

AQUATIC ANIMAL HEALTH STANDARDS COMMISSION

SEPTEMBER 2010 REPORT

CHAPTER 7.4.

**KILLING OF FARMED FISH
FOR DISEASE CONTROL PURPOSES**

Article 7.4.1.

Scope

These recommendations are based on the premise that a decision to kill the farmed fish has been made, and address the need to ensure the welfare of the farmed fish until they are dead.

The killing of individual farmed fish, in the course of farming operations (i.e. sorting, grading, or background morbidity) is out of the scope of this chapter.

Account should also be taken of the guidance given in the following chapters in the *Aquatic Code*: Chapter 4.4. Contingency planning, Chapter 4.6. Handling, disposal and treatment of aquatic animal waste, Chapter 5.4. Control of aquatic animal health risks associated with transport, Chapter 7.2. Welfare of farmed fish during transport and Chapter 7.3. Welfare aspects of stunning and killing of farmed fish for human consumption.

Article 7.4.2.

General principles

1. Contingency plans for disease control should be in place at a national level and should contain details of disease control strategies, managerial structure, and operational procedures. Fish welfare considerations should be addressed within such contingency plans for disease control;
2. Depending on the situation, emergency killing of fish may be carried on site or fish are transported to an approved killing facility;
3. Fish not suitable for human consumption may be killed by specific methods (e.g. chemical, mechanical), all of which should be included in contingency plans;
4. Fish suitable for human consumption, should be killed following the provisions provided in Chapter 7.3. Welfare aspects of stunning and killing of farmed fish for human consumption.

Article 7.4.3.

The following principles should apply when killing fish:

1. Operational procedures should be adapted to the specific operating circumstances on the premises and should address biosecurity and fish welfare;

2. killing of fish should be carried out without delay by appropriately qualified personnel with all due consideration made to increased biosecurity protocols;
3. the handling of fish should be minimised and when done, it should be done in accordance with the Articles described below;
4. methods used to kill the fish should result in immediate death or loss of consciousness lasting until death;
5. there should be continuous monitoring of the procedures to ensure they are consistently effective with regard to biosecurity and fish welfare;
6. standard operating procedures should be available and followed at the premises;

Article 7.4.4.

Operational guidelines

A plan for the killing of fish on affected premises due to disease control issues should be developed by the operator and approved by the *Competent Authority*, taking into consideration welfare and biosecurity requirements as well as safety of the personnel. Considerations should include:

1. minimising handling and movement of fish;
2. species, number, age, size of fish to be killed;
3. methods for killing the fish;
4. availability of chemicals/equipment needed to kill the fish;
5. biosecurity issues;
6. any legal issues that may be involved, for example, the use of controlled drugs or chemicals;
7. presence of other nearby aquaculture premises.

Article 7.3.5.

Competencies and responsibilities of the operational team

The operational team is responsible for the planning, implementation of, and reporting from the killing of the fish.

1. Team leader
 - a) Competencies
 - i) ability to assess fish welfare, especially relating to the effectiveness of the killing techniques selected and utilised in the fish killing operations, to detect and correct any deficiencies;
 - ii) ability to assess biosecurity risks;
 - iii) skills to manage all activities on premises and deliver outcome on time;
 - iv) Awareness of the emotional impact on farmers, team members and general public;

- v) effective communication skills.
- b) Responsibilities
 - i) determine most appropriate killing method(s) to ensure that the fish are killed without avoidable pain and distress which balance biosecurity considerations;
 - ii) plan overall operations on the affected premises;
 - iii) determine and address requirements for fish welfare, operator safety and biosecurity;
 - iv) organise, brief and manage a team of people to facilitate killing of the relevant fish in accordance with national contingency plans for disease control;
 - v) determine logistics required;
 - vi) monitor operations to ensure that fish welfare, operator safety and biosecurity requirements are met;
 - vii) report upwards on progress and problems;
 - viii) provide a written report summarising the killing, practices utilised in the operation and their effect on aquatic animal welfare and subsequent biosecurity outcomes. The report should be archived and be accessible for a period of time defined by the *Competent Authority*;
 - ix) review on-site facilities in terms of their appropriateness for mass destruction.
- 2. On-farm personnel responsible for killing of fish
 - a) Competencies
 - i) specific knowledge of fish, and their behaviour and environment;
 - ii) trained and competent in fish handling and killing procedures;
 - iii) trained and competent in the maintenance of equipment.
 - b) Responsibilities
 - i) ensure humane killing of fish through effective killing techniques;
 - ii) assist team leader as required;
 - iii) design and construct temporary fish handling facilities, when required.

Article 7.4.6.

Chemical killing methods

1. Use of chemicals

- a) chemicals used for killing fish should kill the fish effectively, not merely have an anaesthetic effect;

- b) when using such chemicals, the operating personnel should ensure that the solution has the correct concentration, and that sea water is used for marine fish species and freshwater for freshwater species;
- c) fish should be kept in the chemical solution until they are dead. Fish that are merely anaesthetised should be killed by another method such as bleeding, decapitation or another appropriate killing method;

2. Advantages

- a) Large numbers of fish may be killed in one batch;
- b) handling is not required until fish are anaesthetised or euthanized;
- c) use of chemicals is a non-invasive technique and thus minimises biosecurity risks.

3. Disadvantages

- a) May need to be followed by killing if fish are only anaesthetised;
- b) some chemicals induce a panic reaction in the fish;
- c) care is essential in the preparation and provision of treated water, and in the disposal of water and/or fish carcasses that have been treated with anaesthetic agents.

Article 7.4.7.

Mechanical killing methods

1. Decapitation

- a) Decapitation, using a sharp device such as a guillotine or knife, may be used for killing fish but only following anaesthesia;
- b) the required equipment should be kept in good working order;
- c) contamination of the working area due to bleeding and body fluids may present a biosecurity risk and is the major disadvantage of this method.

2. Maceration

- a) Maceration by a mechanical device with rotating blades or projections causes immediate fragmentation and death in newly hatched *fish* and embryonated eggs, as well as fertilised/unfertilised eggs of *fish*. It is a suitable method for the processing of such material. The procedure results in rapid death and a large number of eggs/newly hatched fry can be killed quickly;
- b) maceration requires specialised equipment which should be kept in good working order. The rate of introducing material into the device should be such that the cutting blades continue to rotate at their fully functional rate and that they do not fall below the defined critical speed defined by the manufacturer;

- c) large fish should be introduced head first into the device;
- d) contamination of the working area due to bleeding and body fluids may present a biosecurity risk and is the major disadvantage of this method.