

PACIFIC AQUACULTURE REGULATIONS

Approach to Chemicals and Litter Management at Aquaculture Sites

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 development of licence conditions pertaining to the management of chemicals and litter at aquaculture sites.

Preventing pollution at aquaculture sites and reducing impacts on near-field species by chemicals and litter are important components of sustainable aquaculture practice. Decreasing negative impacts to marine and coastal ecosystems in Canada safeguard food security and biodiversity that play important roles in the social, cultural and economic lives of Canadians.

Purpose

This document provides guidance on the use of, and authorization of management plans and protocols for aquaculture operational activities related to managing potential impacts on fish health and release of pathogens and pests.

Context

For marine-based finfish operations, some relevant practices have been in place under previous regulatory regimes and these have been considered in the development of this Policy, including the BC *Finfish Aquaculture Waste Control Regulation (FAWCR)* and the changes up to 2009, which were slated to be implemented in 2010 by the BC Ministry of Environment.

DFO directs that the use of chemicals and release of litters at aquaculture sites must comply with all applicable federal and provincial regulatory frameworks. Aquaculture operators are also to ensure that appropriate mitigation measures are in place to avoid negative environmental effects on water quality and non-target organisms resulting from the use of chemicals.

The Canadian Science Advisory Secretariat Report CSAS SAR 2009 considered the potential pathways of environmental effects (PoEs) of aquaculture sites related to fish and fish habitat¹. Each PoE relationship connects an activity to a potential stressor, and the stressor to some ultimate effects on ecosystem components, including fish habitat, water quality, fish health and fish communities. With respect to Chemical and Litter effects, the stressor of concern is the release of antifoulants; cleaners and disinfectants; fuels and lubricants; litter and release of therapeutants in the farm and/or the wild. Release of chemicals and litter also ensue from site and stock management activities such as defouling, net changing, on site housing, waste management, and chemical storage and handling.

Excessive chemical and litter inputs may overwhelm the ability of the receiving environment to assimilate them, leading to harmful alteration, disruption or destruction of the habitat. Release of chemical and litter may result in several types of ecological changes including:

- Impacts on wild fish population or communities;
- impacts on wild and/or farmed fish health;
- changes in habitat structure, cover and vegetation;
- changes in substrate composition/geo chemistry, and
- changes in contaminant (benthic and water column)

Management Measures

Management of potentially harmful materials such as therapeutants, disinfectants, litters, fuel and lubricant involves prevention of spillage into the environment, and capacity to respond appropriately in the event of a spill. For the proper management and control of fisheries, DFO requires spill response plans for the following:

- Management of Chemicals (including therapeutants, cleaners and disinfectants)
- Management of Litters (waste material, fuel and lubricants, trash produced from day to day operations (e.g. feed bags, broken equipment (ropes, netting) etc)

The following measures are to be implemented with respect to chemicals and litter management in marine finfish aquaculture operations

¹ In the longer term for greater transparency and consistency in its risk management approaches, DFO is working towards implementing an Ecological Risk Assessment Framework for fisheries, including harvest fisheries and aquaculture. This ERA Framework will assess the risk of significant, serious or irreversible harm. For aquaculture, at least, this POE approach and related science advice will be incorporated into the ERA Framework.

Management of Chemicals

A variety of chemical substances are used during the operation of an aquaculture farm. For the purpose of this policy guidance document, chemical use includes therapeutants (drugs and pesticides), disinfectant and cleaners products. Only chemicals approved under applicable legislation (e.g., *Pest Control Products Act*) are to be used.

Efforts in chemical management should first be directed toward reducing overall chemical use through preventative medical (fish health) techniques combined with good husbandry and operating practices. To reduce environmental impacts from use of chemicals, aquaculture operators must develop and implement procedures to ensure their safe and effective application.

Therapeutants

DFO is in process of developing *Fish Pathogen and Pest Treatment Regulations*, which will give directions on the use of therapeutants. Drug products are currently regulated under the *Food and Drugs Act* while pesticides are regulated under the *Pest Control Products Act*. The use of therapeutants will be regulated under *Fish Pathogen and Pest Treatment Regulations*, to prevent adverse effects on non-target fish, fish habitat, or the use of fish outside the treatment area. Provisions in the regulations may include:

- Use of therapeutants in conformity with labelled direction or specification
- Storage of therapeutants in a proper, safe and secure place
- Development of Emergency Responses Plan
- Registration of pesticides

Cleaners and disinfectants

To avoid negative impacts with respect to the use of chemicals cleaners and disinfectants, aquaculture operators are required to observe the following prevention and mitigation measures;

- Where possible, use less toxic and persistent product
- Prevent or control wastes and contaminants at source by applying the precautionary principle when designing management plans for the safe handling and disposal of chemicals;
- Ensure site personnel have training in the safe handling and effective application, and disposal of chemicals;

- Choose a safe and secure chemical storage area, preferably away from any water bodies;
- Manage all chemicals according to the directions on the label from the manufacturer or according to best management practices;
- Avoid discharging waste or spent disinfectants directly into receiving waters. Ensure they are contained, collected and disposed of at an approved waste management facility.

Management of Litters

Waste material (small and large)

Aquaculture operators must exercise due diligence when planning and purchasing materials to reduce the volume of surplus and waste material at the site. Operators must consider opportunities for reuse or recycling of materials and resources. Waste and surplus material should be disposed of at approved sites in accordance with applicable provincial and municipal regulations. While placing greater emphasis on using least toxic substances, operators must ensure that materials are appropriately stored.

Fuel and lubricants

Refuelling and maintaining equipment and machinery must be done in a designated area away from any water bodies/wetlands.

Application of preservatives and anti-foulants should be done in a designated area in accordance with manufacturer's instructions.

Aquaculture operators must develop contingency plans to enable a quick and effective response to an event following the accidental spill or release of hazardous materials and substances. All spills and releases must be reported to the 24-hour emergency response line.

Definitions

Aquaculture means the cultivation of fish.

Aquaculture facility means the water surface, column and seafloor area encompassed by the operation's containment structure array and the water surface, column and seafloor area 125m beyond the edge of the containment structures;

Containment structure array means a group of containment structures such as cages which are physically attached to each other or, in the case for circular structures, up to a maximum of 60 metres apart;

Drugs means “drugs” as is defined under the *Food and Drugs Act* and used for purposes outlined in this regulation, that is, fish pathogen and pest treatment in fish bearing waters.

Directive means a detailed guidance document for benthic, water quality and far-field issues associated with the act of feeding finfish that will direct the setting of licence conditions;

Fish means “fish” as it is defined in the *Fisheries Act*

Fish Pathogen means any disease-producing agent or microorganism which attacks fish.

Pest Control Product means pest control product as defined under the *Pest Control Products Act* and is used for purposes outlined in this regulation, that is, fish pathogen and pest treatment in fish bearing waters.

Protocols mean Best Management Plans (BMP’s), Standard Operating Procedures (SOP’s) and operational plans that contain a specific set of actions to achieve a specific objective;

Release of Therapeutants: Release of products used to treat diseases or parasites affecting farmed fish into the water column through bath treatments, feces or waste feed.

Release of Cleaners and Disinfectants: Release of chemicals used in general site cleaning, disinfection and/or biosecurity procedures into the receiving environment.

Release of Litter: The scattering or abandonment of tangible personal property

Release of fuels and lubricants: Release of hydrocarbon products such as gas and oil into the water column and/or deposited on the substrate.

Treatment means measures to eradicate pests or pathogens from aquatic animals.