DEVELOPING AN AQUACULTURE REGULATORY FRAMEWORK FOR NOVA SCOTIA

BY: Atlantic Canada Fish Farmers Association

A Submission to the Doelle-Lahey Panel: The Independent Aquaculture Regulatory Review for Nova Scotia

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INTRODUCTION

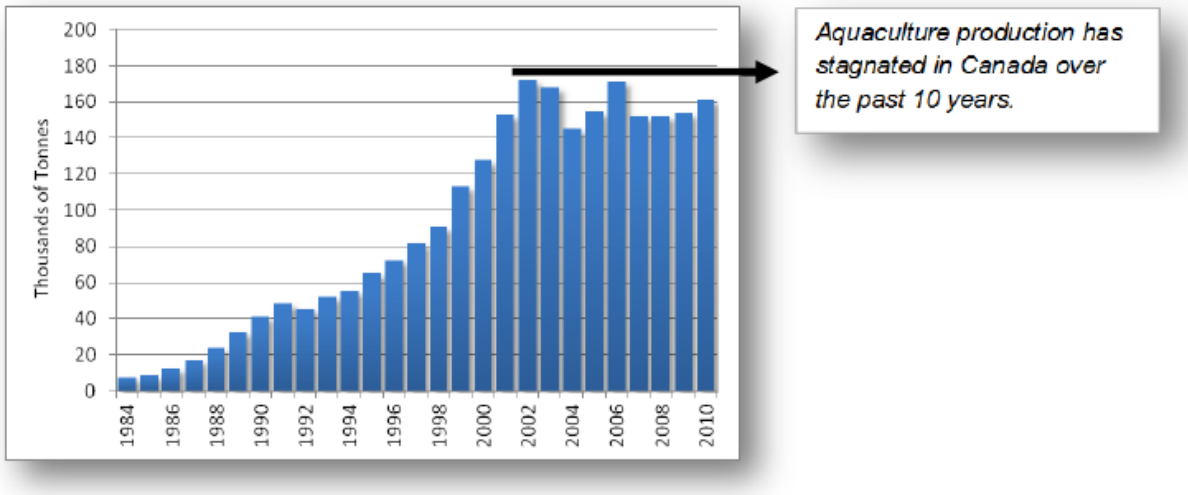
Global production of seafood is rising rapidly at a pace of seven to nine per cent each year. One in five persons worldwide relies on fish for their primary source of protein and each year there are 75 million more people to feed around the world. These projections are almost certain to remain steady or rise as the health benefits of seafood continue to be realized throughout the developed and developing world.

No country in the world is better poised than Canada to reap these benefits, provided we make careful, responsible decisions to foster competitiveness, certainty and growth. Nova Scotia can be a key player in Canada's aquaculture sector and has the opportunity to build:

- Jobs and growth
- Responsible science-based management policies and procedures
- Healthy food supply

Unfortunately Canada isn't doing enough to take advantage of this enormous opportunity. Although Canada's aquaculture production grew rapidly from 1984 to 2000 but since that time, production has stagnated.

Aquaculture Production in Canada (1984 to 2010)



Source: FAO Statistics

Production in Canada has effectively flat-lined; strangling what ought to have been significant economic growth, investment, job creation and ever-increasing exports to meet rising global

demand for farmed seafood. We've seen this trend replicated in Nova Scotia. When measured against the performance of other jurisdictions, we see Nova Scotians missing the socio economic advantages enjoyed by other small rural, coastal communities in Scotland, Norway, Chile and closer to home – Newfoundland and New Brunswick.

We know that aquaculture development provides viable and sustainable economic opportunity to rural coastal economies and that farmed seafood markets will continue to grow to meet rising global demand but statistics and studies (including Mozaffarian and Rim 2006) are telling us that increasing intake of Omega-3 rich seafood will result in saving about 7,000 lives per year and further savings in health care costs. The potential benefit to Canadian society is calculated at between $42 and $50 billion per year, and a long term benefit of $490 to $580 billion.

Nova Scotia has an opportunity to seize the potential aquaculture development can bring, but to do so, requires leadership by industry, government, the science community and funding agencies. Effective and enabling policies need to be supported by a well-funded research community.

Other provinces in Atlantic Canada have realized the potential of working with the aquaculture industry. Aquaculture is now a key component of a diversified economic base in New Brunswick, Prince Edward Island and Newfoundland & Labrador. Between 2009 and 2010, Newfoundland & Labrador's aquaculture production value rose from $60 million to $90 million - demonstrating significant return on investment from private and public sector support for the industry from 2006 onward; employment has almost doubled.

ELEMENTS OF A MODERN REGULATORY FRAMEWORK

An efficient, predictable and accountable regulatory process is necessary to operate successfully and to provide the investor confidence necessary to grow a sustainable aquaculture sector in Nova Scotia. It is also the basis for public confidence that the aquaculture industry in Nova Scotia is responsible and accountable.

Regulation must be evidence-based. Creating an environment of 'regulation by referendum' would do a disservice to an industry that has operated responsibly for over three decades, to the regulators and policy makers and also to the health and safety of the Nova Scotians and the consumers who rely on our fresh, healthy and nutritious quality seafood.

Regulations should:

- Be clearly defined and evidence-based
- Be comprised of internationally competitive performance standards for government for all aspects of regulation and policy processes for license applications, amendments, etc.
- Rely on transparent and science based decision making throughout the regulatory process - with equal consideration given to the social and economic dimensions of all issues

- Be harmonized and accepted by all federal and provincial regulators, and include clear and consistent reporting requirements
- Be consistent and stable; conditions of license should not be changed without a foundation in science and following consultation with industry
- Be based on science when establishing thresholds for environmental impact and technical monitoring and not be arbitrarily adjusted
- Ensure that the benefits of each regulation justify their cost and that the net benefits of regulation are maximized
- Should reduce red tape and remove bureaucratic obstacles for businesses to be innovative, create jobs and achieve growth

In 2009 and 2010, the Atlantic Provinces with input from federal regulators and the aquaculture industry undertook a review of the regulatory processes within the region. Although a final report was not released publicly, this process resulted in the general agreement that, wherever possible, there should be coordination and consistency within the various jurisdictions.

Because most companies in the salmon farming sector operate in more than one Atlantic Province, the industry recognizes and supports the adoption of a harmonized regulatory process. In July 2013, representatives from DFO (Maritimes and NL), the provinces of New Brunswick, Newfoundland and Labrador, Nova Scotia and the salmon farming industry reached consensus that revisions to the Codes of Containment, supporting governance documents and subsequent provincial regulations should be harmonized throughout Atlantic Canada.

We recommend:

1. ***Nova Scotia ensures that aquaculture regulation is evidence-based, efficient, predictable and accountable to provide the investor confidence necessary to support the growth of a sustainable aquaculture sector. The policies should provide the basis for increased public confidence that the aquaculture industry in Nova Scotia is, in fact, well regulated and is responsible and accountable.***

REGULATORY COSTS

All regulations impose costs on the operator, and these costs need to be considered when developing a regulatory framework. A high regulatory cost burden can make it difficult for local or small operators to enter and/or remain in business.

The overall goal is to ensure that regulations justify their cost – meaning that the 'net benefits' of regulation are maximized. Efforts to reduce unnecessary costs (burdens) without sacrificing benefits result in greater net benefits to society, which is ultimately in the public interest.

Currently Canada's aquaculture industry operates within a web of complicated rules and regulations that restrict growth, frustrate the integration of new sustainable practices and innovations and limit investment. Overlap and duplication combined with complex and often changing interdepartmental responsibilities has limited the Canadian industry's ability to forge a forward-looking proactive approach that meets the market's demands in a competitive global industry.

> *Example: Delays in license amendments and application decisions can cause a loss of at least one cycle of production (three years), which can easily exceed millions of dollars in lost revenue. Delays can halt the farmer's ability to expand production, improve environmental performance and/or impact fish health management. Employee layoffs, loss in tax revenues are also results of these delays.*

Costs can be captured in a number of different ways:

Direct compliance costs: Direct compliance costs explicitly result from regulation and includes operating and maintenance costs (capital and labour), and administrative costs (labour). Included in such costs are: filling out and filing paperwork mandated for licenses, reporting, regulated inspections, equipment requirements, etc.

Indirect compliance costs: These costs can occur from excessive rule making, unnecessary procedural complexity, inflexible behaviour and slow decision making by regulators. These costs include lost or delayed investment and result in production and revenue losses. Indirect compliance costs are normally measured as the lost net income or profit that results from regulation not directly related to compliance activities.

Economic impacts: These broader costs are the most subjective and difficult to measure. They normally require complex economic models to assess impacts at the industry sector and can include output, employment, labour income, and taxes paid. The economic impacts may be divided into three subcategories:

- Direct economic impacts - the changes to the economic indicators within the aquaculture industry as a direct result of higher output.
- Indirect economic impacts – the changes to the economic indicators as a result of changes to first, second, third and fourth generation suppliers in order to meet the new demand in the aquaculture industry.
- Induced economic impacts – the economic impacts that result from higher household spending as a result of higher wages and employment.

Market-driven impacts: A market impact model measures the changes in consumer and producer surpluses associated with the impacts that regulations have on the overall market – which can be demonstrated as changes in the position, shape and slope of demand and supply curves. Unlike the above approaches, market impacts can capture the costs to industry as well as the costs to consumer welfare.

Social Welfare impacts: Overall social welfare impacts can be examined in a variety of ways including the potential social welfare gains to local communities from a diversified

economy that includes aquaculture and by health gains to Canadians of meeting the dietary needs for seafood consumption in accordance with the minimum intakes recommended by Canada's Food Guide. Data on both these areas is widely available.

A survey of finfish operators in Canada conducted by RIAS Inc. for the Canadian Aquaculture Industry Alliance in 2012 showed over $300 million in lost revenue and over $80 million in lost net income to the industry every year as a result of regulatory compliance.

We recommend:

2. ***Nova Scotia analyze impacts of all regulation to ensure that it provides the greatest level of well-being at the lowest cost to businesses and consumers.***
3. ***Nova Scotia play a key role in supporting regulatory harmonization within the aquaculture sector across the Atlantic region to support red-tape reduction, reduce regulatory costs and provide increased public confidence.***

KEY FOCUS AREAS FOR FINFISH REGULATION AND POLICY

1. LEASING AND LICENSING

Access to farm leases has the largest impact on finfish aquaculture producers' ability to increase production. The purpose of leasing and licensing regulation and policy commonly touches on three elements: economic, environmental, and social objectives aimed to ensure wise and orderly aquaculture development.

The following priorities for leasing and licensing have been identified:

- Introduction of a timely and competitive regulatory process must start with processing lease and license applications; all government departments should have service standards with maximum time for lease and license reviews
- Insuring the initial periods of at least ten (10) years, and renewal periods of at least five (5) for leases, licenses, and permits will provide stability for investment
- The ability to culture finfish and non-finfish species on a marine finfish site should be accommodated to enable Integrated multi-trophic aquaculture (IMTA)
- Any industry requirement for baseline site assessments should be science-based and should not be imposed when similar data is available from previous assessments conducted within other Atlantic jurisdictions
- The format and content of business plans and production / management plans should be consistent with other Atlantic jurisdictions
- License amendments must have flexibility and service standards should be in place to remove operational uncertainty and prevent increased operational costs due to lost production, etc.

- Online electronic data collection and billing should be put in place so companies may update their profiles and operational information from year to year versus full resubmissions of data
- Site markings represent a significant cost and are regulated federally. Regulation should not be duplicated by the province; although it should be consistent across all provinces.

We recommend:

4. ***License and lease applications are weighed equally against the three elements of sustainability: economic, environmental and social.***
5. ***Service standards and performance measures are established for processing of all lease, licence and licence amendments to encourage investor confidence.***

2. SITING

The selection of an appropriate farm site is a key factor in developing a successful, environmentally responsible salmon farm. Not every area along a coast line is suitable for a salmon farm. Farms need to be sited in areas where water currents and movement naturally provide conditions optimal for fish well-being and environmental sustainability.

Before receiving a permit to establish a salmon farm, the farm site undergoes a detailed environmental and biological review and assessment to ensure that a selected site can support sustainable farming operations.

In addition, all applications must meet criteria under federal the Navigable Waters Protection Act, and Fisheries Act, in addition to the provincial Aquaculture Act and the Clean Environment Act. This is often a lengthy and (for the salmon farmer) costly process.

> *In the past all salmon farm applications were also subject to review under the federal Canadian Environmental Assessment Act (CEAA). However, with the passing of federal Bill C-38 in 2012, CEAA's are no longer required. Salmon farms are not considered a 'major work' and do not cause serious harm defined as the death of fish or any permanent alteration or destruction of fish habitat. However, salmon farming companies will continue to conduct thorough reviews to ensure that a site selected has the environmental characteristics that will sustain farm operations – a properly sited farm is critical to supporting a healthy environment for growing healthy fish.*

An extensive range of information is collected and provided by farm operators as part of all site applications. In addition to data on the exact site location, legal and navigational identification, the following information is collected:

- Physical environment including: wind, waves, temperature, salinity, oxygen; tides and currents
- Biological environment including: critical habitat; species at risk recovery initiatives; marine species (seals, whales, etc.); commercial, recreational and Aboriginal fisheries; critical habitat features; migratory waterfowl and potential effects of the project on bird populations. In addition potential effects of the environment on the salmon farm project are also collected such as harmful algal blooms, extreme weather impacts to cages, superchill, etc.
- Description of the benthos including a pre-site assessment and baseline assessment
- Detailed infrastructure specifications for all equipment to be located on the farm
- Fish health plan including: codes of practice; veterinary practices; hatchery health monitoring programs; use of vaccinated stock; use of therapeutants; and management of mortalities
- Production description including: feeding regime; introduction of fish; movement of fish including harvesting; wharf usage; waste management including operational debris, human waste, mortalities, fish feed and feces, harvest waste and chemical and hazardous materials
- Public consultation plan
- Ancillary information including details for: predator control; on-site maintenance of farm infrastructure and feeding systems; employee training; anti-fouling practices; site decommissioning and contingency plans for accidents and malfunctions and containment and recapture of fish
- Socio-economic environment including: significance the proposed site will have on other ocean users including fisheries, recreation and tourism; historical significance such as geology, archaeology and shipwrecks; or other potential conflicts such as safe anchorages, submarine cables or visual and sound pollution

The above is merely a summary of the data required for a site application. Detailed and specific information is required for each of these items. Salmon farmers usually hire independent biologists and environmental consultants to provide the data required. The development of this information can cost in excess of $100,000 and there is no guarantee the site application will be approved.

In Nova Scotia, farm siting is generally along the shoreline rather than in distinct areas. To support optimal environmental and fish health management principles – fallowing, single year class separation and biosecurity protocols – and predictable production, farm companies should have access to a minimum of three sites. Predictable production is necessary to maintain markets, which is critical to the financial success of the farming operation.

We recommend:

6. ***All site applications are weighed equally against the three elements of sustainability: economic, environmental and social.***

7. ***That salmon farms are accepted as a legitimate user of the marine resource and priority is placed on ensuring areas of the Nova Scotia coast with the appropriate environmental and biological requirements are protected for farm use.***

3. ENVIRONMENTAL MANAGEMENT

Pristine seawater is essential for the production of healthy, high quality seafood, so farmers are committed to protecting the environment. A secondary driver for achieving ongoing improvements in environmental performance now stems from requirements within third-party certification programs. The rising importance of eco-labeling provides additional rationale for a more consistent regulatory and policy framework across the region since this is likely to help third-party certifiers make clear determinations. This provides a benefit to industry and consumers. Certification programs by third party organizations support industry growth, public confidence and develop and maintain markets. Certifications help consumers make informed decisions.

The general purpose and substance of environmental management (decisions to place constraints on operations) and environmental monitoring (information collected to inform management) should be consistent across the Atlantic region.

Environmental management regulations should be science and performance-based, use resources wisely and fit within a global context. Environmental monitoring is meant to provide indications of site changes and provide environmental site classifications that inform management decisions regarding environmental performance ensuring long term sustainability.

The following priority recommendations for environmental management and environmental monitoring are identified:

- An ecosystem approach to environmental management and monitoring adopted across the region with consideration for the various water depths, nature of the benthos and tidal currents
- The specific methodologies for marine finfish environmental monitoring should be consistent across the region to the extent possible considering water depth, nature of benthos, diver safety, etc.
- Support consistency in environmental monitoring with a clear focus on distinguishing impacts to ecosystems

Provincial comparison of key finfish and shellfish environmental management and monitoring program elements*

	NB	NS	PEI	NL
Oxic A,B**	<750, <1500	<1500	N/A	N/A
Hypoxic A, B, C**	<3000, <4500, <6000	<3000, <6000	N/A	N/A
Anoxic**	>6000	>6000	N/A	N/A
Sample time	Aug 1-Oct 31	Prescribed by province	Aug 1-Nov 15	Any time of year
Production cycle	Peak/max impact	Repetitive sampling	N/A	Post harvest/pre stocking
Sampling by	3rd party / prov audit	3rd party /prov audit	Industry/ 3rd party/ prov	3rd party
Audit site %	20%	20%	N/A	0%
Sampling effort	Varies by #fish	Varies by #fish l	5 stations	By size of array
Sample locations	Cage edges	Array corners and cage edges	Within lease	Baseline only
Reference sample	No	Yes	Yes	No
Video	Yes	Yes	Yes (not all)	Yes depths <100m
Dive samples	Yes (optional)	Optional	No	No
Grab samples	Yes (optional)	Yes	Yes	No
Redox	Yes, not regulated	Yes, not regulated	Pending	No
Sulfide	Yes, regulated	Yes, regulated	Yes	No
Sediment core	No	Yes	No	No
% Org matter	No	Yes	No	No
Class determined by readings	Average of all site sulfide readings	Hy: 50%, An: 70% of highest sulfides	N/A	N/A

*NB information pertains to finfish only, NS information pertains to finfish and shellfish as applicable, PEI information is for shellfish only, NL information is for finfish only.

**Levels A, B, C correspond to progressively higher sulfide readings, and thresholds in μm across the table by province are for A, B, and C as applicable in each province. The thresholds are intended to have lower bounds that correspond to the value for the next classification below in each case.

We recommend:

8. ***Environmental management regulations should be performance-based, grounded on science, use resources wisely and fit within a global context.***
9. ***Environmental monitoring should provide indications of site changes and provide environmental site classifications that inform management decisions that ensure long term environmental sustainability.***

4. INTRODUCTIONS AND TRANSFERS

Any importation or transfer of eggs or fish is federally regulated – and should remain the domain of the federal government with provincial and industry consultation.

Introductions and transfers (I & T) regulations and policy include moving fish from their hatchery to their marine net cages. These protocols ensure that risks of disease transmission and environmental effects pose little risk to wild species or to the environment. The protocols also require that movement of fish is documented and, together with on-farm record keeping, provide a comprehensive system of traceability.

The National I&T Code is developed through a federal / provincial / industry consultation; I&T committees are located in each province to implement the code. This Code is currently under revision and is being reviewed by industry and other stakeholders.

There is a shared purpose across the region to maximize the benefits of introductions and transfers, while:

- Avoiding risks to aquatic ecosystems,
- Avoiding risks of adverse genetic effects on wild populations of fish, and
- Avoiding risks to aquatic animal health from the potential introduction and spread of pathogens.

To the extent that each province is involved in I&T, there may be opportunities to improve the process, recognizing that decisions for issuing licenses and permits is still a federal responsibility, by:

- Implementing service standards for the time required for I&T decisions by each federal and/or provincial department involved
- Ensuring that the interpretation of the codes is consistent and cannot be used as a barrier to industry growth or diversification
- Ensuring that provincial policies, protocols and best management practices for I&T to address biosecurity, quarantine measures, disinfection, treatment, testing, disease prevention and record-keeping designed to manage and/or mitigate risks are evidence-based and not used as a barrier to industry growth and diversification
- Ensuring that I&T licenses and permits allow for non-finfish species movement to finfish sites for the purposes of IMTA
- Ensuring that a hatchery that is certified and monitored with routine testing by veterinarians retains its I&T authorization

We recommend:

10. Nova Scotia maintain active participation in the I&T process and support service standards in decision-making so that the I&T process does not become a barrier to industry growth.

4. AQUATIC ANIMAL HEALTH

From hatchery to harvest, the health of farm stock is a top priority. With the active support of aquatic veterinarians and scientists, fish farmers have developed a variety of strategies to protect the health of their fish. This begins by assessing the health of all breeding stock and ensuring that only healthy stock is used as a source of eggs.

Once the smolts begin their life in the ocean, they may encounter naturally occurring pathogenic organisms or parasites. As a preventative measure, smolts are often vaccinated to protect them against known pathogens before they are transported to ocean net pens. These vaccinations greatly reduce the incidence of disease on the farm, and as a result, have significantly reduced the use of antibiotics and other therapeutants.

Farmed salmon commonly grow to maturity without any use of antibiotics during their lives. Antibiotic use on salmon farms is now far lower than that of any other agricultural industry in the world. Less than three per cent of all feed is now medicated.

Despite all of the preventative measures farmers take, some salmon will occasionally require veterinary care. Veterinarians are responsible for all health management decisions. Treatments prescribed are regulated through Health Canada's Veterinary Drug Directorate or Pest Management Regulatory Agency. Strictly regulated withdrawal periods are required before fish are harvested. Salmon farms have the longest regulated antibiotic withdrawal period of any agricultural sector in the world.

Market ready farmed salmon is also routinely inspected by the Canadian Food Inspection Agency (and, for US export, the Food and Drug Administration) to ensure that it meets government standards for the absence of antibiotic residue.

While there is significant consistency across the Atlantic region due to the National Aquatic Animal Health Program (NAAHP), fish health management depends on the engagement, cooperation and coordination between federal and provincial departments and agencies and the farming industry.

The purposes of fish health regulation are to:

- Prevent the introduction or spread of disease to cultured or wild aquatic animals
- Protect consumer health and maintain open markets for fish and seafood products
- Maintain aquaculture production and value through control of diseases

Industry should be recognized for the development of guidelines and codes of practice to address a range of fish health issues, including sea lice management, standard operating procedures for ISA management, biosecurity protocols, parameters for bay management areas, etc. where regulation and policy may not be clearly established.

Timely and predictable access to feed, feed ingredients and fish health products is critical to the

aquaculture industry in Canada; availability of safe and effective fish health products is critical to the improvement of health and welfare of farmed fish.

The current process for approval of aqua feeds, feed additives and fish health products is outdated, complex, cumbersome and expensive for both the developers of these products and the agencies that must review applications. Additionally, there is no certainty that the review process will result in timely decisions. Often, on-going requests for additional information can drag the process on for years. It should be noted that all of these products have previously been approved in Norway and Scotland before application processes began in Canada.

> *Example: The UK and Norway have been able to use natural components in fish feeds that provide proven resistance to sea lice and improved fish health for several years. Canada's Feed Regulations, which stipulate feed ingredients and nutrient content versus focusing on safety, are slow to change. Regulatory review has now been underway for three years. Meanwhile; fish from these countries can be imported for sale and consumption in Canada.*

The following should be considered in the development and/or revision of fish health regulations and policies:

- The Nova Scotia fish health regulations and policies should complement; not duplicate, national regulations, policies and programs and assist growers with preventing and managing endemic diseases of commercial significance.
- Nova Scotia should adopt the New Brunswick Framework for Integrated Pest Management Plan for Sea Lice and sea lice monitoring protocols developed through an inter-jurisdictional consultation process.
- Nova Scotia should work with industry on the development of a bay management areas framework or zones for marine aquaculture that includes single year class stocking and appropriate mandatory fallow periods to protect fish and ecosystem health.
- Existing industry codes of practice should serve as the basis for the development of all fish health regulation and policy; industry must be engaged in the development of all fish health regulations.
- Confidential and proprietary fish health data must be protected.
- Requirements for Nova Scotia veterinarians should be consistent across the Atlantic region including: on-site monitoring, sampling protocols, testing methodology, and record-keeping.

A comparative review of the regulatory and policy environment for aquaculture in Atlantic Canada conducted in 2010 showed that New Brunswick has the most comprehensive provincial health policy that supports national programs and also addresses endemic diseases of commercial significance. This review recommended Nova Scotia and Newfoundland review the NB Marine Aquaculture Finfish Health Policy and consider its adoption. Other policies also noted were the New Brunswick:

- Cleaning and Disinfection Guidelines for the Control of Infectious Salmon Anemia (ISA)
- Sea Lice Monitoring
- Processing Plant Biosecurity Audit

- ISA Management and Control Program*
  * *the salmon farming industry in Atlantic Canada is currently working with CFIA National Aquatic Animal Health Program officials, provincial government representatives and provincial veterinarians, industry representatives and their veterinarians and industry associations to develop revised ISA management protocols and standard operating procedures based on new federal animal health regulations for reportable diseases. This Code for Viral Management will be completed in 2014.*

We Recommend:

11. Nova Scotia fully engages veterinarians and industry in the development of fish health regulations and policies to ensure they do not duplicate existing federal regulations and respect the confidential nature of fish health management.

4. CODES OF CONTAINMENT

Proper containment of valuable crops of fish makes good business sense and is an underlying tenet of good fish farm husbandry and management. Atlantic salmon farmers regard the prevention of the escape of their fish as the top priority of their containment systems.

Escapes have been dramatically reduced since the early 1990s and have been estimated at well below one per cent in every year since 1995. A domestic farmed salmon that escapes into the wild is poorly adapted for survival, and evidence shows that only a small proportion of escaped salmon survive. A small number of farmed salmon that might interbreed with a wild population would have little impact because only small amounts of new genetic material would be added and natural selection continues to play a role.

Atlantic fish farmers developed a Code of Containment that follows International Guidelines for Containment set by the International Salmon Farmers Association and the North Atlantic Salmon Conservation Organization (NASCO). This Code details rigorous guidelines aimed at ensuring farmed salmon remain on site. The guidelines specify all aspects of containment - from the design plans of the facility, appropriate mooring systems, structural components and netting - and they reflect the environmental conditions of the farm location.

In 2010, this Code was used as a basis for a regulation for containment in New Brunswick and it is the current basis for operation in Nova Scotia.

In 2012, the marine finfish farming sector began a collaborative industry / government process to review and update all Codes of Containment and supporting governance policy. The intent is to have this federal / provincial industry process completed in 2013.

The elements of the Code of Containment will include:

- Net pen site location and infrastructure
- Inspection, maintenance and auditing and reporting
- Stock loss and recovery contingency planning

We recommend:

12. Nova Scotia adopts the Codes of Containment developed through the collaborative federal, provincial and industry process that is currently underway.

5. STATISTICS AND REPORTING

The purpose and approach for collecting information from aquaculture operators is generally similar across the region; however, the specific statistics and methodology of collection and reporting varies. Reporting is required to:

- support industry development
- assess the status of the industry
- support the acquisition of private and public financial assistance for the industry
- make informed decisions to assist industry development, and
- verify that operators are meeting the terms of their leases, licenses, and permits

Aquaculture operators respect that regulatory obligations require detailed reporting. However they caution regulators to clarify reporting responsibilities between departments and agencies at both the federal and provincial levels to eliminate duplication and to ensure that all data collection has a necessary audit value. The industry also recognizes that public demands for information is increasing; however, there is general consensus that aquaculture is held to a higher standard than other food producers.

Before public reporting is considered, regulators should consider the following:

- Does the information contain financial, commercial, scientific or technical information that could jeopardize the competitiveness of the aquaculture operator/business?
- If it is not a reportable disease, should the information be considered confidential between doctor / client?
- Will the release of information result in personal financial information being divulged? This is especially critical because the majority of aquaculture operators in Nova Scotia are privately held companies.
- If only limited data is provided on a specific issue would it allow for intentional misrepresentation of the information if released publicly?
- Is the information supplied to government by a third party?
- Is the information treated consistently in a confidential manner by the third party?
- Is the kind of information being released consistent with other food producing sectors?

The following is an assessment of the current approach with respect to each Atlantic province and provides recommendations that could lead to a consistent and comprehensive statistical collection and reporting system. These priority recommendations for statistics and reporting were identified as a result of the consultations and review in 2010:

- A consistent set of detailed statistics should be collected from operators across the region then aggregated by type of aquaculture for each province in order to protect confidentiality when reporting annual results.
- Production: collect consistent stocking, mortality, and production statistics including volume and value
- Economics: collect consistent hours of part and full-time employment, and total wages and salaries
- Fish health: collect consistent data from fish health programs, but report publicly on a basic subset of statistics only
- Environmental management: collect consistent environmental management data as discussed in the environmental management section of this report, but report publicly only basic results such as site classifications (e.g. oxic, hypoxic, anoxic)
- Data and information arising from provincial regulatory activities could be reported as long as it is accompanied by clear explanations of why and how related regulatory activities are conducted
- Site-specific real-time data should not be released to the public; there should be greater emphasis on site ratings rather than actual data.
- Where possible, all data collection and submission should be conducted by electronic means online.

We recommend:

13. Nova Scotia clarify aquaculture reporting responsibilities to ensure that they are streamlined, avoid duplication between federal and provincial departments and ensure that all data collection has a necessary audit value.

6. OTHER AREAS OF REGULATION & POLICY

In closing, it is critical to remember that the Canadian aquaculture industry is governed by a framework of approximately 73 pieces of federal and provincial legislation through a variety of departments and agencies.

Primary federal regulators include:

- Fisheries and Oceans Canada
- Environment Canada
- Canadian Food Inspection Agency
- Canadian Environmental Assessment Agency
- Transport Canada

- Health Canada (Veterinary Drug Directorate and Pest Management Regulatory Agency)

The majority of regulations are administered through aquaculture and fisheries departments and departments of environment within each Atlantic province. All farms are inspected on a regular basis and various farm records are audited annually.

Other areas of regulation includes: vessels, employee health and safety, processing, waste management, marine mammals, water quality and biosecurity to name just some.

In addition, all Atlantic salmon farmers adhere to strict industry codes of practice and environmental policies developed in collaboration with government agencies, academia and the community.

Finally, the majority of salmon producers also participate in third party certification programs with increased standard operating practices that should be considered when developing regulatory and policy frameworks.

Nova Scotia has the opportunity to adopt regulations and policies based on best available science and best practices in the industry. A rigorous science-based and smart regulatory regime that promotes a sustainable sector should be the goal, not the addition of new regulations.

Nova Scotia also has the opportunity to work with other Atlantic provinces and the aquaculture industry in the development of a national strategy to support aquaculture development, including a federal Aquaculture Act.

Canada is the only major farmed seafood producing jurisdiction without modern national legislation designed to govern and enable its aquaculture industry. Decades of observations and advice from both external experts and internal advisors to government have recommended a federal Aquaculture Act. A new Act has many benefits – increase legislative and regulatory coherence, create more effective framework for managing risks, lead to more efficient and effective regulations, reduce undue compliance costs, stimulate economic growth, investment and jobs.

In Nova Scotia we continue to see close to 80 percent of Nova Scotians support salmon farm development. National public opinion research is similar. In addition polls shows that 80 percent of Canadians support a new Aquaculture Act, only four per cent oppose.

We recommend:

14. Nova Scotia urge the federal government to enact a new Canadian Aquaculture Act that defines aquaculture and provides the framework for a modern legal and policy framework for aquaculture in Canada.

CONCLUSION

Nova Scotia, like Canada, stands on the brink of unleashing great promise in seafood production. Nova Scotia should take the advantage of this unprecedented opportunity. Through smart regulation, Nova Scotia can foster a stronger, sustainable farmed seafood sector and thereby assume a position of leadership in delivering jobs, economic growth and social benefits to its coastal and rural communities.

Nova Scotia's aquaculture strategy intends to capitalize on its competitive advantage in high-quality fresh and saltwater resources, its aptitude and skill in the fishery, a well-developed seafood presence in world markets, and its world-class institutions.

The industry and governments have spent several years engaging communities and the general public about the facts surrounding aquaculture development. Public opinion polling continues to show very high support for the expansion of the industry. Ideally 100 per cent of the population would support a common vision; however, this is not a realistic expectation. What is important is that companies will continue to engage in public outreach activities, in respectful dialogue and will maintain close relationships within the communities where they operate.

Thirty years of independent studies by commissions, parliamentary committees, and experts show that the Canadian aquaculture industry operates under a "vast and complicated and fragmented structure of rules" that:

- Impose unnecessary costs and uncertainty that has killed growth, jobs and investment in the industry
- Is driven by outdated, false and/or sensationalized claims regarding perceived risks of fish farming, rather than on a modern, sustainable risk management framework
- Forces Canadian to buy foreign aquaculture products when local, fresher produce could be available and provide food security
- Creates an administrative and financial burden for industry with little evidence it supports regulatory benefit
- Creates undue financial risks for the aquaculture industry and investors because of costly red tape and lack of foresight

Nova Scotia has an important role to both enable industry development and to regulate it. Enabling development by both provincial and federal governments is accepted in resource industries such as forestry and agriculture. The commercial and recreational fishery is also managed in the same manner. However, unlike other resource sectors, the aquaculture industry has never been defined in federal law. Aquaculture is currently regulated federally, under a Fisheries Act, never intended for a food producing sector like ours. The patchwork quilt of statutes created decades ago to guide a fishery not only does not provide a stable framework for development and sound regulation; it opens the door to public confusion and possible constitutional challenges.

Dr. Brian Lee Crowley's commentary "The Blue Revolution: Why Canada Needs to Do Better at Farming the Seas" concluded that we must replace politicized decision-making with objective cost-benefit analysis in disputes concerning aquaculture. He also said that the regulatory approach to food in general and aquaculture in particular must be reformed. The regulatory system is slow, cumbersome, and inefficient. It discourages the adoption of new technologies at the farm level and in food processing. It discourages food companies from developing new products that can provide health and other benefits to consumers. It is an oppressive blanket on innovation that discourages investment, drives it out of the country and takes away any opportunity for Canada to be an early adopter of technology in this area. It should be the subject for immediate and substantial reform aimed at simultaneously providing healthy products to Canadians and encouraging innovation and efficiency in the food supply system.

The way forward for Nova Scotia is clear.

Nova Scotia has the opportunity to develop a coherent, coordinated and contemporary policy and regulatory approach that fosters growth, long-term sustainability and competitiveness while delivering a modern and rigorous legal and policy framework that protects the environment and interests of Nova Scotians. We think Nova Scotia should urge their federal counterparts to do likewise.

SUMMARY OF RECOMMENDATIONS

1. Nova Scotia ensures that aquaculture regulation is evidence-based, efficient, predictable and accountable to provide the investor confidence necessary to support the growth of a sustainable aquaculture sector. The policies should provide the basis for increased public confidence that the aquaculture industry in Nova Scotia is, in fact, well regulated and is responsible and accountable.
2. Nova Scotia analyze impacts of all regulation to ensure that it provides the greatest level of well-being at the lowest cost to businesses and consumers.
3. Nova Scotia play a key role in supporting regulatory harmonization within the aquaculture sector across the Atlantic region to support red-tape reduction, reduce regulatory costs and provide increased public confidence.
4. License and lease applications are weighed equally against the three elements of sustainability: economic, environmental and social.
5. Service standards and performance measures are established for processing of all lease, licence and licence amendments to encourage investor confidence.
6. All site applications are weighed equally against the three elements of sustainability: economic, environmental and social.
7. That salmon farms are accepted as a legitimate user of the marine resource and priority is placed on ensuring areas of the Nova Scotia coast with the appropriate environmental and biological requirements are protected for farm use.
8. Environmental management regulations should be performance-based, grounded on science, use resources wisely and fit within a global context.
9. Environmental monitoring should provide indications of site changes and provide environmental site classifications that inform management decisions that ensure long term environmental sustainability.
10. Nova Scotia maintain active participation in the I&T process and support service standards in decision-making so that the I&T process does not become a barrier to industry growth.
11. Nova Scotia fully engages veterinarians and industry in the development of fish health regulations and policies to ensure they do not duplicate existing federal regulations and respect the confidential nature of fish health management.
12. Nova Scotia adopts the Codes of Containment developed through the collaborative federal, provincial industry process that is currently underway.
13. Nova Scotia clarify aquaculture reporting responsibilities to ensure that they are streamlined, avoid duplication between federal and provincial departments and ensure that all data collection has a necessary audit value.
14. Nova Scotia urge the federal government to enact a new Canadian Aquaculture Act that defines aquaculture and provides the framework for a modern legal and policy framework for aquaculture in Canada.

The Atlantic Canada Fish Farmers Association is an industry-funded association working on behalf of the salmon farming industry in New Brunswick and Nova Scotia. The ACFFA represents salmon producers in addition to a wide range of supporting companies and organizations located throughout the Atlantic region. Salmon farming employs over 3,000 people in our region and generates over $330 million to provincial incomes in New Brunswick and Nova Scotia.

Sources of Information

A Salmon Aquaculture Strategy for Nova Scotia, October 2011. Prepared by the Atlantic Canada Fish Farmers Association.

Aquaculture Strategy; Creating Sustainable Wealth in Rural and Coast Nova Scotia, 2012.

Comparative review of the regulatory and policy environment for aquaculture in Atlantic Canada. December 2010. Prepared by Gardiner Pinfold for Nova Scotia Department of Fisheries and Aquaculture *but not released*

Responsible Aquaculture Development in Canada; A National strategy for New Jobs, Science Based Management and a Healthy Food Supply. Canadian Aquaculture Industry Alliance 2012.

Strengthening Atlantic Canada. ACFFA 2012. http://0101.nccdn.net/1_5/24f/3b8/3ce/ACFFA-Year-in-Review-2012.pdf

The Blue Revolution: Why Canada Needs To Do Better At Farming the Seas. Brian Lee Crowley. A Macdonald-Laurier Institute Publication

CAIA Discussion Document: Regulatory Costs, Economic Impacts and Overall Social Welfare Benefits of the Aquaculture Sector in Canada. May 2013. Specific links in this report also to Statistics Canada. Table 102-0552 - Deaths and mortality rate, by selected grouped causes and sex, Canada, provinces and territories, annual, CANSIM (database). Data from 2000 to 2009 extrapolated to 2013 using ordinary least squares trend projection and Mozaffarian and Rimm, 2006.

Understanding the Amended Fisheries Act; Fisheries and Oceans Canada

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