

**AMENDMENTS PROPOSED BY THE INTERNATIONAL  
COALITION FOR ANIMAL WELFARE  
ARE IN YELLOW**

CHAPTER 7.3.

**WELFARE ASPECTS OF STUNNING AND KILLING  
OF FARMED FISH FOR HUMAN CONSUMPTION**

Article 7.3.1.

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*OIE Aquatic Animal Health Standards Commission / October 2010*

Annexe X

**Scope**

These recommendations apply to the stunning and killing of farmed fish species for human consumption.

These recommendations address the need to ensure the welfare of farmed fish, intended for human consumption, during stunning and killing including transport and holding immediately prior to stunning.

This chapter describes general principles that should be applied to ensure the welfare of fish for stunning and killing and also applies to fish killed for disease control purposes and intended for human consumption. Specific measures applicable to emergency killing for disease control purposes not intended for human consumption are addressed in Chapter 7.4. Humane Killing for disease control purposes (under development).

As a general principle, fish should be stunned before killing, and the stunning method should ensure immediate and irreversible loss of consciousness. If the stunning is not irreversible, fish should be killed before consciousness is recovered.

Article 7.3.2

**Personnel**

Persons engaged in the handling, stunning and killing of fish play an important role in their welfare. Personnel handling fish for stunning and killing should be experienced and competent in the handling of fish, and understand their behaviour patterns as well as the underlying principles necessary to carry out their tasks. Some stunning and killing methods may pose a risk to the personnel; therefore training should cover occupational health and safety implications of any methods used.

Article 7.3.3

**Transport**

If fish are to be transported prior to stunning and killing, this should be done in accordance with OIE recommendations on the welfare of farmed fish during transport (see Chapter 7.2).

Article 7.3.4

**Design of holding facilities**

1. The holding facilities should be designed and specifically constructed to hold a certain fish species or group of fish species.
2. The holding facilities should be of a size that allows holding a certain number of fish for processing in a given timeframe without compromising the welfare of the fish.
3. Operations should be conducted with minimal injury and stress to the fish.
4. The following recommendations may help to achieve this:
  - a) nets and tanks should be designed to minimise physical injuries;
  - b) water quality should be suitable for the fish species and stocking density;
  - c) equipment for transferring fish, including pumps and pipes, should be designed and maintained to minimise injury.

#### Article 7.3.5

#### **Unloading, transferring and loading**

1. Fish should be unloaded, transferred and loaded under conditions that minimise injury and stress to the fish.
2. The following points should be considered:
  - a) Water quality (e.g. temperature, oxygen and CO<sub>2</sub> levels, pH and salinity) should be assessed on arrival of fish prior to their unloading, and corrective action taken if required.
  - b) Where possible any injured or moribund fish should be separated and killed humanely.
  - c) The crowding periods of fish should be as short and infrequent as possible. and should not exceed 2 hours. Very high density during crowding and prolonged crowding can have a highly adverse effect on welfare. Where fish are crowded prior to slaughter, the water quality and especially levels of oxygen should be monitored and kept within acceptable limits. If fish show sign of undue stress during crowding, immediate action must be taken as appropriate, for example, by increasing the volume available to fish or by addition of supplementary oxygen.

#### **ICFAW comment**

ICFAW proposes the addition of the above words to ensure proper control of water quality during crowding and because the Humane Slaughter Association, which has considerable practical experience, recommends that crowding prior to slaughter should not exceed 2 hours.

- d) The handling of fish during transfers should be minimised and preferably fish should not be handled out of water. If fish need to be removed from water, this period should be kept as short as possible.

da) When handled, the body of the fish should be adequately supported and fish should not be lifted by individual body parts only, such as the gill covers.

#### **ICFAW comment**

ICFAW proposes the addition of the above words which are included in the Recommendation concerning farmed fish of the Standing Committee of the European Convention for the Protection of Animals kept for Farming Purposes.

e) Where feasible, and when applicable, fish should be allowed to swim directly into a stunning device without handling to avoid handling stress.

f) Equipment used to handle fish, for example nets and dip nets, pumping devices and brailing devices, should be designed, constructed and operated to minimise physical injuries. All equipment must be free of rough surfaces liable to cause injury. Particular care should be taken during pumping as this can result in wounds and injuries. It should be ensured that pumping height, pressure and speed, and the height from which fish fall when they emerge from the pump, are adjusted to minimise injuries.

**ICFAW comment**

ICFAW proposes the addition of the above words as both the Recommendation concerning farmed fish of the Standing Committee of the European Convention for the Protection of Animals kept for Farming Purposes and the Scientific Opinions of the European Food Safety Authority draw attention to the welfare risks involved in pumping.

g) There should be a *contingency plan* to address emergencies and minimise stress during unloading, transferring and loading fish.

h) Fish should not be fasted (deprived of food) pre-slaughter for longer than is necessary to clear the gut.

**ICFAW comment**

The Scientific Opinions of the European Food Safety Authority on the slaughter of farmed fish stress that food deprivation can result in the utilisation of body fat reserves and even functional tissue which is associated with poor welfare.

Article 7.3.6

**Stunning and killing methods**

1. General considerations

a) The *Competent Authority* should approve the stunning and killing methods for fish. The choice of method should take account of species-specific information where available.

b) All handling, stunning and killing equipment should be maintained and operated appropriately; it should be tested on a regular basis to ensure that performance is adequate.

c) Effective stunning should be verified by the absence of consciousness. Fish should remain unconscious until they are dead.

**ICFAW comment**

It is crucial that, once they are stunned, fish remain unconscious until they are dead.

d) A backup stunning system is necessary. If mis-stunned or if consciousness is regained before death, the fish should be re-stunned as soon as possible.

**ICFAW comment**

Fish should be re-stunned both if the stun fails to render them unconscious in the first place and also if it does produce unconsciousness but they regain consciousness before death.

e) Stunning should not take place if killing is likely to be delayed such that the fish will recover or partially recover consciousness.

f) While absence of consciousness may be difficult to recognise, signs of correct stunning include i) loss of body and respiratory movement (loss in opercular activity); ii) loss of visual evoked response (VER); iii) loss of vestibulo-ocular reflex (VOR, eye rolling).

fa) Live chilling prior to slaughter should not be carried out as it sedates and may immobilise fish but does not induce unconsciousness. Accordingly, live chilled fish will be fully conscious when they are killed.

**ICFAW comment**

Because unconsciousness is not induced and because of its aversive impact, the Scientific Opinion of the European Food Safety Authority (EFSA) recommends that live chilling, even when carried out slowly, should not be used. EFSA concluded that live chilling is not a humane method of killing fish.

## 2. Mechanical stunning and killing methods

a) Percussive stunning is achieved by a blow of sufficient strength to the head applied above or immediately adjacent to the brain in order to damage the brain. Mechanical stunning may be achieved either manually or using specially developed equipment.

b) Spiking or coring are irreversible stunning and killing methods of fish based on physical damage to the brain by inserting a spike or core into the brain.

c) Shooting using a free bullet may be used for killing large fish (such as tuna). The fish may either be crowded in a net and shot in the head from the surface, or individual fish may be killed by shooting in the head from under the water (commonly called lupara).

ca) Mechanical stunning and killing methods must be applied accurately. It is difficult to hit the brain correctly from a moving boat or when aiming at a moving fish (such as tuna). This requires expertise and care must be taken that operators do not become fatigued or have to work in a hurried manner.

d) Mechanical stunning is generally irreversible if correctly applied. However, fish can regain consciousness after percussive stunning and accordingly fish should be bled immediately after percussive stunning to prevent recovery of consciousness.

**ICFAW comment**

Both the Humane Slaughter Association and the RSPCA highlight the importance of bleeding fish after percussive stunning to prevent recovery of consciousness.

### 3. Electrical stunning and killing methods

a) Electrical stunning involves the application of an electrical current of sufficient strength, frequency and duration and suitable frequency to cause immediate loss of consciousness and insensibility of the fish. The conductivity of fresh and brackish water varies, so it is essential to establish the parameters of the electrical current to ensure proper stunning.

#### **ICFAW comment**

It is not appropriate to state that the electric current should be of “sufficient” frequency as this implies that frequency should be high whereas in fact high frequencies tend to be less effective in inducing unconsciousness than low frequencies.

b) The electrical stunning device should be constructed and used for the specific fish species and their environment.

ba) The electrical stunning equipment should be fitted with a device indicating the key electrical parameters, positioned so as to be clearly visible to the operator. Where possible these key parameters should be automatically recorded to assist with the requirement in paragraph 1 b) that equipment should be maintained and operated appropriately.

#### **ICFAW comment**

This is important in order to be able to ensure that the correct current, voltage and frequency are being used as, if they are not, fish may be paralysed rather than being stunned.

c) Electrical stunning may be reversible. In such cases fish should be killed before consciousness is recovered.

d) Fish should be confined beneath the surface of the water, and there should be a uniform distribution of electrical current in the stunning tank or chamber.

e) In semi-dry electrical stunning systems, fish should enter the device head first to ensure rapid and efficient stunning.

### 4. Other killing methods

The following methods are known to be used for killing fish: chilling with ice in holding water, carbon dioxide (CO<sub>2</sub>) in holding water; chilling with ice and CO<sub>2</sub> in holding water; salt or ammonia baths; asphyxiation by removal from water; exsanguination without stunning. However, they have been shown to result in poor fish welfare. Therefore, it is preferable to use the methods described in points 2 and 3 of this Article, as appropriate to the fish species.

#### **Examples of stunning/killing methods for fish groups**

The following methods enable humane killing for the following fish groups:

1. percussive stunning: carp, salmonids;
2. spiking or coring: salmonids, tuna;
3. free bullet: tuna;
4. electrical stunning: carp, eel, salmonids