for example, aquatic animal health, ad hoc working groups may be formed with timelines and deliverables.

Objective

The Aquaculture Research and Development Advisory Committee will provide a forum for open discussion and collaboration on aquaculture research and development opportunities.

Strategic Initiatives

- **Aquaculture Research and Development Advisory Committee (Year 1)**
 - DFA will establish and draft terms of reference for the advisory committee, including organizations and research interests to be represented.
- **Status of Aquaculture Research and Development in Newfoundland and Labrador (Year 2)**
 - DFA will conduct regular assessment of current and future aquaculture research and development needs for the Newfoundland and Labrador aquaculture industry.

Aquaculture Research and Development Issue 3

Finfish Sector - Exploration of New Potential Development Areas

Salmonid aquaculture growth is currently focused in the Coast of Bays region. In order for the industry to sustain growth and abide by BMA strategies, new growing areas will need to be developed. Placentia Bay and bays west of the Coast of Bays region have been identified as having the most potential for future development.

Objective

The Newfoundland and Labrador Department of Fisheries and Aquaculture continues to investigate new regions for growth and expansion of the salmonid aquaculture industry.

Strategic Initiatives

- **Biophysical Assessment (Years 1-5)**
 - DFA will support biophysical data collection in Placentia Bay and bays west of the Coast of Bays region that appear to be suitable for salmonid culture.
- **Infrastructure and Logistical Assessment (Years 1-5)**
 - DFA will identify and assess logistical and infrastructure needs in these new areas.
- **Oceanographic Studies (Years 1-5)**
 - DFA will develop plans and strategic partnerships for initiating oceanographic work and development of BMAs in these new regions prior to industry development.



- **Enhance Containment Technology (Years 1-5)**
 - DFA will support and encourage research and/or trials into more robust, innovative equipment capable of handling more exposed locations.
- **Closed Containment (Years 1-5)**
 - DFA will continue to monitor developments in the area of marine and land-based closed containment.

Aquaculture Research and Development Issue 4

Mussel Sector – Enhance Economic and Environmental Sustainability

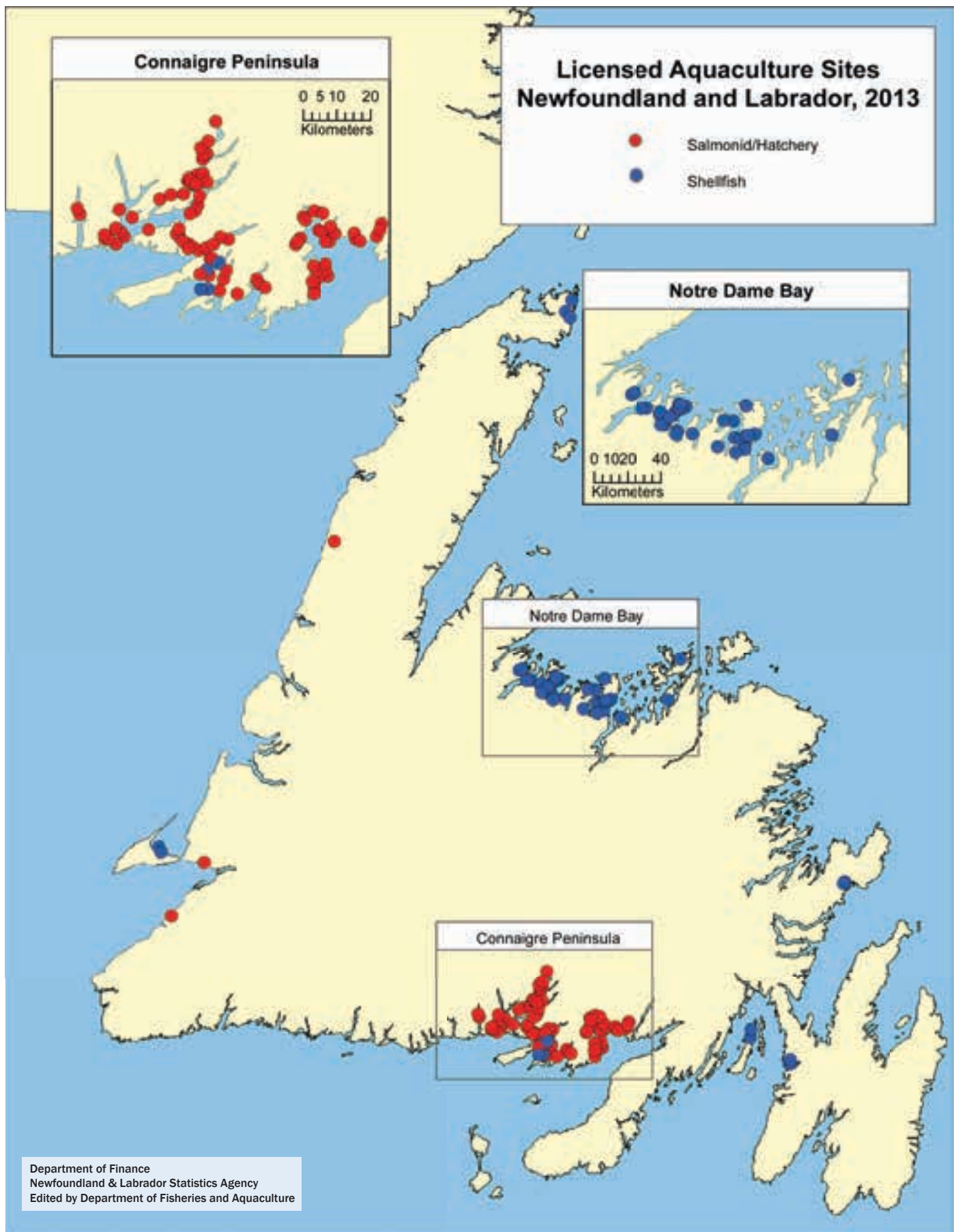
The mussel sector in Newfoundland and Labrador is currently limited by seed production and the ability to expand into new growing areas to satisfy the increasing demand for certified organic mussels. It is also challenged by the potential for aquatic invasive species to disrupt growth cycles and increase production costs due to mitigation measures. To build on the recent successes of the mussel sector, more research and development is required to ensure continued growth.

Objective

The Newfoundland and Labrador Department of Fisheries and Aquaculture will support the development of the mussel sector through research and development initiatives directed towards increasing current seed supply capacity and promoting sustainable growth in the sector.

Strategic Initiatives

- **Alternative Seed Supply (Years 1-2)**
 - DFA will facilitate research and development into increasing current seed supply by identifying new seed supply areas and investigating the potential for the hatchery production of seed.
 - DFA will enable expansion into new areas for both seed collection and mussel on-growing.
- **Aquatic Invasive Species Mitigation Measures (Years 1-5)**
 - DFA will support research and development into the early identification, mitigation, and treatment against aquatic invasive species at the farm and processing level as well as the broader provincial level.
- **Maximize Growing Areas (Years 1-5)**
 - DFA will support full utilization of existing prime mussel growing locations and enable access to new sites in collaboration with industry.
- **Live Holding Options (Years 1-4)**
 - DFA will enable the development of strategically placed live holding infrastructure which can improve market penetration by ensuring regular and sustained product availability.
- **Species Diversification (Years 1-5)**
 - DFA will work with the aquaculture industry to prioritize diversification and identify public and private sector investment opportunities for new commercial shellfish species. Over the past five years, mussel growers have been investigating alternative species such as the American oyster to diversify risk and expand markets.





Fisheries and Aquaculture

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