

PACIFIC AQUACULTURE REGULATIONS

Integrated Management of Aquaculture Plans (IMAP) Guidance

Foreward

This document is intended to provide guidance on the development of Integrated Management of Aquaculture Plans (IMAPs). IMAPs are an overarching element in the new regulatory regime for aquaculture in British Columbia. They contribute to a sustainable aquaculture framework, and are modeled on Integrated Fisheries Management Plans (IFMP), adapted for the Pacific Aquaculture Regulations (PAR) context. In general, IMAPs will be a key mechanism for setting, consulting on and generally communicating licence conditions in advancing sustainable aquaculture commitments and ecosystem based planning.

IMAPs may be modified at any time, and do not fetter the Minister's discretionary powers set out in the *Fisheries Act*. The Minister can, for reasons of conservation or for any other valid reasons, modify any provision of the IMAP in accordance with the powers granted pursuant to the *Fisheries Act*. IMAPs are not legally binding instruments, and cannot form the basis of a legal challenge. Individual licences, the conditions of which are guided by the IMAP, are the central legal instruments of the new aquaculture regulatory regime in British Columbia (see BC aquaculture licence guidance document).

The IMAP is both a process and a document, with the central goal of providing a planning framework for the conservation and sustainable use of aquaculture resources and the process through which aquaculture activities will be managed for a period of time. Along with being instrumental in the implementation of the sustainable aquaculture framework, IMAPs are guided by the principles of ecosystem approach to management, shared stewardship and a commitment to stakeholder involvement.

The IMAP process is intended to enhance First Nations, industry and stakeholder engagement in decision-making regarding management and conservation measures affecting aquaculture activities. As a document, IMAPs are important reporting tools and valuable sources of information on a given sector for officials, First Nations, industry, stakeholders and the general public. They are intended to provide summary information about the characteristics of the fishery, scientific information, management objectives and measures for achieving those objectives, and criteria for measuring success. The plans will help determine how aquaculture will be managed and what will appear in licence conditions.

As a tool, IMAPs will support:

- The incorporation of the federal policy approach for aquaculture, in particular the precautionary approach and ecosystem approach to management in aquaculture decision-making;
- The desire by Canadians for increased stability and transparency related to aquaculture management; and
- A rules-based approach to decision-making which is transparent, rigorous and systematic.

In general, the IMAP process is intended to promote discipline and consistency through a standardized framework for engagement and planning. Nonetheless, the nature of specific aquaculture sectors, existing stakeholder advisory processes, and regional and departmental priorities will affect the manner in which an IMAP is ultimately developed. In this respect, the IMAP guidelines are intended to be broadly enabling in providing a framework that will permit flexibility in developing an IMAP appropriate to local conditions. While sectoral IMAPs are intended for the British Columbia finfish and shellfish sectors, these sectoral plans may be supplemented in the future with measures appropriate for specific areas.

IMAP CONTENT AND GUIDANCE

In general, IMAPs are expected to serve two key functions:

- Identify issues, objectives and management measures designed to ensure an orderly, economically viable, socially/culturally beneficial and sustainable aquaculture sector by providing guidance to the
- Communicate basic information on a sector and its management both within DFO and publicly.

Accordingly, the IMAP process is intended to draw upon and integrate expertise across relevant DFO sectors and input from resource users and other stakeholders regarding the management and conservation measures affecting aquaculture, typically through an advisory committee. In areas subject to land claims agreements, it is important to take into account the provisions of the different agreements and ensure that IMAPs are developed in a manner consistent with those agreements.

1. Sector Overview and Context

The purpose of this section is to provide a general overview of the aquaculture sector under consideration and provide context for the IMAP details that will follow. Providing a brief history of the sector will assist in understanding the sector and the basis for the management regime. This section of the IMAP should contain general information on culture techniques, fishery location, and how it is conducted. Specific information for individual species and any area management units should be addressed in Science

Aquaculture Type(s) and Species of Aquaculture: This section should identify the types (e.g. species, culture method, gear types) of aquaculture addressed in the document. For example: Deepwater commercial scallop culture, Commercial, enhancement, freshwater, marine, finfish, shellfish, etc.

Industry Structure: Includes relevant information such as numbers of licence holders, numbers of active sites, number of communities (in case of subsistence fisheries) and distribution of participants.

Location of the Farms: Describes the physical location and management areas/zones where aquaculture occurs and distribution of farms. This may best be presented through maps.

Aquaculture Characteristics: Describe the gear types and infrastructure utilized in the sector (i.e. net pens, land-based tanks, rafts or beach structures used for shellfish culture, harvest equipment, etc), including numbers for each if possible, and type of method used to manage the sector (i.e. production, environmental monitoring through set threshold levels etc.), as well as the general timeframe (i.e. season) of when the sector occurs.

Governance

The discussion of governance should include an overview of the aquaculture management regime for British Columbia. Information regarding decision-making and approval processes for the IMAP and associated management actions should be general in nature, and indicate who is ultimately responsible for final decisions. Relevant provisions of any land claims agreements should be outlined along with descriptions of relevant co-management arrangements required under existing land claims agreements. The governance description should include key legislation and regulations, and types of committees and/or legislative land claims which are part of the decision making process (based on zones, areas, regions, international considerations).

Advisory committees

Effective IMAP development requires advisory committees. The effectiveness of advisory committees will depend in large measure on their Terms of Reference appropriate stakeholder representation, and numbers of participants. The specific design of IMAP advisory boards may vary depending on the nature of the IMAP under development, and should be appropriate for the specific sector or area under consideration. Committees should be designed to achieve balanced and broad-gauged input from industry, First Nations and stakeholders.

2. Policy Framework

This section of the plan contains an overview of the sustainable aquaculture fisheries framework (SAFF) as it applies to the sector under consideration, and may include reference to relevant efforts related to:

1. Conservation, ecosystem and sustainable use policies;
2. Economic and Governance policies;
3. Planning, processes and regime performance monitoring tools;
4. Operational implementation.

The list of policies that will have been approved will be added as annex to the document.

3. Science

State of Knowledge: This section of the IMAP should contain overview information on the state of knowledge including Pathways of Effects related to aquaculture interactions. If this summary includes research being conducted outside of DFO, care must be taken to ensure the summary is accurate and the researcher(s) are in agreement with having this information presented in a public document. In assessing the state of scientific knowledge, preference should be given to peer-reviewed science. The lead for this section should remember that the purpose of this information is to provide a brief summary of key research. An exhaustive list of all potentially related activities is not required. Where critical information gaps exist, a summary of key future research needs would be beneficial.

Biological Synopsis: Provides a brief overview of the main biological characteristics of the species with emphasis on the aspects which impact on management of its culture.

Ecosystem Interactions: Briefly describe interactions with other species and the physical environment including the effects of enrichment and eutrophication where relevant. Where the information is available briefly describe the effect of climate regime changes on stock status, particularly recruitment and stock productivity.

Aboriginal Traditional Knowledge/Traditional Ecological Knowledge: Where available, provide brief overview of Aboriginal traditional knowledge / traditional environmental knowledge for the species.

Precautionary Approach (PA): Where available, provide a brief overview of any PA references established for this resource, including removal references, limit reference points, and upper stock reference points

Research: Provide a brief overview of research projects being conducted during the period of the plan and their purpose. Also include any research needs not currently being addressed. Consider not just the target species, but also research on associated by-catch and habitat.

4. Socio-Economic Importance of Aquaculture

The purpose of the economic content in the IMAP is to describe production value and markets, and employment. This section should also assess: the scale and significance in economic terms, and where possible, in a social and cultural context; the general profitability of the aquaculture production sector, licensing and compliance costs and the economic health of its markets; and where applicable, the specific socio-economic impacts of proposed (or incidental) changes in the aquaculture sector.

To the extent that these socio-economic aspects of the aquaculture sector carry important implications for sustainable use, they are also important for fully informing decision makers, managers, industry and the general public.

The extent of the analysis will depend upon the specific sector in question. For some sectors, there will be a paucity of economic information, and the production of a full analytical document may not be possible. The socio-economic framework allows for flexibility in the scope of the analysis that will be carried out, in order to accommodate a wide variety of situations.

5. Management Issues

The purpose of this section is to summarize the key management challenges and problems facing the sector. Issues beyond the culture species and the aquaculture operators themselves (e.g. fish health, etc.) should also be considered.

The identification of key management issues will require the involvement of all relevant sectors within DFO, First Nations, industry and stakeholders, relevant co-management structures and resource users to ensure all aspects of the sector are considered. Additional sources of information that may prove useful in the identification of management issues include Pathways of Effects (POE) and Canadian Science Advisory Secretariat publications, SARA Recovery Strategies/Action Plans/Management Plans and Oceans documents (i.e. Ecosystem Overview and Assessment Reports).

The information contained in the Management Issues sections is key for the development of the remainder of the IFMP.

- **Depleted Species Concerns**, including species assessed by COSEWIC, listed under SARA and/or CITES, and moratorium species. Reference existing recovery strategies/management plans where appropriate.
- **Oceans and Habitat considerations**, including habitat impacts and discussions of ecologically significant areas that have been identified and documented within the geographic range of the fishery (including marine protected areas (MPAs)). Where information is available on the effect of climate regime change, it should be considered when developing production decision

rules and other management measures. Any management measures in place to control aquatic invasive species should also be included.

- **Gear and Equipment Impacts**, including potential escapes and use of cleaners, fuels, beach littering
- **International Issues.**

Management includes the notion of stewardship and may encompass the concept of “shared stewardship”, whereby participants are effectively involved in aquaculture management decision-making processes at appropriate levels, contribute specialized knowledge and experience, and share in accountability for outcomes. The IMAP should include a discussion of any co-management and other initiatives (e.g. integrated management activities through the Oceans Program) that support shared-decision making and foster shared stewardship among stakeholders.

6. General Objectives

The general objectives are intended to help resolve the identified management issues above. In setting objectives, care should be taken to ensure that they are “SMART” (Specific, Measurable, Attainable, Relevant and Timely).

General management objectives should state long-term goals (that is, those not limited to the duration of the plan) for sustainable fisheries under the following potential headings: Production, Stocking and Harvest; Ecosystem; Stewardship; Social, Cultural, and Economic; Compliance.

Long-term objectives should be developed as a first step. Each long-term objective should be supported by one or more short-term objective(s), which are specific for the duration of the plan. It is these short-term objectives that drive the development of IMAP management measures, shared stewardship arrangements and compliance plan.

Consideration should be given to existing DFO processes which may already have relevant objectives in place specific to the sector, species and habitats addressed in the plan. These could potentially include objectives outlined in SARA Recovery Strategies/Action Plans/Management Plans and Marine Protected Area (MPA) Management Plans, as well as Conservation Objectives for Large Ocean Management Areas (LOMAs). Where appropriate, such objectives should be incorporated into the IMAP.

7. General Management Measures

Management measures for the duration of the plan set out the controls or “rules” to be adopted for the aquaculture sector for the period of the plan, including the ecosystem approaches to management. These include such measures as fish containment, fish health, and predator control measures; monitoring tools;

following; introductions and transfers requirements; habitat compensation requirements; and cautionary and critical environmental impact thresholds. Management measures should be developed in the context of addressing the IMAP's short-term objectives.

Site production measures are key in implementing a risk-based management decision making framework using the precautionary approach in an aquaculture sector and management area. Production capacities should be precise and provide details on the stocking densities and other management directives required in each of the management areas. While informal culture approaches (e.g. those developed outside the precautionary approach, such as following) are encouraged within the IMAP, caution is required to ensure that these are not presented as harvest decision rules compliant with the aquaculture decision-making framework incorporating the precautionary approach adopted by DFO.

Under SARA, species listed as either threatened or endangered are subject to prohibitions, which apply to harm to the species itself, as well as to its residence and/or critical habitat (if applicable). These prohibitions may also be extended to species listed as extirpated if re-introduction is deemed feasible. IMAPs should include a list of all SARA listed species potentially impacted by aquaculture operations within the area (as well as control measures required to address these prohibitions). If harm to SARA listed species is authorized through SARA permits or Recovery Strategies, these should be also discussed, along with any associated mitigation requirements (i.e. live release, reporting requirements). While prohibitions do not apply to species listed as special concern, any such species impacted by the sector should also be described, along with any associated mitigation requirements. Existing SARA Recovery Strategies, Action Plans and Management Plans should be referenced. In the absence of such plans, consideration should be given to allowable harm limits documented through the Recovery Potential Assessment (RPA) process.

A potential list of management directives may include, but not necessarily be limited to: siting guidelines; licensing guidelines; site production; benthic impacts, waste management; other fish habitat impact management requirements; fish containment; Incidental catch; Predator control (marine mammals, other fish); Fish health; Sea lice; spill risk and response (sewage, fuel, feed, etc.)/chemical handling; access of non-licence holders to aquaculture sites; SARA issues; traceability; reporting requirement summary (across issues); record-keeping and reporting requirement summary; notification requirement summary; biosecurity protocols; (inspectors, companies); and net-washing.

Each operational directive should specify such matters such as: the management objectives; the requirement for and the content of licence holder management plans; risk reduction (mitigation) measure requirements; cautionary and critical environmental impact thresholds; indicators of impacts; requirements for and content of event response plans; licence holder monitoring program

requirements; reporting and notification requirements; and assessment of cost/benefit of required management measures.

8. Industry and Stakeholder Commitments

Any industry and stakeholder commitments should be outlined in this section. It should describe any voluntary industry or stakeholder contributions (for industry, those over and above requirements under conditions of licence) and could include participation in and/or financial contribution to research projects; enhancement activities, enhanced monitoring, etc.

9. Inspection, Compliance, Enforcement Plans, Issues & Operational Strategies

This section provides a summary of the compliance program and issues and strategies designed to help secure good levels of compliance with legislation, regulations and management measures. The compliance plan constitutes a separate planning exercise within the PAR regime based on the compliance and enforcement strategy, and will be composed of the sections described below.

The Conservation and Protection program promotes and maintains compliance with legislation, regulations and management measures implemented to achieve the conservation and sustainable use of Canada's aquatic resources, and the protection of species at risk, fish habitat and oceans. The program is delivered through a balanced regulatory management and enforcement approach including:

- promotion of compliance through education and shared stewardship;
- monitoring, control and surveillance activities; and,
- management of major cases /special investigations in relation to complex compliance issues”

The plan should address compliance program delivery; compliance consultation; compliance performance; current compliance issues; and outline a compliance strategy.

10. Performance review

This section outlines measurable indicators for helping to determine whether the objectives outlined in IMAP being achieved and those management issues outlined in IFMP are being addressed. These indicators may include those specifically developed for the IMAP, as well as evaluation processes such as the Sustainable Aquaculture Checklists. This section may be divided into those matters related to DFO's regulatory management, and those outside DFO's scope of management but which may be of interest to First Nations, industry, stakeholders, the public and markets.

Potential performance indicators will include indicators pertaining to transparency, efficacy and efficiency; they could relate to a Cost-Benefit Analysis.

An annual performance review process against listed indicators is encouraged. It is beneficial to include the results of previous reviews as well.

11. Additional items

IMAPs may contain be completed additional items relevant for understanding the sector or area under consideration and may include appendices pertaining to:

- Sustainability report, updated whenever a new assessment is completed (for *multi-year plans only*);
- Departmental contact(s): contacts information would relate to Regional Aquaculture Coordination Offices;
- Map of farms in a given area: maps will help develop integrated management planning as essential tool for sustainability and ecosystem approach implementation;

Any additional appendices as necessary may include information on consultative groups and associated Terms of Reference, press releases, sign-off page for multi-jurisdictional approvals, etc.