

First Nations Views on a Proposed Federal Aquaculture Regulation for British Columbia

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Disclaimer

The contents of this report reflect comments recorded from nine First Nations meetings where the subject of the proposed federal B.C. aquaculture regulation was being discussed. Over 300 comments were recorded. On many subjects there was unanimity yet at times diverging views were heard. In order to present the results of these meetings in a single cohesive report, some of the individual content may be lost, however an attempt was made to synthesize the material as accurately and concisely as possible. For a detailed account of the commentary at each meeting the reader is encouraged to refer to individual meeting reports available through the First Nations Fisheries Council.

It must be noted that in accordance with First Nations views on consultation, the meetings that took place with First Nations and DFO between February and March 2010 do not constitute a fulfillment of the Crown's duty to consult. Some meetings had many participants, while others only a few. Not all rights holders were represented at meetings. Due to time and budget limit limitations, not all of communities in B.C. who requested meetings were accommodated. In many cases community members were overwhelmed by the material provided and the questions posed at the meetings. There were serious concerns expressed about the capacity which would be required in communities to properly engage in discussions on aquaculture. Low attendance at some meetings should not be construed as a lack of interest in those communities, who in some cases may have limited ability to travel and participate in these types of initiatives. In addition some communities requested additional bi-lateral sessions with Fisheries and Oceans Canada.

These meetings focused only on the B.C. Regulatory Framework, and did not in any way address the national aquaculture strategic action planning initiative (NASAPI). Out of 27 questions posed by the federal Discussion Document, only the 13 questions of direct relevance to the B.C. regulations were discussed. Therefore these meetings cannot in any way constitute as consultation on the broader National Aquaculture Strategy and Action Plan Initiative (NASAPI), nor can attendance at one of the meetings infer a level of understanding or engagement of the participants on the NASAPI.

Finally, this report and individual meeting reports should not be interpreted as evidence that the federal government has met its' burden of consultation with the proper rights-holders, the First Nations of B.C. While the FNFC supports First Nations on fisheries issues, it does not hold rights nor can it speak on behalf of rights holders. The issue of consultation and accommodation is a matter that requires bilateral discussion between the federal government and the proper right-holders.

Views and Priorities

Introduction

First Nations in B.C. have relied upon and have practiced forms of sustainable aquaculture for thousands of years. More recently, they have lived with modern-day finfish and shellfish aquaculture in their territories for over 30 years. While First Nations are generally supportive of shellfish aquaculture and welcome opportunities to start their own shellfish aquaculture ventures, they are less supportive of finfish aquaculture as it is currently practiced in B.C.¹. Concerns about finfish aquaculture have been the subject of much discussion in recent decades (B.C. Salmon Aquaculture Review 1995; Gardner and Peterson 2003; Pacific Salmon Forum 2009). Moreover, two fish farming summits specifically for First Nations discussion on the issues around fish farming were convened (e.g., see proceedings from two First Nations conferences on aquaculture: B.C. Aboriginal Fisheries Commission 2002, Urban 2003).

Despite the inquiries and conferences, many First Nations feel little progress has been made in addressing their concerns about finfish aquaculture. This has led to expressions of frustration with a government and an industry they feel are non-transparent and unresponsive. They feel their rights and title are not being recognized in the decision-making and management of aquaculture (for a legal analysis of First Nations rights and title and the duty to consult on the DFO aquaculture initiative see Ratcliff & Co. 2010). Although title and rights are not defined by the Constitution Act in Sec. 35(1), they are increasingly being defined by courts (e.g., see case law analyses in Braker & Co. 2003 and 2005). Most First Nations are of the view that they have a right to enjoy broadly defined benefits of natural resources in their territories and that these rights are infringed upon by the aquaculture industry, and by fish farming in particular. The potential for infringement extends to First Nations in the interior of the province who do not have fish farms physically within their territories.

The current court-mandated shift in the management responsibilities for aquaculture from the Province of B.C. to Canada creates an opportunity for First Nations to have a significant and meaningful voice in a new regulatory regime. Providing their input is integrated into a new regulation, First Nations are cautiously hopeful this will spark a new era for aquaculture

¹ First Nations opinions are not unanimous, although many First Nations are opposed to current practices of finfish aquaculture. Some First Nations have successfully partnered with fish farm companies in their territories, e.g., Ahousaht, Kitasoo/Xai-xai.

management, one in which their concerns and interests will be addressed and the conservation of natural resources and habitats will be firmly upheld as the priority in management. This report reflects the views and priorities, as well as aspirations, for the future of aquaculture management, as heard from First Nations throughout B.C.

Background

Currently the management of the aquaculture industry in B.C. is being transferred from provincial to federal jurisdiction under the department of Fisheries and Oceans Canada (DFO). This shift in jurisdictional authority is a result of the February 2009 B.C. Supreme Court ruling in the *Morton* case. In this case, the judge ruled that fish reared in ocean cages qualify as a fishery, and are therefore under the jurisdiction of the federal government. It was ordered that the federal government enact regulations for the governance of all forms of aquaculture (with the exception of marine plants) within 12 months of the ruling. A recent extension has been granted, extending the jurisdiction of the Province until December 18, 2010. As a result of the *Morton* case, management of the aquaculture industry will require significant reform in order to balance the management responsibilities and jurisdictions of both the federal and provincial governments. DFO is engaging with First Nations and stakeholders as it prepares to implement new regulation and policies.

Nine regional meetings were co-hosted by the First Nations Fisheries Council (the Council) and Fisheries and Oceans Canada (DFO) in February and March 2010. Meetings were held in Chilliwack, Kamloops, Prince George, Alert Bay, Port Hardy, Bella Bella, Nanaimo, Haida Gwaii and Prince Rupert. The purpose of these meetings was two-fold. The first objective was to share with First Nation communities the information and recommendations in four reports related to aquaculture commissioned by the Council². The second objective was to seek input and guidance from First Nations to inform the drafting of this discussion paper expressing the views and priorities of First Nations on the proposed federal aquaculture regulation, and to facilitate initial dialogue with DFO with respect to the nature of the development of the regulation. Each meeting was divided into two sessions: the morning session was for First Nations representatives only (Tier 1) and the afternoon session was held with DFO (Tier 2). In two cases (Alert Bay and Nanaimo) a representative from the B.C. Ministry of Agriculture and Lands (MAL) was in attendance.

To assist with the discussion, representatives from DFO's aquaculture branch were invited to explain the proposed new regulation. Andrew Thomson, DFO Director of Aquaculture Management, Pacific Region, presented this information. DFO previously distributed a Discussion Document wherein preliminary proposed contents of a new aquaculture regulation were outlined. Thirteen 'strategic questions' were posed in the DFO document to stimulate questions and

² Copies of the commissioned policy pieces are available on the First Nations Fisheries Council website: www.fnfisheriescouncil.ca

discussion about the contents of the proposed regulation. The discussion component of each meeting was organized around the thirteen questions.

Report Goals and Contents

This report is a synthesis and interpretation of the comments that were made by First Nations participants at the February and March 2010 meetings in response to DFO's thirteen strategic questions about the proposed federal aquaculture regulation. Although this document expresses the views and priorities of B.C. First Nations, it is not intended as a record of the discussion at individual meetings. Each First Nation community's comments must be reviewed independent of others. For that record, see individual meeting reports available through the First Nations Fisheries Council³.

This report is intended to provide guidance to DFO over the coming months while it drafts the new B.C. aquaculture regulation. To do this, the comments were organized in two ways, according to **overarching themes** that emerged and according to the **strategic questions**.

A number of **overarching themes** arose from the meetings. As issues or topics kept coming up under more than one question heading, it became apparent these were themes that superposed the questions. Thus a choice was made to expand on these overarching themes, rather than fit the comments solely around the contents of the regulation, and in the process risk losing some of their relevance.

The strategic questions approach involves a summary of the predominant points that came up for each question. To assist with this analysis, comments from each meeting were compiled into one table and organized by strategic question (Appendix 1).

Throughout the community meetings, the interlacing of themes and comments produced a compelling narrative. This narrative sets the tone for the detailed responses of meeting participants, and will provide a better appreciation of individual comments.

The Narrative

First Nations view the initiative by DFO to develop a B.C. aquaculture regulation in a generally positive light. They are highly interested in working with DFO on this project. There is, however, there is a long history of strained relationships between DFO and First Nations over fisheries. For First Nations, overcoming the distrust will require jointly agreed upon communications and structured consultation protocol agreements. Such agreements must 1) recognize First Nations rights and title, 2) accommodation for infringement of those rights and title, and 3) must allow for a

³ Reports of each First Nations community meeting are available on the First Nations Fisheries Council website: www.fnfisheriescouncil.ca

co-management role for First Nations, complete with decision-making authority. These three fundamental conditions must be met before all other concerns and expectations can be considered.

First Nations envision the community meetings held in February/March 2010 as a beginning. The First Nations that attended have provided some feedback to DFO about the contents of the regulation but they will not accept that this is the end of their input into the regulation or related policy. As these meetings were seen as a first step in a dialogue, the nine meetings which took place were not seen as fulfilling the Crown's consultation obligation. First Nations fully expect to continue to work with DFO on the regulation to 'get it right'.

First Nations have strong opinions about what the regulation for aquaculture should look like in terms of a vision, principles and scope. These elements of the regulation all need to be framed in a context that explicitly recognizes First Nations and their rights and title and a central place for First Nations in management and decision-making. Stemming from that fundamental truth is the need to acknowledge the primacy of the need to conserve and restore ecosystems and all the species within these ecosystems, as well as their ecological functions. In order for aquaculture to meet these high environmental and social standards, parameters will have to be set that define clear limits. These parameters may look quite different from the present system of management. First Nations' expect that the aquaculture licence process and management of licences will operate with transparency and be subject to approval from First Nations, with full participation of First Nations at each step of management along the way. Enforcement is an area where First Nations will not tolerate half-way measures. They expect to take on enforcement roles, with corresponding authorities. As those who directly bear the burden of environmental damage from aquaculture operations, First Nations expect a regulation that is precautionary in nature, sets clear expectation on industry, and is tough on offenders. If industry cannot meet high environmental standards, or if operators do not comply with these standards, then farms should cease operations.

The most effective way to introduce the necessary improvements to management and decision-making is through the introduction of an Area-Based Management approach. Although the scope of the regulation as outlined seemed to contemplate Area-Based Management more as a policy direction, and not something that would necessarily be incorporated into the B.C. Regulation, First Nations view that Area-Based Management is fundamental to the approach required to effectively manage aquaculture under a new B.C. regulation, and therefore a section of the Regulation should be devoted to a description of such an approach.

It is an ambitious agenda. First Nations recognize that many of their Nations do not have the capacity to participate as fully as they would like. They will require long-term commitments in the

form of financial support, resources, and programs to gain the knowledge, experience and infrastructure to reach their desired level of participation. They remain hopeful.

The Overarching Themes

The concerns and thoughts expressed by the participants of the nine meetings can be separated into ten overarching themes (Table 1). These themes are broadly defined and tended to emerge throughout separate elements of the proposed regulation. For example, the acknowledgement of First Nations rights and title is something that First Nations expect to see explicitly stated in the vision, principles and addressed in the scope. It is so fundamental that it will subsequently inform all other components of the regulation and authorize such benefits as a first right to access licences, the ability to conduct on-farm inspections and the ability to access “private” farm data.

This fundamental principle is also the basis for First Nations’ demands with respect to control of tenures and licences in their territories. Ultimately, First Nations aspire to govern and issue licences in the same manner as DFO. As an initial step toward that goal, First Nations seek a co-management role with DFO in governing and managing aquaculture activities. All new, expiring or renewed tenures within a territory should be offered to the First Nation on a priority basis. If a First Nation accepts the tenure DFO would transfer the authority to manage any activities on that tenure to the First Nation. Subject to negotiation, the management could be either delegated wholly to the First Nation or shared with DFO in a co-management agreement. The First Nation would have the option of holding a licence for farming activities on a tenure or leasing it to a company. In the latter case, the First Nation would regulate the licence and collect the fees. In such an arrangement, First Nations would take on the rights and the role of management as a level of government. At this point, few First Nations have such capacity to fully undertake the rights and responsibilities of such a role, but the ‘business as usual’ mode whereby the federal and provincial governments make these decisions unilaterally is no longer acceptable.

Table 1. Overarching themes heard throughout the First Nation community meetings.

Themes	Description	Sub-themes
1. Acknowledge First Nations rights and title.	First Nations rights and title needs to be enshrined in the vision and articulated as a principle of managing aquaculture. All subsequent regulations, policies, licence conditions, etc., must reflect this basic acknowledgement.	First Nations ownership of licences and tenures; need for institutional capacity for First Nations; uphold First Nations marine use plans; involve First Nations in all aspects of aquaculture management and science; share licence fees with First Nations; First Nations take on enforcement roles.

Themes	Description	Sub-themes
2. Conservation and restoration of wild stocks and their habitats.	<p>Conserving and restoring ecosystems and species in these ecosystems must take precedence and guide all activities of aquaculture.</p> <p>The regulation and policies regarding aquaculture must be based on an area and ecosystem-based management scale.</p> <p>Aquaculture management must be built around the principles and action plans in the <i>Wild Salmon Policy</i>.</p>	<p>Include far-field indicators in impact assessment and monitoring; utilize First Nations traditional knowledge; support increased scientific inquiry to examine the actual and perceived impacts of aquaculture, especially finfish aquaculture.</p>
3. Develop improved processes for the co-management of aquaculture, which should include the introduction of an Area-Based Management approach.	<p>Develop joint agreements with First Nations for consultation and co-management.</p> <p>Timeline for the drafting and enactment of the regulation is too short for meaningful consultation.</p> <p>Consultation and co-management for ongoing involvement of First Nations in managing aquaculture must be according to standards set by court decisions (e.g. Haida/Taku, Ahousaht).</p>	<p>First Nations assert rights to their territories, and see the potential for aquaculture activities to infringe upon these rights. First Nations therefore request meaningful engagement and consultation.</p> <p>First Nations require capacity to participate meaningfully.</p>
4. Incorporate Title Recognition into issuance of Tenure and into Licence Ownership.	<p>Based on First Nations title and rights, First Nations demand control over tenures and licences in their asserted territories.</p> <p>Most First Nations do not have the capacity to assert authority over the regulation of aquaculture in their territories. However, they aspire to a genuine decision-making role in a co-management arrangement.</p>	<p>First rights to refusal for tenures and licences within a First Nation's territory should be granted to the First Nation.</p> <p>First Nations should be authorized to 'veto' licence decisions.</p>
5. Improving Transparency	<p>Information about farm management or practices that impact First Nations territory holders should be forthcoming upon request.</p> <p>All data and information should be accessible because First Nations are not 'public'. They are a form of government, and their 'Nation' status should give them full access to data and information.</p> <p>Government decision making and processes need to be transparent and accountable.</p>	<p>Information First Nations might want: data about farm practices, how a licencing process is handled, how licencing and management decisions are made, what substances are used and their impacts, by-catch data, disease and sea lice data, etc.</p>
6. Basing Management on Science and Comprehensive Environmental Assessment.	<p>Broaden the scope of environmental assessment and monitoring to include far-field and cumulative effects.</p> <p>Incorporate First Nations traditional knowledge in the development of indicators, baseline thresholds, and observations of change in environment.</p> <p>First Nations need sound science to answer questions they have about impacts of aquaculture.</p>	<p>Increased science to explore far-field effects of farms on wild stocks and habitat, including nearby clam and other shellfish beaches.</p> <p>Include First Nations in developing and conducting scientific studies.</p>

Themes	Description	Sub-themes
7. Regulations Review and Adaptive Management.	Regulations and policies should be subject to periodic review (i.e. 3-5 years). Use findings of neutral or independent science to revise regulations, license conditions, practices and policies.	An adaptive management policy is needed to ensure that new information is incorporated into practice.
8. Broader and Inclusive Monitoring.	Scope of monitoring must be expanded to include First Nations interests in the 'far-field' (e.g., beyond the tenure boundaries). More dynamic monitoring needs to look at broader metrics for assessing impacts on the ecosystem. Create opportunities for First Nations to conduct third party monitoring.	Capacity for First Nations guardian-type programs. Explore feasibility of on-farm cameras for monitoring activities. There should be monitoring on boats, at harvesting on/off loading sites, and for mort removals. Monitoring should be as strict as it is in the commercial fisheries sector. Develop 'whistleblower' protection mechanisms.
9. More Stringent Enforcement.	First Nations expect a much stricter and tougher approach to enforcing compliance with the regulations than has been the case with the Province. First Nations should be trained to conduct inspections and be enforcement officers.	Enforcement should be in place to deter non-compliance; fines should be higher; there should be a 'three strikes' policy for infractions, resulting in a termination of license.
10. Building capacity for improving management and for increased meaningful participation of First Nations.	More knowledge and understanding is needed about the industry and its impacts before First Nations can participate meaningfully. First Nations need funding and support through programs like the Aboriginal Fisheries Strategy or the Aboriginal Aquatic Resource and Ocean Management programs, as well as through direct revenue sources like licence fees or taxes to support their capacity building to participate in aquaculture management (management of operations, consultation, science, monitoring, enforcement).	Link to Area-Based Management

The discussions in the meeting were frank and the overarching themes above sketch out an alternative vision of a regulation from that proposed by DFO in the Discussion Document. The themes that emerged are consistent with First Nations expectations articulated elsewhere (e.g., Union of B.C. Indian Chiefs 2009; *First Nations Panel on Fisheries* 2004; the *First Nations Fisheries Action Plan* 2007), and are backed by ongoing findings in case law. Essentially First Nations are looking for full participation in governance, economic opportunities, science, and monitoring and enforcement related to aquaculture.

There is an expectation that with greater involvement First Nations will have more influence over what types and levels of aquaculture take place in their territories. That could mean some communities may insist on a prohibition of certain kinds of aquaculture, or the requirement of certain types of technologies in their territorial waters. Closed containment may be a standard set by some First Nations for finfish aquaculture operation within their territories. .

Some of the comments or recommendations within this report may be perceived as **negative** toward certain forms of aquaculture. There is a context, however, of up to 30 years of frustration during which First Nations have watched natural environments deteriorate and their share of resources diminish. First Nations' see themselves as having an obligation to protect and restore the environments in their territories, and in some cases there are concerns that those environments have been severely compromised by past and present management practices.

An inclusive arrangement with First Nations as co-managers of aquaculture needs to be explored. First Nations active involvement would yield first hand learning and experience about aquaculture, and would allow First Nations to gain a greater understanding of what is involved in all aspects of managing as well as operations. Offering First Nations the right to hold aquaculture licences in their territory may give them a greater interest in working with industry to improve practices and technologies. As an example, the Kitasoo/Xai-xai First Nation, as the licence holder of the fish farms in its territory, is involved in managing the fish farms in its territory and conducts regular monitoring of its traditional resources, including far-field indicators of health of wild fish and shellfish.

Ultimately, the priorities of most First Nations are not that different from the expectations of other coastal communities. All are interested in economic opportunities for their people that are compatible with healthy ecosystems and the species living within them. Aquaculture has the potential to provide employment directly through ownership in the industry; through management, monitoring and enforcement; and through businesses supporting farm operations. First Nations welcome these opportunities. Aquaculture constitutes a potential infringement on asserted title and rights, and therefore First Nations need to fully understand the risks and benefits associated with this industry. As is the case for other fisheries, First Nations are simply seeking meaningful involvement in the management of activities that take place in their territories.

The Strategic Questions

1. Vision.

The vision presented by DFO focuses on industry growth and neglects the context within which aquaculture operates. In B.C. there are no fish farms that operate outside of a First Nation territory. Thus a properly inclusive vision must acknowledge First Nation title and rights.

Aquaculture has the potential to infringe on First Nations rights, and so the federal government has an obligation to consult and accommodate. First Nations' desire to co-manage aquaculture alongside DFO must be validated.

It is not enough that DFO envisions an “environmentally and socially responsible, economically prosperous and internationally competitive” industry. These concepts are left undefined in the vision statement. This lack of definition combined with the vision's emphasis on industry growth do not bring confidence that conservation and restoration of fish and fish habitat is DFO's priority, or that this takes precedence to the growth of the aquaculture industry. A shift in tone and emphasis from industry growth to conservation of fish and fish habitat is necessary to clarify DFO's focus.

Numerous other elements that should be included in the vision were brought forward. The concepts of managing the industry on an ecosystem-basis, committing to transparency, and committing to new technologies that reduce environmental risk were thought to be key elements for a vision. Elements of existing provincial commitments to First Nations and a linkage to First Nations' Marine Use Plans could also be captured in the vision.

2. Principles.

While the vision should present an image of the aspired-to future, the principles governing aquaculture must encapsulate all fundamental truths, concepts or values that represent desired or positive outcomes. These will then serve to guide in determining right and wrong choices. The important role played by the principles in influencing outcomes make it critical that they reflect the truths and values of First Nations. Why single out First Nations - because First Nations assert rights to the territories where fish farms operate, and there is the potential for aquaculture activities to infringe upon these rights. As well, First Nations have noted that in many cases it is they who bear the risk created by this industry.

First Nations title and rights are protected under Section 35.1 of the Canadian Constitution. As First Nations interpret court decisions, these rights include (but are not limited to) access to resources and activities that may be adversely affected by aquaculture. In some cases First Nations also assert a right to the benefits (social or economic) of aquaculture activities (i.e. traditional clam beds). Thus recognition of First Nations rights and title is a principle that must be explicitly stated to ensure that aquaculture develops in a way that management and operation of the industry does not negatively affect First Nations. Several recent court decisions on First Nations title and rights have laid out directions for avoiding infringement that are applicable to aquaculture (e.g.: *Sparrow*, *Delgamuuk'w*, *Marshall*, *Haida/Taku*, *Ahousaht*, and *Homalco*). Incorporating the spirit of these judgments into the principles should improve the prospects for a healthy aquaculture industry on the B.C. coast.

The concepts and values that follow from the affirmation of First Nations rights and title include striking co-management agreements that give First Nations decision-making powers⁴, enabling First Nations to build capacity to participate fully, to have their views of sustainable aquaculture implemented, and to incorporate their traditional local and ecological knowledge into all aspects of aquaculture management. Aquaculture has the potential to influence broad ecosystem impacts. In order to minimize these, aquaculture must be managed on an area and ecosystem scale. DFO policies such as the “No Net Loss” habitat policy, and the *Wild Salmon Policy* are consistent with First Nations values of conservation and restoration of species and ecosystems, and must be referenced in the principles. Finally, the *precautionary principle* must be explicitly articulated in a way that ensures decisions are made with full knowledge and understanding of the risk, and in situations of incomplete knowledge decisions are made which err on the side of caution. Transparency and accountability ensure that undesirable outcomes will be dealt with in a fair and effective manner.

3. Scope

A larger scope would create more opportunities for First Nations to participate in some form of aquaculture. This means expanding the scope to include a wide variety of species, styles and scales of aquaculture. It also means expanding the topics that are covered under the regulation such as encompassing environmental assessment, monitoring and enforcement.

Diversity of Aquaculture. In general it was voiced that the cultivation of any species, whether it be geared towards sale or enhancement purposes, should be included in this regulation. Although the support was not unanimous, most participants expressed a desire to include enhancement activities and ocean ranching under the scope of these new regulations. Additionally, some consideration should be given to including marine plants and algae, even though the ruling of Judge Hinkson explicitly excluded these forms of aquaculture. Regardless of the species, all stages of their life-cycle should be regulated. Many First Nations felt that if enhancement and ocean ranching are not going to be included in the B.C. Regulation that DFO needs to commit to another parallel process which will include a comparable approach for these issues.

First Nations recommended that the regulation expand its vision of aquaculture to include all forms of aquaculture, which could be more loosely defined as practices whereby there is intervention in some aspect of a species lifecycle. This would include on-land closed containment systems, ocean-ranching as well as hatcheries geared towards enhancement activities. Any practice associated with any of these activities also would be regulated. For example, transporting the

4 The Principle of Parity disallows one government in a co-decision procedure from making a decision without the assent of the other government.

product from one facility to another. Concerns were also raised related to peripheral operations like processing and maintenance facilities and the potential for associated environmental impacts.

Since aquaculture tenures exist within a First Nation territory, most First Nations believe they should have the right to first refusal to own licences. To promote First Nations to exercise this option, regulatory incentives should be created to encourage forms of aquaculture more suitable for small, starting companies. Moreover, as closed containment systems of finfish aquaculture are preferred by most First Nations, regulatory incentives should be created to promote the development and commercial use of this emerging technology.

The discussion around scope also turned to content of the regulation. The scope of licencing, environmental assessment and risk assessment, monitoring, and enforcement should cover cumulative and far-field effects to ensure aquaculture impacts are understood and accounted for beyond the immediate site. Incorporating First Nations' local and traditional knowledge must go hand in hand with such an expanded scope if the ultimate goal of fisheries conservation is to be achieved. Furthermore, fisheries conservation and restoration goals could be further enhanced by integrating the management of aquaculture with wild fisheries management.

4. and 5. Licences and Licencing Conditions

The discussion about the content of licences centered on three main topic areas: 1) specific licence conditions; 2) monitoring; and 3) fines.

Licences. Licences and licence conditions should be established with a goal of protecting the ecosystem in which a farm or farm associated facility is located. As stated in the scope, any activity associated with aquaculture should be regulated by a licence, whether that be marine or freshwater farms, land-based aquaculture, hatcheries, freshwater grow-out operations, maintenance facilities, or processing plants and associated waste disposal. Protection of ecosystems is meant very broadly to include species and their ecological functions, populations, habitats and ecosystem functions. Thus defined, licences would cover requirements for environmental impact assessment, monitoring, best practices that reach beyond the immediate boundaries of the tenures and are expanded in time and space to include cumulative effects and far-field effects on ecosystems components and indicators that are of value to First Nations and others, as well as to ecosystem health.

Prospective licencees should be required to compile a thorough inventory of a set of area and ecosystem-based indicators that serve as a baseline for measuring future performance. The survey should include such data as diversity measures, population abundances, habitat description and levels of contaminants present in the habitat and species. Second, a description effects of the aquaculture operation will be undertaken at an ecosystem scale, taking into account impacts on

appropriately selected ecosystem components and indicators, existing activities and marine use plans, and how these meet pre-defined sustainability targets. Area-based environmental studies are needed to determine the carrying capacity of areas (in terms of number of farms the area can support) in order to better understand the potential for cumulative impacts. If a licence is granted, it will be subject to meeting stringent conditions that apply to the same broadly defined set of indicators.

Numerous suggestions were made relating to what should be included in the licence, and these included such elements as prohibiting the use of lights on farms at night, restricting locations where nets are cleaned, prohibiting any unauthorized by-catch in netpens, prohibition of escapes (in all stages of fish life cycles), a requirement for permanently tagging fish cultivated from imported eggs, and monitoring of disease and presence of sea lice on wild fish as well as farm fish. Others restraints, such as establishing maximum production limits should be explored. As these meetings were initial information sharing meetings, First Nations were not prepared with proposed comprehensive lists of licence topics and conditions. Nonetheless, this is a section of the regulation that First Nations feel is critical and they desire to have the level of input they feel is appropriate to such an important task.

License conditions should also clearly outline the penalties associated with a breach in conditions of the license. For example, if an aquaculture operation is expected to retain care and control over its animals at all times, clear financial and possibly criminal sanctions should be outlined as penalties for violating the conditions of license.

Monitoring. To ensure a licensee is meeting the licence conditions third party monitoring must be conducted. It was unanimously stated that industry self-monitoring is unacceptable. Data must be evaluated to determine whether thresholds of environmental and socio-economic indicators are being met over time. First Nations believe there is a major role for them to play in monitoring the industry, in both on-site monitoring and far-effects monitoring, but note that as with other fisheries, the costs for this monitoring should be paid for by the aquaculture industry.

Fines. The proposed maximum fine of \$1000 is believed to be too low to act as a deterrent to large corporations. It was suggested that fines could be lobbied against individuals employed by corporations to decrease the perception that the fines could be viewed as ‘a cost of doing business’. In addition to increasing the fine amount, a graduated sanctions model should be considered for repeat offenders. Loss of licence should be imposed as a final sanction.

Aquaculture is an evolving industry. Research and development improves our knowledge of the industry and its impacts while stimulating innovations for new techniques and practices. A formal

review of the regulation within a set period of time, e.g., 3 to 5 years, must be written into the regulation so that it can be updated with the latest and best information.

The section in the regulation on licences is technical and in many cases is beyond the ability of many First Nations to comment on comprehensively at such an initial date in the process. However, they believe that the contents of this section will form key components in the successful management of aquaculture. First Nations envision working closely with DFO to draft the licence conditions and will expect that their traditional ecological knowledge will be used to identify indicators and set thresholds for these conditions. Most First Nations do not currently have the capacity to manage this degree of participation and will need additional support and resources to realize this aspiration.

6. Pollution Prevention Measures

Aquaculture discharges effluent comprising an array of chemical and biological substances into environments that First Nations rely on for traditional foods. Under the previous regulatory regime, First Nations were not satisfied that the focus on on-site/ near-field effects was adequate to protect their resources within the larger ecosystem. A new set of measures must take into account pollution impacts on a wide variety of indicators within a defined ecosystem or area-based parameter. These measures will include identifying, and monitoring the health of, resources such as shellfish beds, kelp beds, wild salmon and other fish species; the health of the ocean floor ecosystem and impacts to species that consume uneaten fish feed, not just under the farm, but more broadly, at distances away from farming sites. Furthermore, the cumulative effects on the environment of effluents from an aquaculture farm or associated facility must be evaluated.

To assist in the management of pollution, more information and research is needed on what substances are used on a farm, what the impacts of those substances are on any given indicator, and how they behave in the environment. Substances requiring increased scientific attention should include the use and impacts of heavy metals, disinfectants, anti-foulants, antibiotics, pesticides/ herbicides, fish feed, fish feces, offal and blood water. Thresholds or criteria must be set based on scientific research of the risks of the substances, and subject to periodic review to ensure they stay up-to-date with the latest risk research. Where there is uncertainty about the level of risk, the precautionary principle should be applied and a substance restricted or banned.

Measures to reduce waste entering the environment should be promoted, such as polyculture or integrated multi-trophic aquaculture systems. Despite pollution prevention measures, if pollution from fish farms adversely affects food, social and ceremonial fisheries, accommodation must be offered to the affected First Nation commensurate with the loss. Both taxation for the use of higher-risk materials, and penalties associated with negative environmental impacts, should be incorporated in to a pollution prevention approach.

7 and 8. Notification and Reporting

As partners in co-management, First Nations expect to receive ongoing and timely notification and reports on operations and monitoring as they occur. Privacy or confidentiality concerns do not apply to First Nations, operating as they are in the capacity of a governing institution. However, the scope of what is reported on should be expanded to cover all data required by the licence (baseline, operations, monitoring, etc.).

Some of the information First Nations would like access to include dates and numbers of fish involved in stocking and harvesting, reports of disease outbreaks and medication treatments, nuisance predator actions/activities, documented low oxygen episodes, use of restricted products, mortalities, by-catch or unintended impacts in netpens or any part of the production cycle, and the results of on-site monitoring. Reporting of escapes to First Nations should be immediate, include the numbers of fish involved in an escape. A provision requiring farm fish be tagged would be useful for tracing escaped fish back to their farm of origin.

Reporting roles and pathways will need to be clarified so that First Nations receive the information in a direct and timely fashion.

9. Enforcement

Once the scope and conditions of the licence are agreed upon, stringent provisions for enforcing the licence need to be followed. Against a backdrop of previous non-transparent aquaculture management, First Nations believe that the finfish aquaculture industry has been non-compliant, even with current lax standards. Furthermore, First Nations believe that in general, the sanctions that have been applied in the past were not sufficient to guarantee industry compliance. In this context, First Nations are expecting the new regulation to impose more strict enforcement provisions and inspection regimes (see Section 10 and 11 below).

DFO and First Nations will need to work collaboratively to ensure that there are trained staff and associated resources required to effectively enforce the regulation. More spot-checks and on-site monitoring are needed to support enforcement, and surveillance cameras should be considered on farms as required on commercial fishing vessels. The enforcement of aquaculture should be aligned with other fisheries enforcement regulations to more effectively reach common conservation goals. Enforcement should also be locally based and must involve First Nations enforcement officers wherever possible. This may include partnership with Watchmen or Guardian-type programs. These additional enforcement activities should be paid for as a cost of doing business by industry, but conducted by third parties.

Enforcement must also include a provision for protecting ‘whistle-blowers’ that report violations of the regulation. At the present time First Nations believe that staff working for finfish aquaculture

must sign confidentiality agreements which do not allow them to speak out about illegal activities which may go unreported.

10 and 11. Inspections, Attestations, Audits and Fees

Aquaculture licencees will be expected to conduct monitoring and keep records of on-site operations, but rigorous enforcement also relies on periodic independent inspections or searches. On-site inspections of farm operations should be more frequent than the Province's current schedule, be unannounced and be conducted by trained First Nations fisheries or enforcement officers in conjunction with DFO.

Expanding the level and scope of environmental assessment, monitoring, reporting and enforcement will come with increased costs. Revenue generated from licence fees is a source of funding for this activity. Licence fees should be increased and charged annually. They should also be linked to the level of risk associated with the operation. For example, a sliding scale could be established based on size or production capacity of the farm operation, the type of farm, or amount of discharge produced, where operations that undertake the initiative to lower environmental impacts will pay less in license fees.

At present, the Province has raised most of the \$2.9 million it collected in aquaculture fees from the issuance of tenure. These funds have been allocated to general revenue. While DFO is considering apportioning some or all of the fees it collects into programming, a portion of fees should be allocated to the First Nation territorial holder to cover environmental damages and habitat restoration initiatives. Tenure fees collected by the Province should also be allocated to First Nations title-holders. In addition to fees, costs for third party monitoring, monitoring of far-field effects, and enforcement should be borne directly by industry.

There was little discussion about the merit of attestations in the sessions. Overall, there was a general concern that attestations or government endorsement of finfish aquaculture products could be seen as presenting the industry as a whole as being sustainable. Many First Nations expressed concerns with the sustainability of the current open-net based salmon farming industry. However, First Nations also expressed interest in a 'First Nations branding' of products produced by First Nation owned/operated companies. It was discussed that this form of branding could be beneficial to First Nation companies, and increase market awareness for First Nation products.

12 and 13. Supporting Policies and Guidelines

The subject and content of supporting policies and guidelines is another area that will require more intense involvement with First Nations. At this juncture, First Nations offer the following advice. The *Wild Salmon Policy* must be established as the standard to which any aquaculture policies and guidelines refer. This policy establishes ecosystem-based management as the standard approach

to managing fisheries activities, including aquaculture. It recognizes fundamental principles of First Nations title and rights, including the legitimacy of co-management with First Nations and the integration of First Nations traditional knowledge in management. The development of aquaculture regulation policies and guidelines must follow on these and the other principles in the *Wild Salmon Policy*. Guidelines and best practices⁵ will be needed to support the licences and these should be closely integrated with the regulation.

In addition, it is clear that Area-Based Management will play a significant role in the future development of the industry, and in the engagement of First Nations in the critical elements of siting, management, science, and enforcement. The developing of supporting policies and guidelines clearly need to expand upon the opportunities that are presented in the development of such an approach in B.C.

The Path Forward

The February and March 2010 meetings gave First Nations a preliminary opportunity to share their views and priorities on the regulation of aquaculture with DFO. These views have been summarized in the preceding pages⁶. Input from the First Nations attendees to these meetings, however, was preliminary and sometimes not based on sufficient information or understanding. This does not mean the input or certain ideas should be disqualified, nor does it mean that everything important to First Nations was captured in these comments. It simply means that these views are not conclusive. Following these meetings, and commitments made in the meetings by DFO, there is now an expectation that DFO will work closely with First Nations throughout the process of drafting and finalizing the regulation to explore or flesh out ideas in more depth. Included among the specific areas that will likely require follow up work are the sections on licence and licence conditions and on pollution prevention measures. This will entail meeting with individual Nations and their organizations, and providing these groups with adequate capacity to participate to the degree necessary for such a technical and demanding task. Agreement on an acceptable consultation process through which these discussions will take place will be critical. Indeed at this point, many First Nations have rejected the federal initiative on aquaculture on the grounds that it does not meet Canada's legal and constitutional obligations to First Nations (see Union of B.C. Indian Chiefs Resolution No. 2010-14, March 30, 2010)

Following discussions which took place at the aquaculture community sessions, First Nations expect the transfer of aquaculture authority from the province to the federal government will mark a

5 A list of best practices for consideration in drafting a new regulation was compiled in *Aquaculture Policy and Past Inquiry Recommendations on B.C. First Nations Title and Rights* (Urban 2010). Available on the FNFC website: fnfisheriescouncil.ca

6 As a reminder, this report is a synthesis of comments from nine meetings representing a wide variety of experiences. DFO is advised to refer to the individual meeting reports.

new beginning, one that will allow them to have a say in the siting, management, science, and enforcement of aquaculture that they have not had in the past. From this perspective, drafting and finalizing the regulation is only the beginning.

First Nations have laid out their demands for full inclusivity in matters of aquaculture siting and management, monitoring and compliance, and science. To be sure, the capacity in most First Nations to follow up in a co-manager role will require a transitional period. They will need much experience and financial and technical assistance to become equal players in co-management. Despite capacity they may be lacking for full involvement, there are ways a First Nation could become involved immediately at an intermediate level. An exploration of the spectrum of co-management models available needs to be completed and presented to First Nations for their consideration. Discussions among themselves on a Tier 1 basis, and then with DFO and British Columbia on a Tier 2 basis will be required to develop terms and models for co-management and Area-Based Management at a level that is appropriate for each First Nation.

Another subject that should be explored at greater length is the possibility of making the issuance of a licence contingent on reaching an agreement between an aquaculture company and the First Nation territory holder through some form of agreement. The terms of such an agreement would more precisely identify and address the specific concerns of a First Nation. Although a number of such arrangements currently exist, in some communities there is a lack of understanding of what the agreements actually mean, and there are questions relating to the risk-benefit analysis of engagement with aquaculture. Although there are some successful agreements that exist, e.g., Kitasoo/XaiXai and Ahousaht, the general preference is that the terms of engagement of First Nations in the important elements of decision-making for aquaculture need to be written into the B.C. Regulation, and not dependent upon the goodwill of a company to negotiate these terms.

The emergence of overarching themes indicates a high degree of consistency among B.C. First Nations despite differences in location, priorities, and/or experience with aquaculture. Moreover, the themes echo those voiced at the meeting with DFO and the representatives of the Aboriginal Aquaculture Association⁷, a group promoting sustainable aquaculture for First Nations. Upholding the priority of a healthy, rich natural environment and respect for First Nations title and rights and all that entails is consistent with all First Nations regardless of their position on aquaculture.

⁷ Federal-B.C. Aquaculture Regulations and NASAPI Meeting Summary, December 14, 2009. Available at www.fnfisheriescouncil.ca

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Appendix 1. Compilation of First Nations Comments

The following table is a compilation of comments addressing the proposed federal aquaculture regulation made by First Nations participants in nine community meetings during February and March, 2010.

Compilation of Comments
General Comments
<p>The priority of First Nations rights and title must be recognized and accommodated throughout the regulations. Present and previous infringements of aquaculture on First Nations rights must be addressed.</p>
<p>First Nations priority is protecting and conserving wild stocks and habitat (e.g., <i>Wild Salmon Policy</i>). Wild stocks migrating to interior streams make aquaculture an interior issue as well as a coastal issue.</p>
<p>First Nations want to co-manage aquaculture with DFO. Decision-making powers must be part of any co-management agreement. First Nations have a desire for broad involvement in aquaculture. For example: involvement in the science for setting licence conditions, managing the day-to-day aspects of aquaculture, and siting; incorporating First Nations local and traditional knowledge into all aspects of aquaculture management; and first opportunities on all aquaculture-related contracts.</p>
<p>Closed containment systems should be developed and transitioned into use in B.C.. An evaluation of environmental issues (e.g., water and power usage) of closed containment systems is still needed.</p>
<p>Funding agreement is needed to promote First Nations involvement, to develop sustainable communities, allow local First Nation ownership of aquaculture, and to encourage a management role for First Nations. More scientific research and dissemination of results is needed so First Nations can understand issues.</p>
<p>The regulations and policies should be written in clear language. A user-friendly guide document should be created that interprets the regulation and policies and should be made available with the release of the regulations. Ensure regulation and any related information is accessible and simple to find.</p>
<p>Existing aquaculture licences will have to be re-issued under the new aquaculture regime. No tenures or licences should be approved in First Nations territory without the First Nation's approval. Includes expansion applications of existing licences or transferring of tenure uses from finfish to shellfish.</p>
<p>First Nations aspire to own all aquaculture tenures or licences in their territories. They should be offered first rights of refusal for all tenures and licences in their territories. First Nations as rights holders shouldn't need tenures to operate aquaculture in their own territory.</p>
<p>Aquaculture must be managed under an area and ecosystem-based management approach where spatial delineation of an area is agreed upon by First Nations.</p>
<p>The aquaculture regulation should be specific to B.C. and not have to conform to practices or standards set in other regions of Canada.</p>
<p>The regulation must manage the sea lice issue to deal with lack of transparency. Confidentiality agreements must be reached between First Nations, industry and government to allow for free information sharing.</p>
<p>Roles of federal departments other than DFO will have to be defined, e.g., Environment Canada and Health Canada. Inter-agency communication needs to be improved.</p>
Consultation on the Regulation

Compilation of Comments
The timeline for consultation on the regulation is too short.
DFO's current consultation processes are inadequate and do not meet the obligations of the Crown or standards set by court decisions on Aboriginal title and rights. Joint agreement on a consultation structure and process with regularly review is needed. Consultation must be deep and on a government-to-government level. Need an improved relationship with DFO to achieve meaningful consultation.
There is inadequate capacity within First Nations to engage in the process meaningfully. Funding is needed for full engagement. Need support for Tier 1 processes to discuss issues. An ongoing working group is needed to assist in working through the issues associated with aquaculture management. More information on some subjects is needed.
DFO needs to resolve the internal conflict between protection of wild stocks and promoting aquaculture. Dual priorities could affect the consultation process.
First Nations must be included in discussions at all subsequent steps in the process of drafting and finalizing the regulation and policies.
Provincial commitments to First Nations to do with aquaculture need to be grandfathered into any new federal regulation or policy.
Strategic Question 1. Vision.
Include First Nations peoples and their interests in the regulation and management of aquaculture, including title and rights, and federal government obligation to consult and accommodate. Incorporate existing provincial commitments to First Nations into the vision.
The vision should acknowledge First Nations as decision-makers in their territories and commit to co-management of aquaculture. They should be offered first rights to new and emerging aquaculture licenses. Expand the vision to include forms of aquaculture that benefit local communities.
Re-focus the vision from its emphasis on industry growth to conservation of fish and fish habitat as a goal, and the goal of restoring ecosystems to a healthy state. Acknowledge the connection between aquaculture and the fisheries and the potential impacts of aquaculture on First Nations rights.
Acknowledge the effects of aquaculture on the broader ecosystem. Commit to area and ecosystem-based management.
Address the inherent conflict between promoting the growth of the industry and environmental sustainability. Include a commitment to long-term sustainability. Define limits around "environmentally and socially responsibility, economical prosperity and internationally competitiveness", to ensure they don't infringe on title and rights.
Local management of aquaculture in areas of science, management and siting is key. Traditional knowledge and worldview must be incorporated into management.
A commitment to transparency should be in the vision.
Consult with vision statements of the United Nations or similar international organizations for ideas on drafting an aquaculture vision. Marine use plans should also be used as a resource for defining the vision.
Strategic Question 2. Principles.

Compilation of Comments
<p>A principle is needed that acknowledges First Nations title and rights, accommodation, including co-management and powers of decision-making. Recent court decisions on title and rights should inform regulations and policies. Need oversight to ensure that court rulings get implemented into policies and practices. Recognize fulfillment of First Nations co-management role requires capacity building in the form of funding and resources.</p>
<p>The principle of promoting industry growth should be deleted. The principles should emphasize the 'no net loss' policy and should make it clear that DFO needs to give precedence to environmental protection over facilitating industry growth. Environmental protection includes conservation and restoration of stocks and habitat at an area and ecosystem level. The management of aquaculture should be integrated with the management of wild fish stocks.</p>
<p>Transparency and Accountability. First Nations are affected parties and bear the risks of aquaculture. Ensure free, prior and informed consent as a principle for decision-making.</p>
<p>Add the precautionary principle and link it to the evaluation of risk. Risk management is also another principle to include. Design a better more transparent process for evaluating risk in decision-making.</p>
<p>First Nations views of sustainable aquaculture need to be incorporated. Define 'sustainable' to include setting targets for wild stocks and habitat, and to consider impacts and risks.</p>
<p>Base the management of aquaculture on sound science and involve First Nations. The role of traditional ecological knowledge needs to be established as a source of knowledge for aquaculture planning and management, including setting licence conditions.</p>
<p>The regulation should be made for B.C. and any reference to creating a level regulatory playing field nationally should be deleted.</p>
Strategic Question 3. Scope.
<p>Broaden the scope to create more opportunities for First Nations to be involved. That includes the kinds of aquaculture, species cultivated and range of topics (e.g., monitoring, enforcement, terms of licence, environmental assessment) under the regulation. There should be opportunities for small groups, not just big businesses to participate in the industry.</p>
<p>Regulate all cultivated species that are released into the wild for purposes of selling or enhancement. All stages of the life cycle must be included. Egg cultivation, transfer of eggs or fish between the hatchery and the ocean should be covered under the regulation. More information is needed to decide if marine plant and algae aquaculture should be under this regulation.</p>
<p>Shellfish and finfish operations, including private hatcheries should be governed by this regulation. More discussion around ocean ranching for the purposes of stock enhancement is needed to determine its appropriateness within the regulation. Incentives for closed containment technology should be contained within the regulation.</p>
<p>The scope should directly recognize First Nations rights and title and accommodation. Define the role of traditional local knowledge about such things as the movement of wild stocks and interactions with wild stocks, into decisions about siting and licencing conditions.</p>

Compilation of Comments
Decision-making needs to be regulated as a topic in the regulation. Provide First Nations with first options to own tenures and licences. Any outside applications for tenure should be dependent upon approval by affected or potentially affected First Nations. Regulations are needed for incorporating First Nations planning, and food, social and ceremonial fisheries into decision-making. A management structure must be in place at the appropriate scale.
Establish criteria for siting based on First Nations input (e.g., marine use plans and management plans) and traditional knowledge, as well as far-field and cumulative impacts. Migration routes of salmon need to be known and included in siting, environment impact assessment and monitoring.
Risk management measures for managing aquaculture need to be developed. Include measures to be taken in the event of a natural disaster.
The spatial scale for management must be shifted to an area-based scale from a site-by-site scale.
Environmental assessment needs to cover cumulative and far-field effects.
Establishment of benchmarks for monitoring should be included in the regulation.
Include a dispute mechanism in the resolution, e.g., 3 strikes and loss of licence.
Establish a set period after which the regulation will be formally reviewed.
Strategic Questions 4 and 5. Licences and Licence Conditions.
Determine where licences should be allocated based on a coast-wide baseline study of environmental conditions. The carrying capacity of an area needs to be scientifically measured before issuing tenures and licences. Licence conditions should be established to protect wild stocks. Respect First Nations marine use plans during tenure application and licencing. Define far-field effects based on First Nations input and traditional knowledge. Mapping of wild salmon migration routes must be mandatory as well. Licenses must protect First Nations shellfish resources. Prohibit farms in locations that adversely affect wild stocks or habitat.
Identify where there are knowledge gaps about environmental impacts (e.g., impacts on culturally significant species) and conduct the science with First Nations involvement.
How does licencing affect First Nations title and rights? Delineate responsibilities between DFO, MAL and First Nations around issuing tenures. Harmonize the issuing of tenures and licences. Co-management agreements must allow First Nations to approve or disapprove an application or an expansion of an existing licence or tenure. In addition, First Nations should have the right to veto a decision by government. Create a provision to revoke a tenure. Transferring of tenures from finfish to shellfish should not be permitted without consultation with First Nations. Consider an 'aboriginal tenure' whereby farms operating in traditional territories would require approval from the First Nation of that territory.
An evaluation of a proposed farm's ability to be sustainable (not produce adverse environmental impacts) within a given area should be required. Consider imposing production limits.
Involvement of First Nations at all stages of management should be added. Operational decisions made by licencees should require input from local First Nations (e.g., amount of fish held, transfers of fish, applying treatments such as SLICE).
Licence Conditions

Compilation of Comments
DFO needs to work with First Nations on drafting licencing conditions and a process for final consultation. Traditional ecological knowledge should be used in determining licence conditions, including indicators and thresholds. First Nations will require resources to participate.
More information about processing plants is needed in order to provide feedback about how they should be regulated.
Conditions of licences should incorporate sensitive timing windows for wild fish and other species migrations or natural occurrences.
Explore the feasibility of owner-operator licencing regimes like some of the commercial fishing industries have adopted in Eastern Canada. This could limit large companies owning most of the farms.
Some areas that should be regulated include: 1) the use, maintenance and inspection frequency of net-pen nets and 'predator' nets; 2) procedures for importing and 'tagging' eggs and all farmed products, so they can be monitored for adverse impacts; 3) use of copper on nets should be prohibited; 4) restrictions placed on cleaning nets; 5) use of lights on farm at nights should be prohibited; 6) sea lice monitoring on farms and on wild fish on migration routes should be more frequent and stringent; 7) in some regions, much more science needs to be done on sea lice tracking on farms and in the wild; 8) on-site monitors must be in place before stocking, harvesting or transporting fish can take place; 9) prohibit by-catch in netpens; and 10) regulate escapes and require that farm fish are permanently marked to identify their farm of origin if they escape.
Define an evaluation system for farm performance based on siting, far-field effects, record-keeping, etc.
The licence holder should pay for monitoring, enforcement, and research. Security bonds should be required of the licensee to pay for any environmental remediation.
Licence conditions should be reviewed and amended over time according to an adaptive management process.
Re-evaluate the duration of the licence (e.g., possibly reduce it to a 5 year term).
Monitoring
Farm operators should not be allowed to conduct their own monitoring. Third party monitoring should be offered first to First Nations and be paid for by industry.
Involve First Nations in scientific research and monitoring. Provide funding and resources for First Nations to participate in far-field effects monitoring and third party compliance monitoring.
Monitoring should cover impacts to wild salmon and their habitat, and impacts to nearby shellfish beds. Include far-field effects among monitoring requirements – including health of wild populations, sea lice and other diseases on farm and wild fish, pollution effects on shellfish and kelp beds, health of the ocean floor. Monitoring of environmental impacts on an ecosystem wide and cumulative basis. Impacts of pollutants on wild stocks needs to be understood.
Monitoring of by-catch in netpens should be mandatory. Farm fish stomach contents should be monitored for presence of wild fish. Make by-catch a reportable offence.
Monitor foreign species and introductions closely.

Compilation of Comments
Fines
Fines are set too low at \$1000 maximum. A higher fine should be set for escapes. Fees should be directed to First Nations to remediate environmental damage and pay for habitat restoration in their territories.
To increase the impact, fines and tickets should be directed at company owners or shareholders rather than to the corporation.
Consider measures other than fines to deal with contraventions, such as a graduated sanctions model (deterrents increase in severity and include loss of licence).
Strategic Question 6. Pollution Prevention Measures.
Link the pollution prevention measures to co-management policy directives.
Pollution prevention measures should apply to farm facilities as well as processing plants.
Manage wastes on an area or region basis in order to assess ecosystem wide and cumulative impacts on resources such as nearby shellfish and kelp beds. Look at cumulative impacts. Monitor indicators from far-field areas and any area that may be impacted, include beaches where nets are washed.
Monitor benthic fish and invertebrates that accumulate under and near netpens for effects of ingesting farm waste materials including uneaten fish feed.
Require a thorough description of the baseline environmental state on an area and ecosystem level for conducting an environmental risk assessment of substances used on farms or processing plants. Need scientific studies on environmental impacts of all substances used in aquaculture. Interactions between substances and the environment must be fully understood. Improve the understanding of impacts of fish feed and waste on wild species (birds, marine mammals, fish, invertebrates, etc.).
Evaluate impacts from a farm on a 14-month cycle using an ecosystem-based management approach. Set up a joint process for developing a marine waste-monitoring model.
Involve First Nations in setting thresholds or criteria, where traditional knowledge is meaningfully incorporated. Review waste thresholds or criteria periodically. Update thresholds as new information and science becomes available.
Monitor heavy metal use, disinfectants, anti-foulants and all other chemicals used in and around farms. Monitor the effects of these substances on far-field environments and resources (e.g., shellfish and kelp beds), blood water and other processing plant by-products. Biological pollution should be included. Include measures to prevent alien species that escape from naturalizing or colonizing, e.g., through processes such as triploidy.
Create opportunities for First Nations involvement in monitoring and research.
Apply the precautionary approach to assessing how pollutants may impact species or the marine ecosystem. Prohibit the use of substances where there is inadequate information on impacts.
Accommodation should be reached in cases where fish farm pollution has affected food, social and ceremonial fisheries.

Compilation of Comments
Consider technologies to manage wastes, including closed containment systems, integrated multi-trophic aquaculture systems, or techniques for funneling and collecting wastes.
Add a marker to fish feed so contaminants in the food chain can be traced to their origin.
Strategic Questions 7 and 8. Notification and Reporting.
Reporting requirement should be increased from what is presently required by the Province and include sub-industries such as fish processing and transportation companies.
Clarify reporting responsibilities, e.g., who reports to whom and what gets reported. Information sharing with First Nations must be mandatory. Notification is needed for stocking, harvesting and transfers of eggs/smolts/product, disease outbreaks, chemical spills, escapes and any other event that poses a risk to the environment.
Information is required by First Nations about production levels of farms (weight and revenue), sea lice levels, medication treatments, and all substances used on a facility.
Results of any monitoring on and around fish farms must also be made available to First Nations. This would include sea lice levels on farm fish, by-catch in netpens, and near-field benthic data. Information sharing by companies who process the fish and transport the fish should also be mandatory.
Escapes and recapture attempts must be reported to First Nations immediately. Penalties for non-compliance with escapes regulations should be high.
Reporting on impacts to wild stocks needs to be mandatory.
Accurate counting and record keeping of fish in pens is needed from stocking to harvesting, including escapes and mortalities.
Trace farm product from farm to market. Label with country of origin and whether the product is farmed or wild.
Strategic Questions 9. Enforcement.
DFO will require greater enforcement capacity to effectively enforce regulations. More on-site inspections and monitoring is needed (e.g., 4 times/year for monitoring sea lice on farm fish). More officers are needed to follow up on complaints and to conduct inspections.
Enforcement should be locally based and involve First Nations (watchmen or guardian program). Support is needed for First Nations to become enforcement officers. AFS values need to be assessed in light of new responsibilities for managing aquaculture. Training for monitoring and enforcement roles should be available under the AFS program.
First Nations want to work jointly with DFO to develop policy and procedure guidelines for enforcement standards and practices.
Industry should fund enforcement.
Align the enforcement of aquaculture with other fisheries enforcement regulations, e.g., install surveillance cameras on farms.
An on-site monitor must be present on the farm site when there has been a violation.

Compilation of Comments
Provide whistle-blower protection in the regulation for farm workers or others who report violations.
An alternative justice mechanism for First Nation farm operators/owners should be explored, not a one size fits all punishment scheme.
Strategic Questions 10 and 11. Inspections, Attestations, Audits and Fees.
Third party inspections or auditing should be required. A First Nations Guardian or Watchmen program could provide inspection/audit services on a user-pay basis.
On-site inspections and searches should not require advance notice or reasonable grounds. First Nations officers should not require permission to enter onto a farm property.
Licences should be paid annually per farm. Licence fees should be raised comparable to fees for commercial fisheries and other resource industries. Fees should be higher to reflect costs of environmental protection, possibly including a damage deposit for remediation costs.
All or a portion of the fees should be directed to the affected First Nations to mitigate damages. A First Nation with the authority to assign licenses in its territory should be able to increase fees to recoup monitoring/enforcement costs.
Establish a differential fee system, dependent upon the size of farm, amount of discharge produced by a farm, or level of risk associated with the farm. Other considerations include the level of resources needed to mitigate the risk and the time-to-market investment (longer for shellfish than finfish). Fees should be lower for First Nations to encourage their participation in aquaculture.
First Nations whom have farms operating in their territories should receive royalties or 'finage' (landing tax) – like the 'stumpage' fees in forestry.
Strategic Questions 12 and 13. Supporting Policies and Guidelines.
The regulation must be consistent with the principles and goals of the <i>Wild Salmon Policy</i> . Drafting the regulation and related policies and guidelines need to be done together in an integrated process. It is not a separate exercise.
A policy is needed to ensure periodic review and revision of the federal aquaculture regulation. Revisions must be made based on sound science using an adaptive management approach.
Policies are needed for shellfish aquaculture as well as finfish aquaculture. All policies should reflect what has been learned about siting and aquaculture practices.
Apply a zoning or planning approach to siting. For environmental reasons, some areas or regions may be off-limits to aquaculture or some forms of aquaculture. Develop policy for the relocation of farms that are sited on or near spawning areas or environmentally sensitive areas.
Application for a new licence should trigger an environmental and First Nations impact assessment. Changes to an existing licence should trigger a 're-visiting' mechanism. Establish guidelines for the scope of the environmental assessment, including indicators, thresholds, methodology, etc.
Establish ecosystem-based management, where near-field, far-field effects and cumulative environmental effects are studied and monitored. Capacity limits must be assessed for an area.

Compilation of Comments
Create policies for developing co-management structures and for restoration to First Nations for infringements suffered.
The 'no net loss' policy should be applied to aquaculture broadly in a spatial and temporal sense, not just at the site level.
Policy for ensuring First Nations input and traditional knowledge, as well as marine use plans or management plans, are incorporated into any regulations, policies or guidelines. Must include policies for ensure First Nations priority access to their territories and resources (no aquaculture must be allowed to alienate or exclude First Nations within their own territories).
Guidelines and best practices should be written for a number of specific topics. Some of these include procedures for risk management, procedures for adaptive management, for harvesting practices, for monitoring and mitigating cumulative environmental effects, for escapes (including tagging fish, triploidy or other forms of non-reproducing fish), traceability of farm product, prevention of by-catch, and use of lighting on farms.