

***Federal BC Aquaculture Regulation  
&  
Strategic Action Plan Initiative***  
**Discussion Document**

**Prepared by Fisheries and Oceans Canada**

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# TABLE OF CONTENTS

<b>INTRODUCTION AND PURPOSE OF THIS DOCUMENT .....</b>	<b>3</b>
<b>1.0 POLICY RATIONALE for NASAPI and a BC AQUACULTURE REGULATION .....</b>	<b>5</b>
1.1 NASAPI.....	5
1.2 Federal Aquaculture Regulation in BC.....	6
<b>2.0 SCOPE OF A FEDERAL BC AQUACULTURE REGULATION .....</b>	<b>7</b>
2.1 Principles .....	7
2.2 Application.....	8
2.3 Licences and Licence Conditions .....	8
2.4 Pollution Prevention Measures (Fisheries Act s. 36).....	11
2.5 Notification & Reporting .....	12
2.6 Enforcement .....	12
2.7 Inspections & Audits.....	13
2.8 Attestations of Regulatory Compliance & Monitoring Results.....	13
2.9 Fees .....	13
2.10 Policies & Guidelines Supporting the Regulation.....	13
<b>3.0 THE NATIONAL AQUACULTURE STRATEGIC PLAN INITIATIVE .....</b>	<b>15</b>
3.1 Governance & Other Management Measures.....	17
3.1.1 Introductions and Transfers of Aquatic Organisms .....	17
3.1.2 Access to Wild Aquatic Resources as it Applies to Aquaculture.....	17
3.1.3 Canadian Shellfish Sanitation Program (CSSP).....	18
3.2 Sustainability, Competitiveness, Investment & Innovation .....	18
3.2.1 Fish & Shellfish Health Management.....	19
3.2.2 Aquatic Invasive Species.....	19
3.2.3 Emerging Production Technologies & Systems .....	20
3.2.4 Industry Diversification / Alternative Species .....	20
3.2.5 Risk Management & Access to Financing .....	21
3.2.6 Infrastructure .....	22
3.2.7 Market Access & Certification.....	23
3.3 Social Licence & Reporting.....	23
<b>4.0 CANADIAN AQUACULTURE SECTOR - FUTURE POTENTIAL .....</b>	<b>25</b>
<b>5.0 NEXT STEPS .....</b>	<b>27</b>

## INTRODUCTION AND PURPOSE OF THIS DOCUMENT

In February 2009, the British Columbia Supreme Court (BCSC) ruled that the activity of aquaculture is a fishery which falls under exclusive federal jurisdiction pursuant to sub-section 91(12) of the *Constitution Act, 1867* - Sea Coast and Inland Fisheries and, in effect, struck down substantial portions of the provincial regulatory regime governing aquaculture. In light of the BCSC decision, it is clear that only the federal government has the authority to establish the comprehensive regulatory regime needed to ensure that the industry in British Columbia is appropriately regulated and managed. In response to the BCSC decision, the Minister of Fisheries and Oceans has confirmed the commitment of the Government of Canada to establish a federal regulatory regime governing aquaculture pursuant to the *Fisheries Act* in the geographic area of British Columbia. The process to develop a federal aquaculture regulation for British Columbia is as follows:

- 1) Legal and policy analysis by the Department of Fisheries and Oceans (DFO) and Department of Justice (DOJ).
- 2) Ministerial announcement of intent to develop a regulation.
- 3) Consultation with First Nations, ENGOs, industry and other interested parties regarding regulatory content and design.
- 4) Drafting of legal text.
- 5) Presentation of the draft regulation to Treasury Board for pre-publication in Canada Gazette Part I for a 30 to 60-day review period.
- 6) Analysis of feedback received after the review period, revision of the regulation as necessary and further processing for final publication in Canada Gazette Part II.
- 7) Program design and development for implementation including staff recruitment, training, transition planning, etc.

The BCSC allowed DFO one year to develop and implement a federal aquaculture regulation for BC. In view of the scope of work involved, DFO has approached the Court to secure an extension to December 2010 and DFO is proceeding on the assumption that this extension will be granted. If the extension is not granted by the Court, DFO will establish and implement appropriate interim measures for the management of aquaculture in BC.

In parallel with this regulatory exercise in BC, DFO, in partnership with other federal departments and agencies and the Provincial and Territorial members of the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM), is leading a national collaborative exercise to advance environmentally and socially sustainable aquaculture development in Canada<sup>1</sup> - the National Aquaculture Strategic Action Plan Initiative (NASAPI). The NASAPI is part of DFO's Sustainable Aquaculture Development Program and is intended to:

- establish quantifiable targets for sector development over the next five years,
- delineate roles and responsibilities amongst all levels of government and industry, and
- raise the profile of aquaculture in the eyes of both the public and government officials.

The NASAPI will result in the development of sector-specific strategic action plans. The intent is to complement existing regional and provincial strategies in an effort to foster sustainable

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<sup>1</sup> Federal and provincial governments recognize sustainable aquaculture as a legitimate use of Canadian waters and it is the responsibility of both levels of government to ensure that the environment and other public interests are not unduly compromised by aquaculture development ([www.dfo-mpo.gc.ca/aquaculture](http://www.dfo-mpo.gc.ca/aquaculture)). As the lead federal agency for aquaculture, it is DFO's mandate to coordinate the roles of other federal departments and agencies and to facilitate a cooperative inter-governmental approach with the provinces and territories in the interest of fostering sustainable industry development.

industry growth and prosperity. To date, several consultation meetings have been held throughout Central and Eastern Canada regarding the NASAPI exercise.

In this context, DFO is organizing joint regulatory and developmental action planning meetings in BC between December 2009 and February 2010 to provide information and to solicit input from interested and affected parties. This discussion document has been prepared as background information regarding (i) the proposed federal regulatory framework for aquaculture in BC and (ii) factors related to the preparation of a strategic action plan in support of sustainable industry development. It is hoped that the information presented will focus discussion and stimulate robust dialogue amongst industry, First Nations and other aboriginal groups, governments and other stakeholders and generating input regarding the possible structure and content of a BC aquaculture regulation as well as the scope of the strategic action plans. The document is organized into the following areas for regulatory and strategic action planning:

### 1. Scope of a Federal BC Aquaculture Regulation

- |  |   |
|--|---|
| -Principles                            | -Enforcement  |
| -Application                           | -Inspections & Audits                                       |
| -Licences & Licence Conditions         | -Attestations of Regulatory Compliance & Monitoring Results |
| -Pollution Prevention Measures (s. 36) | -Fees   |
| -Notification & Reporting              | -Policies & Guidelines Supporting the Regulation            |

### 2. National Aquaculture Strategic Action Plan Initiative

- Governance & Other Management Measures
  - Introductions and Transfers of Aquatic Organisms
  - Access to Wild Aquatic Resources as it Applies to Aquaculture
  - Canadian Shellfish Sanitation Program (CSSP)
- Sustainability, Competitiveness, Investment & Innovation
  - Fish & Shellfish Health Management
  - Aquatic Invasive Species
  - Emerging Production Technologies & Systems
  - Industry Diversification / Alternative Species
  - Risk Management & Access to Financing
  - Infrastructure
  - Market Access & Certification

### 3. Social Licence & Reporting

Within the document, strategic questions are posed at the end of each sub-section to facilitate discussion. DFO has also posted material on its website to facilitate provision of written comments from interested parties (<http://www.dfo-mpo.gc.ca/aquaculture/aquaculture-eng.htm>). It is DFO's intention to work collaboratively and collectively to generate innovative ideas that will support the sustainable development of aquaculture in British Columbia and the Department commits to considering all comments received.

DFO is seeking views on the elements of a BC aquaculture regulation and the National Aquaculture Strategic Action Plan, noting that the initiatives are in the discussion stage only. DFO has not yet taken a policy position on elements, nor is there a draft regulation or action plan developed as of the public release of the BC discussion document.

## 1.0 POLICY RATIONALE for NASAPI and a BC FEDERAL AQUACULTURE REGULATION

Aquatic resources have long played an important role in Canada's development and growth as a nation. They are integral to the historical, economic and cultural fabric of Canada's coastal communities, providing a strong and reliable resource base around which Canada's national economy and sense of nationhood grew. More recently, aquaculture, the farming of aquatic organisms such as fish, molluscs, crustaceans, and aquatic plants, has emerged as a principal force within the Canadian fish and seafood sector. Farming implies some form of intervention in the rearing process – e.g. regular stocking, feeding, or protection from predators – that enhances production. Farming also implies individual or corporate ownership of the stock being cultivated.

### 1.1 NASAPI

Since the first National Aquaculture Conference in St. Andrews, NB in 1983, the capacity to develop aquaculture in Canada has been recognized and encouraged. Nevertheless, after 25 years of development, Canadian aquaculture still has considerable untapped potential. Today, commercial aquaculture operations exist in every province as well as in the Yukon Territory, and the sector accounts for one third of the total value of Canada's fish and seafood products production, yet Canada's output is a small fraction of global production. In 2006, Canada ranked 23<sup>rd</sup> among world aquaculture producers and contributed less than 0.3% of total output. Between 1991 and 2007, Canadian aquaculture output increased from 49,000 tonnes valued at Cdn \$233 million to more than 170,000 tonnes valued at Cdn \$846 million.<sup>2</sup>

Within each of the industry sub-sectors, there exists a tremendous potential for expansion that is enhanced by the many competitive advantages stemming from Canada's bio-physical geography and inherent experience and expertise in the fish and seafood industry. The realization of this potential, however, requires the collective and collaborative effort of industry, First Nations and other aboriginal groups, governments and other interested parties to develop an efficient regulatory framework and concise strategic action plans targeted toward specific initiatives intended to resolve the most pressing constraints to sustainable industry development. It is time to further develop this opportunity.

A Vision is an essential component of any strategic initiative since it focuses the efforts of all parties upon common objectives. The following *draft* vision statement for sustainable aquaculture development throughout Canada has been compiled for the Strategic Action Planning Initiative using input from vision statements developed in industry sub-sectors and provinces.

#### *A Vision for Aquaculture in Canada*

*As a world leader, Canada's aquaculture sector is committed to upholding public confidence by continuing to develop vibrant, innovative and sustainable technologies and practices that are environmentally and socially responsible, economically prosperous and internationally competitive.*

<sup>2</sup> Statistics Canada. (2008). Aquaculture Statistics 2007.

It is the intent of the National Aquaculture Strategic Action Planning Initiative to help facilitate realization of this vision.

*Strategic Question: Vision*

1. *Does the proposed Vision appropriately address the principal challenges within the industry?*

## **1.2 Federal Aquaculture Regulation in BC**

The realization of this vision is challenging in BC since, in February 2009, the British Columbia Supreme Court (BCSC) ruled that the majority of the elements of the BC provincial aquaculture regulatory regime (except cultivation of marine plants) lay outside the constitutional jurisdiction of the Province. In order to provide time to replace the provincial regime, the Court suspended its decision until February 2010. Notably, BC retains the authority to grant leases to the seafloor within provincial jurisdiction for purposes of aquaculture, to set labour safety requirements and certain measures respecting business practices.

As a result of this BCSC decision, DFO is working with appropriate federal regulatory agencies, including Environment Canada and the Canadian Food Inspection Agency, to consider the development of a new federal aquaculture regulatory regime to govern aquaculture production in BC. In the absence of federal regulatory action, no mechanisms would exist to regulate aquaculture operations and the environmental effects related to such operations in a comprehensive manner.

The process to develop a federal aquaculture regulation for British Columbia involves several important steps, as outlined below.

- 1) Legal and policy analysis by DFO and Department of Justice (DOJ).
- 2) Ministerial announcement of intent to develop a regulation.
- 3) Consultation with First Nations, ENGOs, industry and other interested parties regarding regulatory content and design.
- 4) Drafting of legal text.
- 5) Presentation of the draft regulation to Treasury Board for pre-publication in Canada Gazette Part I for a 30 to 60-day review period.
- 6) Analysis of feedback received after the review period, revision of the regulation as necessary and further processing for final publication in Canada Gazette Part II.
- 7) Program design and development for implementation including staff recruitment, training, transition planning, etc.

This discussion document and the ensuing meetings are part of the initial consultation stage in the regulatory development process as outlined in Step 3, above.

## 2.0 SCOPE OF A FEDERAL BC AQUACULTURE REGULATION

### 2.1 Principles

The BCSC decision regarding aquaculture provides an opportunity for governments to review historic practices and approaches pertaining to aquaculture management in British Columbia and make earnest efforts to design and implement appropriate changes to create an aquaculture regulatory framework that is more effective, more transparent, more consistent and more responsive (Table 1). In doing so, it is expected that the regulation will contribute to the prosperity of Canadians while providing public assurance that the sector is managed in a sustainable manner. In this context, the principle of sustainable development is fundamental to the renewed regulatory framework and will be required as a condition of future aquaculture development.

**Table 1: Scope of change envisaged to establish an efficient, transparent and predictable aquaculture regulation**

FROM:	TO:
<ul style="list-style-type: none"> <li>▪ Fractured management regimes with many and varied regulations and policies</li> </ul>	<ul style="list-style-type: none"> <li>▪ A designed regime with more consistent regulation &amp; policies while still managing significant risks</li> </ul>
<ul style="list-style-type: none"> <li>▪ Regimes lacking transparency and public credibility</li> </ul>	<ul style="list-style-type: none"> <li>▪ A regime that transparently demonstrates how the sector is managed and the basis for decisions on policy and individual sites</li> </ul>
<ul style="list-style-type: none"> <li>▪ Lethargic processes, not easily responsive to changes in knowledge, public expectations, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proactive regulation, with rapid response to emerging issues / knowledge</li> </ul>
<ul style="list-style-type: none"> <li>▪ Repetitive evaluations of issues on a site by site basis</li> </ul>	<ul style="list-style-type: none"> <li>▪ Common tools for common issues</li> </ul>

In determining its general approach to federal regulation of aquaculture in BC, the federal government will impose the following principles:

1. Consistency with the *Fisheries Act* mandate to support the protection of fish and fish habitat, the proper management and control of fisheries including aquaculture, and pollution prevention;
2. Consistency with DFO's mandate for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters;
3. Consistency with the DFO's aquaculture management objectives regarding the sustainable growth of the industry:
  - to create the conditions for the Canadian aquaculture industry to succeed and contribute to the creation of long-term jobs and economic prosperity in rural and coastal communities;
  - to create a level regulatory playing field for the aquaculture industry nationally;
  - to develop long-term strategic solutions to support the responsible growth of the sector based on a strong regulatory environment and sound science; and

- to build public confidence in the Government of Canada's management of the sector;
4. Timeliness of having a regulatory regime in place given the BCSC-imposed date of February 2010;
  5. Opportunities to reduce administrative burdens and improve cost efficiencies for government and industry where other criteria are not compromised;
  6. Opportunity to modernize the regulation of the aquaculture sector by:
    - recognizing the contribution of aquaculture to sustainable use of aquatic resources;
    - incorporating risk management measures; and
    - demonstrating transparency effectiveness, and efficiency in regulation; and
  7. Efficient and timely engagement of industry, First Nations and other aboriginal groups, governments and other stakeholders in the design of the new regulation.

*Strategic Question: Principles of a Federal Aquaculture Regulation for BC*

2. Is there anything that you would add to or delete from these principles?

## 2.2 Application

The application of the proposed regulation would be limited to "aquaculture" activities within the boundaries of British Columbia and along the Pacific coast, possibly excluding land-based facilities (both hatcheries and grow-out operations), government-owned facilities, and culturing for purposes other than sale of the product. In the interests of transparency and streamlining, DFO is considering using this single regulation to manage the sector with respect to most if not all aspects of the *Fisheries Act*. In other words it would provide for regulation of matters previously managed by the province under provincial regulations (e.g., licencing, containment measures, fish health management plans, etc.) as well as matters currently managed by DFO (e.g. habitat authorizations and conditions, introductions and transfer permits, nuisance seal permits, etc.). A notable exception is the management of contaminated fisheries which is already covered by the *Management of Contaminated Fisheries Regulations*.

The regulation could also provide for limiting of access by other licensed fishers to the areas that are managed under aquaculture licences, where such activities interfere with the operations of the aquaculture licence-holder. It could also provide recognition that fish in an aquaculture operation which have been duly purchased or collected are the property of the licence holder so long as they remain within the confined possession of the aquaculturist.

*Strategic Question: Application*

3. Is there anything that you would add to or delete from the scope of the activities that would be managed under the proposed regulation?

## 2.3 Licences and Licence Conditions

Licences and licence conditions would be the principal management tool for aquaculture in British Columbia. The proposed regulation would list the types of conditions of licence that may be imposed. The intent of conditions of license are:

- to provide clarity to industry, First Nations and other aboriginal groups, government staff and other stakeholders on what aspects of aquaculture operations may be managed or carry conditions;
- to set out targeted performance outcomes;
- to set out mitigation, environmental monitoring, record-keeping, notification and reporting requirements; and
- to set out other provisions and permissions that may be authorized.

The issuance of licences and other authorizations, and the setting of conditions of licence or authorizations would be consistent with the objectives of:

- conservation and protection of fish and fish habitat;
- proper management and control of fisheries, including aquaculture; and
- pollution prevention.

The proposed regulation would outline typical provisions regarding issuance of licences and any other authorizations that would be managed under this regulation; notably:

- licences may be issued only to holders of a valid provincial tenure document where such tenures are required;
- in addition to any criteria that may be established by the Province for issuing tenures, the Minister may establish additional siting criteria related to conservation and protection of fish and fish habitat and use these in deciding whether or not to issue a licence;
- the Minister may establish a list of species that may not be held or reared on aquaculture facilities;
- the Minister may amend licences and licence conditions;
- the licence holder may request licence or licence condition amendments;
- the Minister may establish a list of licensing pre-requisites, for example prior to issuance of a licence, a licence applicant may be required to demonstrate that:
  - financial security provisions have been made in case of bankruptcy and abandonment of the site;
  - acceptable compensatory measures will be undertaken to mitigate fish habitat impacts;
  - commitments to monitoring and/or research programs have been met;
  - acceptable traceability systems are in place in order to minimize, for example, risks of black-marketing of illegal fish and/or to support on-farm food safety;
  - worker training and/or certification has been undertaken as part of reducing risks, improving documentation; and / or
  - an auditor, 3rd party inspector or other service, meeting such qualifications as may be specified by the Minister, has been engaged to carry out duties as may be required to demonstrate compliance with the regulation.

Conditions of licence may include the following:

- requirement to develop and implement preventive measures and risk reduction plans – for example the licence could state that a fish health management plan is required; it could specify measures that must be taken to reduce the risk of escape of farmed fish; it could specify that measures be taken to reduce risks that wild fish would enter into or attach to site structures; etc.

- bans on specified activities;
- requirement to monitor for certain environmental impacts according to specified protocols – for example, the licence could state that a monitoring program for benthic impacts must be developed and implemented using a specified sampling plan and a particular methodology;
- requirement to take action(s) if thresholds of environmental impact are approached – for example, regarding habitat protection, the licence could state that if sulphide on a soft-bottom site exceeds a certain level the farm must take measures to reduce the level within a specified period;
- requirement for immediate notification if an escape, cage/mooring failure, therapeutic use, or chemical spill occurs – for example, the licence could state that a certain office must be contacted within a specified period of time, that actions must be taken to contain a fuel spill, etc.;
- requirement for reporting on a regular basis of monitoring activity and/or results such as financial records, stock inventory, feed usage, feed inventory, feed composition, therapeutic use, etc. as may be pertinent – for example the licence could state that an accounting of inventory of stock must be provided annually on a specified date;
- requirement for advance notification of transfer of new stock onto the site – for example, the licence could state that an email must be sent to a specified person a specified number of days in advance of the transfer of animals;
- requirements for record-keeping with provision of access to auditors, inspectors or enforcement officers – for example, the licence could state that stock inventory records must be up-to-date and available on-site at all times for the duration of the rearing cycle;
- requirements such as gear and site marking, gear placement and maintenance, etc.;
- provision for permission to access aquatic resources for aquaculture purposes, consistent with DFO's Policy on Access to Wild Resources for Aquaculture Purposes, with related licence conditions to minimize the need for such access; for example:
  - access to shellfish spat, seedstock and, under limited circumstances, juveniles;
  - access to plants for feed for on-growing operations;
  - periodic access to small quantities for broodstock development;
  - access to small quantities for research and development;
  - collection of wild fish not deliberately placed on the lease where these wild fish are of the same species being cultured and where these individuals naturally settle or enter into the licenced area;
  - collection of wild fish not deliberately placed on the lease, removal of non-mammalian predators (e.g., starfish), removal of fouling organisms; and
- provision to undertake predator control measures with related conditions.

It is anticipated that most conditions of licence would be applied uniformly and equitably to all licence holders within a licence category (e.g., all salmon aquaculture licence holders or all shellfish licence holders). These general conditions would be established through a policy development and consultation process. Details regarding licence conditions will be contained in supporting policies (see section 2.10) rather than in regulatory schedules. This is intended to allow for more rapid adaptation to changing needs, circumstances and / or information. These policies would be subject to on-going consultations and adjustment. Some site specific conditions of licence may also be expected.

Under the *Fisheries Act*, the contravention of any provision of the regulation or of the conditions of license can be a ticketable offence punishable by a maximum fine of \$1000 per contravention. Contraventions are also subject to prosecution under the *Act*.

*Strategic Questions: Conditions of Licence:*

4. Are there items that should be added to or deleted from this proposed list of licence conditions?
5. What type of activities should be ticketable offences instead of, or in addition to being subject to prosecution?

## **2.4 Pollution Prevention Measures (Fisheries Act s. 36)**

In the absence of regulatory provisions, the deposit of some substances resulting from the operation of an aquaculture facility has the potential to be considered in contravention of section 36 of the *Fisheries Act*. For example, it has been suggested that the feed and feed waste and fish health products such as therapeutants and disinfectants could be considered deleterious under some circumstances. To provide greater certainty to federal intentions under this section, DFO is considering regulatory measures that would prescribe when and how such substances could be deposited. These could include:

- conditions related to the allowable concentration, quantity or other conditions for the release of substances into waters containing fish, based on an environmental risk management approach; and
- conditions to establish general mitigation measures, environmental effects monitoring and reporting.

DFO is working with other departments including Environment Canada, Health Canada and the Canadian Food Inspection Agency to evaluate possible approaches to providing for section 36 regulation related to aquaculture and the general protection of fish and ecosystem health including, for example, control of aquatic invasive species, the implementation by the CFIA of the National Aquatic Animal Health Program (NAAHP), etc. It is envisaged that issues related to the use of aquaculture feeds, faeces and feed waste products would be managed under the BC Aquaculture Regulation, whereas management of the more general issue of fish health and aquatic invasive species control in wild and cultured populations would be managed under a separate, new national regulation. This could include for example providing regulatory measures related to products such as therapeutants, disinfectants, and depopulation products (e.g., for AIS, NAAHP) and other fish depopulation methods.

*Strategic Question: Deleterious Substances*

6. Are there other categories of substances that should be managed under section 36 of the *Fisheries Act*?

## 2.5 Notification & Reporting

As noted in the description of possible licence conditions (Section 2.3), the proposed regulation could authorize the Minister to require notification and reporting related to, for example:

- events that may impose environmental risks and the need for additional mitigation; under these circumstances, aquaculturalists would be required to immediately inform the department; e.g.:
  - escapes of fish;
  - major systems failures;
  - exceeding thresholds outlined as conditions of license;
  - use of therapeutants;
- advance notice of some activities, such as:
  - transfer of stock to the licenced facility;
  - transfer of stock from the licenced facility;
- regular reporting of some activities, such as:
  - inventory records;
  - presence or suspected presence of specified pathogens (excluding those regulated under the *Health of Animals Act*).

### *Strategic Questions: Notification & Reporting*

7. What information/documentation should be kept by companies and to what level of detail?
8. What information should the Department make reportable to the public, recognizing that such requirements must be in accordance with the *Privacy Act*?

## 2.6 Enforcement

Enforcement provisions are provided in the *Fisheries Act*. The powers of Fisheries Officers include:

- entry and inspection of aquaculture facilities;
- capacity to conduct searches when supported by reasonable grounds to do so;
- conduct tests or analyses in accordance with inspections and searches;
- review and copy records that may be necessary to support their efforts;
- issue tickets to or arrest individuals upon reasonable grounds; and
- laying of charges upon reasonable grounds that an offence has occurred.

### *Strategic Question: Enforcement*

9. Are the powers of enforcement, as identified above, appropriate to the objectives of the aquaculture regulation?

## 2.7 Inspections & Audits

In addition to enforcement by Fisheries Officers, DFO is considering identifying classes of persons outside of the Department (e.g., third parties) who may be authorized to conduct on-site (surface or underwater) inspections and/or facility audits to verify compliance. The Minister could set out in the regulation the specific competencies, enforcement training, occupational health and safety training for such persons and other criteria.

## 2.8 Attestations of Regulatory Compliance & Monitoring Results

The proposed regulation could permit DFO to allow designated officials within the Department to provide attestations (the ability to confirm that which is under question, or information provided, to be true) to others (e.g. other governments, market certification programs) with respect to the regulatory compliance and monitoring history of a particular aquaculturist, on request by the licence holder.

*Strategic Question: Attestations of Regulatory Compliance & Monitoring Results*

10. Should verification of regulatory compliance and monitoring history be made available to others upon request by the license holder?

## 2.9 Fees

The proposed regulation can be expected to include a fee structure for licences.

*Strategic Question: Fees*

11. What would be an appropriate fee structure for aquaculture licences?

## 2.10 Policies & Guidelines Supporting the Regulation

Policies and guidelines can be used to guide the exercise of discretion when issuing licences and setting detailed licence conditions. Guidelines related to licence conditions may set out performance objectives, standard operating practices, or a combination of both. Their development will be based on risk management approaches and consideration of costs and benefits.

The following is a partial list of issues that could be addressed in policies and guidelines supporting the application of the Aquaculture Regulation for BC:

- i. Publication of environmental performance and compliance information
- ii. Licence prerequisites
- iii. Finfish Containment
- iv. Finfish Escape Notification and Response
- v. Finfish Waste Management and Monitoring
- vi. Fish Health Management
- vii. Sea Lice Management in the Broughton
- viii. Fish Transfer
- ix. Reporting
- x. Record Keeping

xi. Notification

*Strategic Questions: Policies & Guidelines*

12. Is there anything that you would add to, or delete from, the proposed list of policies and guidelines that would support the implementation of the regulation?

It should be noted that discussion on the details of policies such as those listed above are outside the scope of the current consultations. Given relatively short timelines to put in place the federal regulatory regime, it is the intention that the first focus be on providing a regulatory structure. In terms of policy content on the above areas, DFO intends to initially continue with the policies and approaches outlined in existing federal and provincial policies and regulatory schedules. In the short term, policies will focus on existing provincial or federal requirements. Only where there is a potential conflict or duplication between existing provisions (e.g., between BC Finfish Aquaculture Waste Control Regulation and DFO's Habitat Authorizations), will there be an updating of policies.

*Strategic Question: Aquaculture Regulation for BC*

13. Is there anything that you would add to the regulation beyond the regulatory provisions outlined above?

### 3.0 THE NATIONAL AQUACULTURE STRATEGIC PLAN INITIATIVE

It has long been recognized that Canada is capable of being a more significant producer of aquaculture products. Over the years, several efforts have been launched to stimulate growth in the sector dating back to the 1983 report of the Science Council of Canada entitled “Strategies for Aquaculture Development in Canada.” The most recent and relevant initiatives include:

- |   |  |
|---|--|
| 1995 Federal Aquaculture Development Strategy   | ▪ A comprehensive plan to identify the needs of a growing aquaculture sector and coordinate the activities of federal departments and agencies toward fulfilling such needs.   |
| 2000 DFO Program for Sustainable Aquaculture  | ▪ A new program providing the aquaculture industry and government with support and opportunities to conduct leading-edge research and development, strengthen measures to protect human health through an enhanced shellfish water quality monitoring program, and implement legislative and regulatory reform for the industry. |
| 2002 DFO Aquaculture Policy Framework   | ▪ Outline of a cooperative federal / provincial / territorial framework to create the conditions necessary to enable responsible growth.   |
| 2004 Recommendations for Changes – Report of the Commissioner for Aquaculture Development | ▪ Development of a national vision for sustainable aquaculture development and presentation of 9 recommendations and 3 organizational scenarios for aquaculture in Canada.   |

Building upon these earlier initiatives, today, more than ever, national aquaculture *strategic action plans* targeted to each sub-sector (i.e. Shellfish - East Coast, Shellfish - West Coast, Freshwater, Marine Finfish - East Coast and Marine Finfish - West Coast) are required to facilitate renewed understanding and co-operation amongst all pertinent parties to address and resolve challenges pertaining to both industry and governments. By implementing technologies and practices that recognize and uphold the social and environmental values of Canadians, and by operating within a cohesive and transparent policy and regulatory framework, aquaculture will evolve into a more dynamic and sustainable sector that generates benefits for all Canadians. Responsible aquaculture offers:

- economic and social revitalization in coastal and rural communities in which opportunities for sustainable development can be elusive;
- enhanced participation in the aquaculture sector by First Nations and other aboriginal groups in a manner consistent with native cultures, values and traditions;
- increased public confidence in the social and environmental sustainability of aquaculture and in Governments’ ability and intent to manage the sector on a sustainable basis;
- increased industry and investor confidence in the sector, allowing for enhanced private sector financing of industry expansion;
- practical and equitable solutions for the resolution of user-group conflict among stakeholders in Canada’s coastal regions;

- enhanced consumer confidence in the safety, health benefits and wholesomeness of high quality Canadian seafood products; and
- broad based public acceptance of aquaculture, and confidence that aquaculture development is being managed in a manner that is congruent with the values of Canadians.

In June 2008, DFO established the New Sustainable Aquaculture Program. The program has four main pillars:

- Regulatory Reform - Improved regulatory certainty through better coordination among federal, provincial and territorial governments;
- Regulatory Science - Increase the relevant science knowledge base to support informed DFO environmental regulation and decision-making and, secondarily, to inform provincial environmental regulation;
- Aquaculture Innovation and Market Access Program (AIMAP) - Improved competitiveness and increased investment in Canadian industry; and
- Certification and Market Access - Assist the aquaculture industry to develop measures to ensure that fish produced in Canada meet rigorous international market requirements.

Among the objectives of the program are (i) to have all stakeholders, including industry, governments and others, agree upon a 5-Year Strategic Action Plan for each industry sub-sector to help the Canadian aquaculture industry reach its full potential; and (ii) to develop a national strategic agreement for sustainable aquaculture development with coordinated provincial and territorial implementation through MOUs or other mechanisms. The program builds on past initiatives to advance aquaculture in a manner that respects DFO's broader mandate in fisheries (e.g. Policy for Conservation of Wild Pacific Salmon; Wild Atlantic Salmon Conservation Policy) and fish habitat (e.g. Policy for the Management of Fish Habitat).

To be successful, vibrant and innovative, Canadian aquaculture must be sustainable. That is, it must not compromise the quality of healthy and productive ecosystems, it must be in tune with the social values of regional communities and consumers, and it must be internationally competitive - for the benefit of all Canadians.

It is widely recognized by industry, governments and other parties that a variety of factors contribute to the current status of the Canadian aquaculture sector. Aside from the governing policy and regulatory framework, such factors also include the scope and nature of programming to facilitate investment, productivity, trade, risk management, research and development, infrastructure, communications, etc. In the following sections of this discussion document the principal non-regulatory factors pertaining to sustainable aquaculture development are briefly presented. This information is intended to focus dialogue amongst all participants at the consultative workshops in the interest of generating meaningful and vibrant discussions leading toward the identification of practical solutions to advance sustainable aquaculture in Canada.

A collaborative approach amongst governments, industry, First Nations and Aboriginal groups, ENGOs and other interested parties is envisaged to advance research, innovation, commercial development and trade. Through a collective approach, ideas, resources and influence can be pooled to advance complex tasks that may otherwise be difficult to accomplish by smaller groups or by organizations operating in isolation.

### 3.1 Governance & Other Management Measures

#### 3.1.1 Introductions and Transfers of Aquatic Organisms

The National Program on Introductions and Transfers of Aquatic Organisms (I&T) is administered by a combination of federal and provincial agencies under the *Fisheries Act*. Pursuant to regulations under the *Fisheries Act*, Introduction and Transfer licences are issued by the Minister of Fisheries and Oceans or by the appropriate provincial official.

Through this regulatory approach, governments seek to maximize the economic and social benefits associated with deliberate introductions or transfers while ensuring that conservation and protection of aquatic resources is respected to uphold the proper management of fisheries and to effectively manage ecological and diseases risks. A National Code on I&T, endorsed by the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) in 2003, provides uniform guidelines for reviewing applications for licences and a standardized risk assessment procedure for assessing the associated disease, ecological or genetic/competition risks, when applicable.

It is envisaged that in BC, the new BC Aquaculture Regulation under the *Fisheries Act* would regulate introductions and transfers activities related to aquaculture. These provisions would be implemented in a manner consistent with the National Code on I&T. The emphasis in terms of risk assessment would be on assessment of extraordinary movement requests such as the introduction of a new potential culture species, not native to the region.

*Strategic Question – Introductions & Transfers of Aquatic Organisms*

14. *How should the I&T regime be transformed to enhance its efficiency, transparency and effectiveness without compromising the underlying objectives of the Code?*

#### 3.1.2 Access to Wild Aquatic Resources as it Applies to Aquaculture

This DFO policy provides a framework and criteria to facilitate access to wild fish and aquatic plant resources for aquaculture purposes in situations where access to wild stocks is essential to the development and expansion of the Canadian industry. Since most fisheries are managed under limited entry regimes, and recognizing that many fisheries are fully subscribed, the policy has been designed to ensure that the requirements of the aquaculture sector are factored into Integrated Fisheries Management Plans (IFMPs). When the Total Allowable Catch (TAC) is fully subscribed (both in competitive and individual quota fisheries), the Policy is intended to accommodate requests from the aquaculture sector within the fisheries management plans for the species. The stock access policy is not intended to reduce access to the resource for existing fishers. It is envisaged that the Federal BC aquaculture regulation would encompass permission and restrictions on access to wild resources for aquaculture purposes in BC, consistent with the national policy.

When considering access requests, the first priority in managing fish stocks is conservation, followed by First Nations obligations. Beyond that, the needs of aquaculture will be given equitable consideration to those of other users in the commercial and recreational sectors. Specifically, the Policy accommodates the following needs within the aquaculture sector:

- access to shellfish “spat” and seedstock;
- access for broodstock development;
- access for “on-growing” and “relaying”; and
- collection of animals not deliberately placed on the lease (i.e. by-catch).

*Strategic Question: Access to Wild Aquatic Resources for Aquaculture Purposes*

15. *Has the Access to Wild Aquatic Resources Policy been effective? Where constraints remain, what can be done to amend the policy or its implementation to facilitate enhanced access to stocks for aquaculture without compromising the intent of the policy?*

### **3.1.3 Canadian Shellfish Sanitation Program (CSSP)**

The Canadian Shellfish Sanitation Program (CSSP) was implemented to protect the public from the consumption of contaminated shellfish (Class Mollusca) and to facilitate unencumbered international trade in shellfish.

While the Canadian Food Inspection Agency (CFIA) plays the lead coordination role, Environment Canada (EC) and Fisheries and Oceans Canada (DFO) are also involved in administering the CSSP. In addition to coordination, CFIA is responsible for overseeing handling, processing, labeling, transportation, import / export of shellfish and for providing liaison with foreign governments; EC conducts shoreline sanitary surveys, monitors growing water quality, and classifies harvesting and growing water areas; and DFO, based on advice received from CFIA and EC related to food safety and water quality, opens and closes harvest areas, enforces closures, and controls relaying, depuration and harvesting from classified areas. All government partners in the CSSP program are facing challenges to meet the program costs without new resources given the demand to expand testing into new areas. Additionally, U.S. and E.U. expectations regarding food safety are increasing. U.S. authorities have already taken measures that have resulted in closure of some Canadian molluscan harvest areas, citing concerns related to the harvest of shellfish in proximity to waste water treatment facilities. Given these pressures, the Government of Canada is interested in working collaboratively to explore potential new and innovative ways to help meet the CSSP requirements and support aquaculture production.

*Strategic Question: Canadian Shellfish Sanitation Program*

16. *Are there technological, program and organizational changes related to aquaculture that could contribute to a more effective and functional CSSP?*

## **3.2 Sustainability, Competitiveness, Investment & Innovation**

Innovation is a central theme of DFO’s Sustainable Aquaculture Program and for many provincial/territorial governments. A shared intention among governments is to foster innovative approaches targeted at enhancing competitiveness and sustainability through development and/or Canadian adaptation of novel technologies and management practices. The objective is to help increase sustainable production, reduce costs of production and generate greater value

for Canadian aquaculture products based on their environmental performance, traceability and other considerations. The following sub-sections – fish health management, aquatic invasive species, emerging production systems technologies, and alternative species development for industry diversification – provide examples of how innovation can advance sustainable aquaculture in Canada.

### **3.2.1 Fish & Shellfish Health Management**

Fish/Shellfish Health is a pivotal concern for the aquaculture industry affecting both cost of production and public acceptance. Poor health and disease increase the cost of production (e.g. veterinary services, therapeutic agents) and decrease revenue through mortality, reduced growth, inferior product quality and, potentially, decreased consumer acceptance of industry practices.

The Canadian Aquaculture Fish Health Management Working Group<sup>3</sup> has identified priorities of sea lice (access to a range of therapeutants; integrated management planning); strengthening association capacity to provide leadership on fish health issues; developing a minor use program for approving therapeutants products, establishing a process to facilitate emergency access to products in crises; and treatments for bacterial kidney disease. No shellfish related priorities have been developed to this point.

*Strategic Question: Fish and Shellfish Health Management*

*17. What are the priorities for more effective fish / shellfish health management in aquaculture? What are the roles of industry, governments and other stakeholders?*

### **3.2.2 Aquatic Invasive Species**

Species are defined as ‘invasive’ when they are introduced into an environment where they are not native and, by proliferation in number and geographic distribution, become a nuisance, sometimes to the detriment of native species. Identified vectors for transferring invasive species in marine and freshwater environments include: attachment to ship/boat hulls, transfer through ballast water, the use of live bait, aquarium / water garden trade, live food fish and the movement of aquaculture gear and product<sup>4,5</sup>. Throughout Canada, to varying degrees, aquaculture production has been compromised by invasive species.

Potentially, innovation can be applied to develop practical solutions to invasive species. For example, since it is unlikely that established invasive species will be eradicated, the development of cost-effective solutions is more likely to result from innovative technologies and practices applied to manage infestations at the farm site. It may also be possible to introduce measures to control the spread of invasive species through renewed I&T regulations or other mechanisms.

<sup>3</sup> This group has been formed by DFO to address a range of issues related to therapeutants and includes representatives from industry, provinces, the veterinary community, academia, CFIA, Health Canada, and DFO.

<sup>4</sup> Ramsay, A., J. Davidson, T. Landry and G. Arsenault (2008). Process of invasiveness among exotic tunicates in Prince Edward Island, Canada. *J. Biological Invasions* 10:1311-1316.

<sup>5</sup> Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) Aquatic Invasive Species Task Group: A Canadian Action Plan to Address the Threat of Aquatic Invasive Species.

*Strategic Question: Aquatic Invasive Species*

18. *What are the essential elements in terms of research, development & commercialization (innovation) required for effective invasive species management strategies within the various sub-sectors of the Canadian aquaculture industry where invasive species are a problem? Are there other program or organization changes that could contribute to more effective management of aquatic invasive species issues?*

### **3.2.3 Emerging Production Technologies & Systems**

There is growing interest throughout the industry to develop alternative production technologies such as integrated multi-trophic aquaculture and closed containment systems that target the reduction of environmental risks. Additionally, as the availability of near-shore sites becomes further constrained, technologies are evolving to enable the finfish and shellfish sectors to move further offshore into more open, higher-energy waters. These moves are anticipated to generate another wave in industry growth.

Key considerations are environmental costs and benefits, technical feasibility, financial costs and benefits, and market drive for eco-certification. A more comprehensive understanding of the potential “eco-benefits and costs” for these and other emerging technologies needs further evaluation to support informed decision-making.

*Strategic Question: Emerging Production Technologies & Systems*

19. *Where are future investments in innovation research, development and commercialization likely to foster enhanced industry competitiveness and environmental sustainability (e.g. production technology, IMTA, closed-containment, development of off-shore sites & technologies, processing, value-added products, etc.)? What, if any, are other key actions that should be undertaken to facilitate sustainable (economic, social, environmental) approaches to the development and implementation of alternative systems?*

### **3.2.4 Industry Diversification / Alternative Species**

Successful development of alternative species to support expansion of commercial aquaculture is dependent on a variety of factors (e.g. biology, engineering, economics, market dynamics, environmental and socio-economic factors, etc.), all of which must come together to create the necessary conditions for the successful production of the species. Furthermore, because sustainable production of an "alternative species" may require 3 to 10 years of targeted effort, practical pursuit of alternative species for commercial aquaculture development is dependent upon a coordinated and focused research, development and commercialization initiative<sup>6</sup>.

<sup>6</sup> Stechey, D., W.D. Robertson and B. Kingzett (2007). SWOT-Based Technique for New Species Development – An Evaluation and Planning Model. Proc. Aqua. Assoc. Can. (in press).

Current financial challenges warrant a rational process to advance industry diversification. Therefore, targeting resources strategically on a select number of emerging species with the greatest potential for economic viability may be a practical diversification strategy. In this context, governments are seeking further input regarding which species have the greatest potential in each sub-sector as part of an effort to focus developmental resources on a targeted number of promising species that are biologically and economically capable of achieving commercial success within the foreseeable future.

Early in 2009, five collaborative sessions were held with representatives of the 5 sub-sectors of the Canadian aquaculture industry to discuss new species development. Subject matter experts, federal and provincial government representatives, and industry stakeholders reviewed and discussed the candidate species, leading to a collective and evidence-based agreement on a shortened and focused list of species for development in each region and sector (Table 2). Summaries for each alternative species workshop are available from DFO's Aquaculture Management Directorate in Ottawa or from DFO's Regional Aquaculture Coordinator's offices.

**Table 2: Priority list of alternative species for targeted development within the next five years in each sub-sector of the Canadian aquaculture industry.**

West Coast Marine Finfish	West Coast Shellfish	Freshwater	East Coast Marine Finfish	East Coast Shellfish
Sablefish	Geoduck	Arctic Charr	Halibut	Bay Scallops
	Mussels	Sturgeon	Atlantic Cod	Giant Scallops
	Scallop	Walleye / Perch		Soft-Shell Clam

*Strategic Question: Industry Diversification / Alternative Species*

20. Are the proposed alternative species appropriate for a focused research, development and commercialization initiative intended to foster progress toward commercialization?

### **3.2.5 Risk Management & Access to Financing**

Developing a more attractive investment climate for all scales of producers is imperative, and thus both industry and governments must define measures to quantify and reduce the risks inherent to aquaculture.

At the farm level, producers could be encouraged to engage robust best management practices (BMPs) and standard operating procedures (SOPs). BMPs are written plans that specify what producers are required to do to maintain responsible and sustainable ventures. SOPs specify how producers are to implement various aspects of the BMPs. Together, BMPs and SOPs are a significant risk management tool.

By enforcing compliance with BMPs and SOPs, investor and public confidence should increase. In addition to reducing on-farm risk, practical and profound supplemental benefits will accrue in the areas of food safety, environmental sustainability and public confidence through common performance measurement systems put in place by producers and validated by multi-purpose

3<sup>rd</sup> party audits. This will serve to enhance industry productivity, competitiveness, profitability and social licence.

Benchmarking is a process for comparing the performance (in terms of cost, time, value, etc.) of one organization against that of industry peers and competitors to identify weaknesses and make the necessary changes to generate better results. The process is effective across a variety of functional areas, including financial performance, productivity factors, sustainability measures, etc. By enabling on-going performance comparisons, individual producers are able to identify areas where they are less productive or competitive than other organizations in the sector, thus enabling them to focus efforts toward performance improvement. In this way, the entire sector is able to continually enhance its performance over time to strengthen individual and sectoral competitiveness and sustainability. Agriculture & Agri-Food Canada has established an online benchmarking service for a number of livestock and crop sectors<sup>7</sup>. There is no similar program in the Canadian aquaculture sector.

*Strategic Questions: Risk Management*

21. What specific management measures could be implemented through Best Management Practices (BMPs) and Standard Operating Procedures (SOPs) to reduce on-farm operating risk?
22. Should the industry, with government support, institute a comprehensive performance benchmarking system to help improve competitiveness and investor confidence?

### **3.2.6 Infrastructure**

Infrastructure is comprised of the core assets that support an economy by supporting the needs of a community or industry. It includes the systems for water supply and treatment, energy, utilities and communications networks, as well as the systems for transport and traffic control (roads, waterways, airfields, ports) etc. Infrastructure is also required to support the generation of knowledge to advance sustainable development (e.g. R&D capacity).

The aquaculture sector relies largely on infrastructure established for other purposes; however, aspects that distinguish aquaculture from other food production sectors often require unique infrastructure needs. Furthermore, the rural and often remote location of aquaculture operations often leaves producers without adequate basic infrastructure to develop and efficiently operate their businesses. Such limitations can inhibit daily operations, increase the cost of production and/or create barriers to development. Key infrastructure requirements for aquaculture include:

- wharf & landing infrastructure;
- waste disposal;
- processing capacity;
- R&D capacity, etc.
- specialized loading and unloading facilities for biosecurity;
- specialized utility requirements (e.g., 3-phase electricity);
- wireless communications; and

The current action planning initiative provides an opportunity to obtain input on aquaculture-specific infrastructure requirements.

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<sup>7</sup> Agriculture & Agri-Food Canada (2008). [https://www2.agr.gc.ca/ren/StepBench/stepbench\\_e.html](https://www2.agr.gc.ca/ren/StepBench/stepbench_e.html)

*Strategic Question: Infrastructure*

23. Where are the most urgent needs for infrastructure investment to support (i) existing aquaculture activities and (ii) to foster expansion?

### **3.2.7 Market Access & Certification**

Demand for fish and seafood in domestic and international markets is driven largely by consumer perception of product quality, food safety and value. Assurances of environmentally sustainable production, socially acceptable resource use, adherence to stringent food safety protocols, and farm-to-market traceability for all products are increasingly sought by consumers and seafood buyers looking for independent verification of attributes beyond what would be certified by governments. As a result, responsible certification systems with third-party compliance audits are of increasing importance in the fish and seafood sector as evidenced by the emergence of high-profile eco-labelling and quality assurance programs.

To date, however, the Canadian aquaculture industry lacks agreed upon certification and product traceability systems, which impedes industry's ability to respond to market demands. Similarly, as noted above, parts of the industry lack best practices standards, codes and/or protocols, validated via third-party audit, to demonstrate performance. Development and implementation of credible certification programs will facilitate access to domestic and international markets for Canadian producers by providing assurances of food safety, quality and sustainability, and thus differentiating certified Canadian products in the marketplace. Through implementation of certification programs, secondary benefits in the form of smart regulation and improved regulatory compliance are expected.

*Strategic Question: Market Access & Certification*

24. What are the key elements of appropriate certification / traceability systems designed to advance the Canadian aquaculture industry? What are the principal roles of industry and governments in the development and implementation of these systems?

### **3.3 Social Licence & Reporting**

The preceding sections of this background document outline several areas where improvements can be made in both operations and governance to advance the competitiveness and sustainability of Canadian aquaculture. If we are successful in the design and implementation of measures to address the factors outlined above, then, *de facto*, industry's social licence<sup>8</sup> should be enhanced – but only if pertinent industry, First Nations and other aboriginal groups,

<sup>8</sup> 'Social licence' is an emerging concept intended to reduce user-group conflict and generate public acceptance in natural resource sectors. It is based principally on the notion that the utilization of natural resources for commercial interests requires a process for acquiring consent from communities affected by the proposed development through mutual understandings and agreements, leading to the affected community's broad support for the project. Through the process, local stakeholders and other vested interests are meaningfully engaged to identify their values and beliefs and to identify appropriate measures to mitigate effects of the project. (Sources: Salim, E. (2004). *Striking a Better Balance: The World Bank Group and Extractive Industries: The Final Report of the Extractive Industries Review*. 44 p.; Shepard, R.B. (2008). *Gaining a Social License to Mine*. MINING.com April 2008, p. 20-23.)

community interests and the general public are aware of the progress within the sector. Therefore, timely and transparent communications as well as active community engagement are necessary to disseminate information about the economic, social and environmental sustainability of Canadian aquaculture. Factual information presenting an objective perspective regarding aquaculture is also required to enable so that more informed decision-making.

DFO, in collaboration with Statistics Canada and the Provinces, intends to compile an annual report entitled *Reporting to Canadians* that will (i) provide information regarding aquaculture sustainability in relation to economic, social, and environmental performance across all sectors and regions and (ii) engage Canadians in addressing sustainability concerns.

Performance measurement and improvement also requires that implementation of the strategic action plans be monitored to collect data and information required to enable an accurate evaluation of the situation and to guide informed decision-making and to keep the initiative on track. Performance indicators must be specific and measurable to reflect "the best knowledge available" for a given initiative, thus enabling reviewers to determine whether objectives are being met effectively and efficiently.

*Strategic Questions: Social Licence & Reporting*

25. How can the industry be more transparent with information related to environmental, social and economic issues to enhance public communication about the status of industry performance and progress?
26. A comprehensive performance monitoring & management system will be established to track implementation of the strategic actions plans. Who should be involved in the design and implementation of the Performance Management System?

## 4.0 CANADIAN AQUACULTURE SECTOR - FUTURE POTENTIAL

The Canadian aquaculture sector is positioned to benefit from a variety of factors that, collectively, present the necessary components for expanded production and competitiveness in domestic and international markets. With the world's longest coastline and largest system of freshwater lakes and rivers, Canada has an aquatic resource base that is capable of sustaining a significant increase in aquaculture production. Additionally, Canadian producers benefit from proximity to the world's largest seafood markets in Asia, the EU and the United States of America; particularly the latter. Globally, demand for finfish and shellfish is growing by 9 percent a year and conventional "capture" fisheries can meet less than half the current and anticipated demand. Canadian aquaculture is uniquely positioned to capitalize on that growing demand.

Helping to position Canada's aquaculture sector to achieve its potential is the underlying objective of the NASAPI. The strategic action plans are intended to address and resolve the most pressing challenges to aquaculture development. Furthermore, by mandating the use of sustainable technologies and practices as a requirement for industry expansion, and by building upon years of experience, world-class research and infrastructure, Canada's aquaculture sector has every opportunity to lead the world in sustainable aquaculture development.

With immediate strategic action, Canadian aquaculture output could increase by approximately 8% to ~214 000 mt within 5 years, generating farm-gate revenues of ~\$1.1 billion. By 2020, sector output could exceed 308 000 mt and generate total farm-gate revenues in excess of \$1.5 billion (Table 3).

**Table 3: Projected growth in Canadian aquaculture through 2020**

	Salmon	Trout	Other Finfish	Mussels	Oysters	Other Shellfish	Total
<b>Production (000 tonnes)</b>							
2013	140,000	10,700	10,400	31,700	18,400	2,600	213,800
2020	197,000	16,000	15,600	47,700	27,600	4,000	307,900
<b>Value (\$ million)</b>							
2013	850,000	60,000	72,000	46,000	27,000	24,000	1,079,000
2020	1,200,000	90,000	108,000	68,000	41,000	36,000	1,543,000

These projections are based on the assumption that there will be very modest growth in the BC and NB salmon sectors in the near-term. Other industry sub-sectors, however, are projected to grow at a rate of 5% per year through 2013. Thereafter, following full implementation of the strategic action plans, it is assumed that all sectors of the Canadian aquaculture industry will grow at 6% annually to 2020.

Presently in BC there exists a range of public opinion pertaining to aquaculture, particularly Atlantic salmon aquaculture. As governments attempt to balance the often divergent demands of the public as a whole, expansion within the aquaculture sector has been slow. Many of the issues stem from socio-economic and resource conflicts.

In NB, the availability of suitable near-shore sites for cage culture operations is largely exhausted. Similarly, near-shore sites for mussel and oyster production in Atlantic Canada are becoming scarce. Hence, further growth is expected to come from technological developments in offshore (higher energy) production systems. It is anticipated, therefore, that within approximately five years, the sector could experience another wave of growth; albeit a modest one at only 5% to 6% increase in output per year. This expansion is intended to bring major benefits to scores of economically challenged coastal, rural and First Nations and other aboriginal communities.

*Strategic Question: Projections*

27. Presuming that the principles of sustainable development continue to be required as a condition of future aquaculture development and all strategic actions ensuing from the National Aquaculture Strategic Action Plan are implemented in a properly and timely manner, are the projections reasonable targets that can be attained within the suggested time frame?

## 5.0 NEXT STEPS

This document has been prepared as background information to support robust discussions amongst industry, governments, First Nations, Aboriginal groups and others regarding the future regulation, sustainable operation, growth and development of commercial aquaculture in British Columbia Canada.

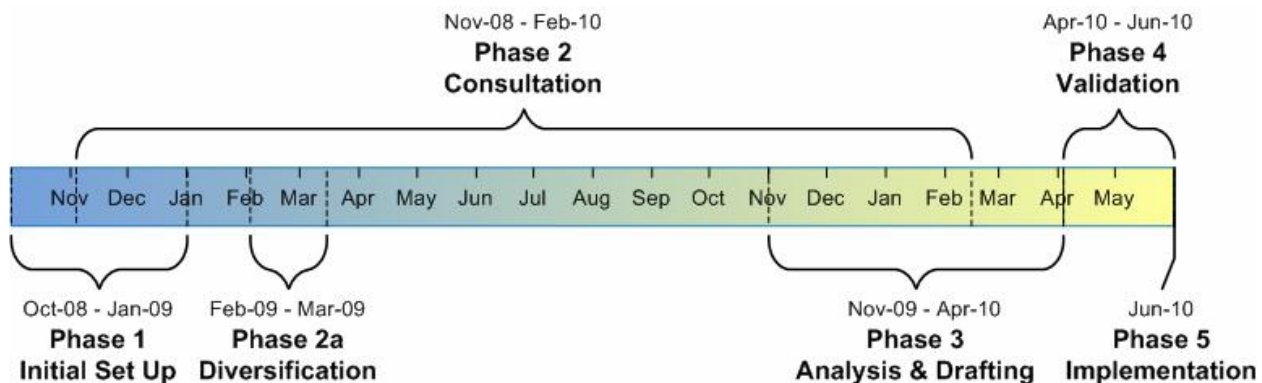
The next steps for development of the federal Aquaculture Regulation for British Columbia include:

- Pre-consultation (on-going)
- Drafting of the regulation
- Publication of the proposed regulation in Canada Gazette Part I for official input
- Publication of the final regulation in Canada Gazette Part II
- Implementation and enforcement

Through a coordinated effort, it is envisaged that Strategic Action Plans will be generated within the framework of an over-arching National Plan to facilitate sustainable growth in all regions of the country. Each Strategic Action Plan will target precise and realistic objectives to be achieved within a 5-year time frame. The Action Plans will identify specifically what needs to be done to achieve the targets and, by clearly delineating federal, provincial / territorial and industry roles and responsibilities, the Action Plans will also outline how the action items are to be implemented.

A comprehensive Performance Monitoring and Management Plan is envisaged to monitor progress and allow for adaptive management to keep the initiative on-track toward realization of the specified goals and objectives. The process to develop the sectoral Strategic Action Plans will progress through the five phases illustrated in the following diagram.

In addition to the work on the development and general oversight of the Strategic Action Plans, it is DFO's intention to separately engage interested parties on initiatives related to the regulation and management of the sector. As well, it is DFO's intention to collaborate with interested parties on a number of focused strategic initiatives as may be identified through the Strategic Action Plans or other venues.



**Phase 1 – Initiation / Backgrounders**

- ❖ For each sub-sector, summary of current status with key strategic questions

**Phase 2 – Consultations via Regional Workshops**

- ❖ DFO, federally, provincially, Industry (associations), First Nations, aboriginal organizations, others (ENGOS, etc).
- ❖ Separate advance initiatives to address alternative species / diversification priorities

**Phase 3 – Analysis and Drafting**

- ❖ For each sub-sector, evaluate the information obtained from regional consultations and establish steering committees to oversee three rounds of drafting of comprehensive strategic action plans

**Phase 4 – Validation**

- ❖ Draft strategic action plans shared with all stakeholders, national workshop to finalize draft plans

**Phase 5 – Implementation**

- ❖ Ministerial endorsement/acknowledgement

Based on this consultative process, and through collaborative and cooperative implementation, it is envisaged that Canada will attain its potential as a leading producer of sustainable aquaculture products.