

AQUATIC ANIMAL HEALTH STANDARDS COMMISSION

SEPTEMBER 2011 REPORT

**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 for disease control purposes has been made, and address the need to ensure the welfare of the farmed fish until they are dead.

The stunning and killing of fish for human consumption is covered in Chapter 7.3.

The killing death culling 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 contingency plans for disease control (refer to Chapter 4.4).
2. Depending on the situation, emergency killing of fish may be carried out on site or after fish are transported to an approved killing facility.
2. The killing method should be selected taking into consideration fish welfare and biosecurity requirements as well as safety of the personnel.
3. When fish are killed for disease control purposes, methods used should result in immediate death or immediate loss of consciousness lasting until death; when loss of consciousness is not immediate, induction of unconsciousness should be non-aversive or the least aversive possible and should not cause avoidable anxiety, pain, distress or suffering in fish.
2. Depending on the situation, emergency killing of fish may be carried out on site or after fish are transported to an approved killing facility.
4. The methods described in Chapter 7.3. can also be used for disease control purposes.

5. Some of the methods recommended for disease control purposes (e.g. anaesthetic overdose, maceration) may render the fish unsuitable for human consumption, and this should be specified in the contingency plan. Fish not suitable for human consumption may be killed by specific methods (e.g. chemical, mechanical).
4. ~~Fish suitable for human consumption should be killed following according to the provisions provided in Chapter 7.3. Welfare aspects of stunning and killing of farmed fish for human consumption.~~
6. Depending on the situation, emergency killing of fish may be carried out on site or after fish are transported to an approved killing facility.

Article 7.4.3.

Operational guidelines for affected premises

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 specific to the disease of concern.
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 h~~ Handling of fish should be kept to a minimum to avoid stress and minimised to prevent spread of disease. ~~and when done, it~~ This 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.~~ Methods used to kill the fish should render them unconscious or kill them in the shortest time possible in the circumstances, and should not cause avoidable pain or distress.
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 (SOP's) should be available and followed at the premises.

~~Article 7.4.4.~~

Operational guidelines for affected premises

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

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 pharmacological substances anaesthetic agents chemicals/equipment needed to kill the fish suitable to kill the fish;
5. equipment needed to kill the fish;
6. ~~biosecurity issues~~;
6. any legal issues ~~that may be involved, for example, (e.g. the use of~~ anaesthetic pharmacological substances agents suitable for killing fish) ~~controlled drugs or chemicals~~;
7. presence of other nearby aquaculture premises;
8. disposal of killed fish (in accordance with Chapter 4.6.);

Article 7.4.54.

Competencies and responsibilities of the operational team

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

1. Team leader

a) Competencies

- i) ability to assess fish welfare, especially relating to the effectiveness of the stunning and killing techniques selected and utilised in the fish killing operations, to detect and correct any deficiencies;
- ii) ability to assess biosecurity risks and mitigation measures being applied to prevent spread of disease;
- iii) skills to manage all activities on premises and deliver outcome on time;
- iv) awareness of the emotional impact on fish 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 while balancing 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~~ fish 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~~ site 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, stunning and killing procedures;
 - iii) trained and competent in the operation and maintenance of equipment.
 - b) Responsibilities
 - i) ensure ~~humane~~ killing of fish through effective stunning and killing techniques;
 - ii) assist team leader as required;
 - iii) design and construct temporary fish handling facilities, when required.

Article 7.4.65.

Chemical ~~Pharmacological~~ ~~killing methods~~ by an overdose of an anaesthetic agent

This Article refers to killing methods using an overdose of an anaesthetics agent.

1. Use of chemicals ~~pharmacological substances~~ ~~anaesthetic agents~~
 - a) ~~Chemicals~~ Pharmacological substances Anaesthetic agents used for killing fish should kill the fish effectively, not merely have an anaesthetic effect;
 - b) when using ~~such chemicals~~ pharmacological substances anaesthetic agents, 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 pharmacological substance anaesthetic solution ~~chemical solution~~ until they are dead. Fish that are merely anaesthetised should be killed before they regain consciousness 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~~ pharmacological substances anaesthetic agents is a non-invasive technique and thus reduces ~~minimises~~ biosecurity risks.
3. Disadvantages
- a) ~~may~~ need to be followed by killing if fish are only anaesthetised;
- b) some ~~chemicals~~ pharmacological substances anaesthetic agents may induce a transient aversive 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 ~~anaesthetic agents~~ pharmacological substances.

Article 7.4.76.

Mechanical killing methods

The following mechanical killing methods should only be used for killing fish following stunning:

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 by blood ~~due to bleeding and~~, body fluids and other organic material 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;
- ~~e) large fish should be introduced head first into the device;~~
- ~~e~~c) contamination of the working area by blood ~~due to bleeding and~~, body fluids and other organic material may present a biosecurity risk and is the major disadvantage of this method.