

PACIFIC AQUACULTURE REGULATIONS

Ecosystem-Based Approach to Aquaculture Management

Foreword

In response to the February 9, 2009 British Columbia Supreme Court decision in *Morton vs. British Columbia* (Ministry of Agriculture and Lands), the Government of Canada through the Department of Fisheries and Oceans (DFO), has enacted the Pacific Aquaculture Regulations (PAR) under the authority of the *Fisheries Act* (R.S.C., 1985, c. F-14). The regulations took effect on December 18, 2010, and provide the regulatory framework for the management of aquaculture activities in BC and in particular waters off its coasts.

The purpose of this document is to support the implementation of the new regulatory regime for British Columbia under the PAR. Marine finfish, shellfish and freshwater aquaculture operations now require a federal aquaculture license in order to operate legally in the province of British Columbia. Pursuant to the PAR, DFO may determine conditions of license for the range of issues. This approach document supports the implementation of an ecosystem-based approach for aquaculture management.

DFO works to protect and conserve Canada's aquatic resources, while supporting the development and use of these resources. Historically, approaches to managing the impact of humans on ecosystems have not adequately addressed the cumulative impact of human populations and economic development on ecosystems.

Global consensus is emerging that the adoption of ecosystem-based management is essential for sustainable aquaculture and sustainable fisheries over the long term. Consistent with this approach, DFO's Sustainable Development Strategy (2007-2009) maintains that social, economic and environmental issues are interconnected and must be equally integrated into the decision-making process.

The ecosystem approach involves protecting ecosystem features by managing the risks caused by human pressures on ecosystems, taking into account the provision of ecosystem goods and services that ultimately benefit societies and economies. This involves incorporating ecosystem information into management decision-making, and takes into account science advice at the ecosystem levels, and uses precaution in management where there are uncertainties.

Ecosystem-based fisheries and aquaculture management is also part of the broader approach to managing and the activities that take place in and around aquatic environments. In the example of integrated oceans management, it compels decision makers who are responsible for fisheries to consider other ocean users during management planning processes. Applied more broadly to capture fisheries and aquaculture activities, it helps to ensure that fisheries and aquaculture managers make more informed decisions regarding ecosystem issues, such as the protection of ecologically significant areas and species.

Building on existing fisheries management practices, and incorporating consideration for activities specific to aquaculture, Canada's Sustainable Aquaculture Fisheries Framework forms a foundation for implementing an ecosystem approach in the management of aquaculture activities.

Over time, new policies on other aspects of ecosystem management will be incorporated into this Framework. This will ensure that Canada continues to build a solid framework for applying an ecosystem approach to aquaculture management.

Purpose

This document provides guidance on the application of the ecosystem approach and the incorporation of its principles into decision-making for governments, aquaculture practitioners, interested parties, and for those potential users of the shared space where aquaculture operations may be located.

Context

Under the current DFO approach, elements of an ecosystem approach are incorporated into management through a variety of management tools. The term 'ecosystem approach' is used consistently in descriptions of how various DFO sectors manage, but sectors describe and implement the approach differently. As of yet there is no formal guidance on consistent practice.

From a Departmental perspective, some examples of current management approaches which incorporate the kinds of actions that are consistent with ecosystem-based management include:

- Integrated planning that involves multiple stakeholders and considers the cumulative impacts of multiple human activities on ecosystems, as well as the effects of long-term environmental changes such as global warming.
- Zoning regions by designating areas for particular allowable uses, including networks of marine protected areas, capable of protecting biodiversity and habitats.
- Co-management that encourages governments and diverse stakeholders to share the responsibility for management and stewardship.
- Adaptive management that allows learning from management actions through scientific evaluation, testing of alternative management approaches and readjustment as new information becomes available from monitoring.
- Long-term monitoring and research to continuously collect and integrated relevant biogeophysical, social and economic data.

Principles

Given that DFO is in the process of establishing a departmental framework for applying an ecosystem approach, principles are still being defined and agreed-upon. Until such time the approach for an ecosystem approach to aquaculture management will maintain consistency with DFO's proposed principles of an ecosystem approach:

- Risk based (precautionary approach);
- Adaptive;
- Based on best available science, Aboriginal and community knowledge;
- Area-based;
- Integrated (assessments, planning, decision-making);
- Collaborative, inclusive and participatory; and
- Applies to marine, coastal and inland waters

Approach

DFO's overall policy approach for aquaculture includes incorporation of the Precautionary Approach in decision making. The Precautionary Approach necessitates the use of caution in decision-making when scientific knowledge is uncertain. The absence of adequate scientific information does not constitute a reason to postpone action or to fail to take action to avoid serious harm to fish or their ecosystem.

Adopting a Precautionary Approach to fisheries and aquaculture management involves setting biologically-based reference points and establishing pre-agreed risk-based actions to be taken at those reference points well in advance of undertaking the activities to which such reference points apply. Examples of such reference points for aquaculture include removal references, limit reference points, and upper stock reference points.

Science decisions will be informed through the state of knowledge including Pathways of Effects related to aquaculture interactions and other advice from the Canadian Science Advisory Secretariat (CSAS), which coordinates the peer review of scientific issues for the Department of Fisheries and Oceans.

The movement towards ecosystem based management will require that multiple issues be brought forward for integrated management, and may require the development of new management tools, or adaptations of current practice.

To date, several new tools have been introduced to support the incorporation of the ecosystem approach and the precautionary in aquaculture management in British Columbia. Licence conditions constitute the main tool for management of aquaculture operations. Integrated Management of Aquaculture Plans (IMAPs) will be a key mechanism for setting, consulting on and generally communicating licence conditions and in advancing sustainable aquaculture commitments and ecosystem based planning. IMAPs are intended to enhance stakeholder engagement in decision-making regarding management and conservation measures, such as the establishment of licence conditions, affecting aquaculture activities.

Related Approaches

A New Ecosystem Science Framework in support of Integrated Management (2011)

DFO's Sustainable Development Strategy (2007-2009)

Canadian Science Advisory Secretariat

Pathways of Effects for Finfish and Shellfish Aquaculture

Canada's Ocean Strategy: Policy and Operational Framework for Integrated Management of Estuarine, Coastal, and Marine Environments in Canada (2002)

Principles of Ecosystem-Based Fisheries Management

Sustainable Aquaculture Fisheries Framework (under development)

Definitions

TBD pending departmental concurrence on an Ecosystem-Based Approach