CHAPTER 7.2.

WELFARE OF FARMED FISH DURING TRANSPORT

Article 7.2.1.

Scope

This chapter provides recommendations to minimise the effect of transport on the welfare of farmed fish (hereafter referred to as fish). It applies to their transport by air, by sea or on land within a country and between countries, and only considers the issues related to their welfare.

Recommendations for measures to control the *aquatic animal* health *risks* related to the transport of fish are included in Chapter 5.5.

Article 7.2.2.

Responsibilities

All personnel handling fish throughout the transportation process are responsible for ensuring that consideration is given to the potential impact on the welfare of the fish.

1) The responsibilities of the *Competent Authority* for the exporting and importing jurisdiction include:
   a) establishing minimum standards for fish welfare during transport, including examination before, during and after their transport, appropriate certification, record keeping, awareness and training of personnel involved in transport;
   b) ensuring implementation of the standards, including possible accreditation of transport companies.
2) Owners and managers of fish at the start and at the end of the journey are responsible for:
   a) the general health of the fish and their fitness for transport at the start of the journey and to ensure the overall welfare of the fish during the transport regardless of whether these duties are subcontracted to other parties;
   b) ensuring trained and competent personnel supervise operations at their facilities for fish to be loaded and unloaded in a manner that avoids injury and causes minimum stress;
   c) having a *contingency plan* available to enable humane killing of the fish at the start and at the end of the journey, as well as during the journey, if required;
   d) ensuring fish have a suitable environment to enter at their destination that ensures their welfare is maintained.
3) Transporters, in cooperation with the farm owner/manager, are responsible for planning the transport to ensure that the transport can be carried out in accordance with fish health and welfare standards including:
   a) using a well maintained *vehicle* that is appropriate to the species to be transported;
   b) ensuring trained and competent staff are available for loading and unloading, and to ensure swift humane killing of the fish, if required;
   c) having *contingency plans* to address emergencies and minimise stress during transport;
   d) selecting suitable equipment for loading and unloading of the *vehicle*.
4) The person in charge of supervising the transport is responsible for all documentation relevant to the transport, and practical implementation of recommendations for welfare of fish during transport.

Article 7.2.3.

Competence

All parties supervising transport activities, including loading and unloading, should have an appropriate knowledge and understanding to ensure that the welfare of the fish is maintained throughout the process. Competence may be gained through formal training and/or practical experience.

1) All persons handling live fish, or who are otherwise responsible for live fish during transport, should be competent in accordance with their responsibilities listed in Article 7.2.2.

2) *Competent Authority*, farm owners/managers, and transport companies have a responsibility in providing training to their respective staff and other personnel.

3) Any necessary training should address species-specific knowledge and may include practical experience on:
   a) fish behaviour, physiology, general signs of *disease* and poor welfare;
   b) operation and maintenance of equipment relevant to fish health and welfare;
   c) water quality and suitable procedures for water exchange;
   d) methods of live fish handling during transport, loading and unloading (species-specific aspects when relevant);
   e) methods for inspection of the fish, management of situations frequently encountered during transport such as changes in water quality parameters, adverse weather conditions, and emergencies;
   f) methods for the humane killing of fish in accordance with Chapter 7.4.;
   g) logbooks and record keeping.

Article 7.2.4.

Planning the transport

1. General considerations

Adequate planning is a key factor affecting the welfare of fish during transportation. The pre-transport preparation, the duration and route of a transport should be determined by the purpose of the transport e.g. *biosecurity* issues, transport of fish for stocking farms or resource enhancement, for slaughter/killing for disease control purposes. Before the transport starts, plans should be made in relation to:

a) type of *vehicle* and transport equipment required;
b) route – such as distance, expected weather and/or sea conditions;
c) nature and duration of the transport;
d) assessment of the need for acclimatisation of fish to water quality at the site of unloading;
e) need for care of the fish during the transport;
f) emergency response procedures related to fish welfare;
g) assessment of the necessary *biosecurity* level (e.g. washing and *disinfection* practices, safe places for changing water, treatment of transport water) (refer to Chapter 5.5.).

2. Vehicle design and maintenance, including handling equipment

a) *Vehicles* and *containers* used for transport of fish should be appropriate to the species, size, weight and number of fish to be transported.
b) *Vehicles* and *containers* should be maintained in good mechanical and structural condition to prevent predictable and avoidable damage of the *vehicle* that may directly or indirectly affect the welfare of transported fish.
c) *Vehicles* (if relevant) and *containers* should have adequate circulation of water and equipment for oxygenation as required to meet variations in the conditions during the journey and the needs of the animals being transported, including the closing of valves in well boats for *biosecurity* reasons.
d) The fish should be accessible to inspection en route, if necessary, to ensure that fish welfare can be assessed.
e) Documentation that focuses on fish welfare and thus carried with the *vehicle* should include a transport logbook of stocks received, contact information, mortalities and disposal/storage logs.
f) Equipment used to handle fish, for example nets and dip nets, pumping devices and brailing devices, should be designed, constructed and maintained to minimise physical injuries.

3. Water

a) Water quality (e.g. oxygen, $CO_2$and NH_3 level, pH, temperature, salinity) should be appropriate for the species being transported and method of transportation.
b) Equipment to monitor and maintain water quality may be required depending on the length of the transport.

4. Preparation of fish for the transport

a) Prior to transport, feed should be withheld from the fish, taking into consideration the fish species and life stage to be transported.

b) The ability of the fish to cope with the stress of transport should be assessed based on health status, previous handling and recent transport history of the fish. Generally, only fish that are fit for transport should be loaded. Transport for disease control purposes should be in accordance with Chapter 7.4.

c) Reasons for considering of unfitness of fish for transport include:

i) displaying clinical signs of *disease*;

ii) significant physical injuries or abnormal behaviour, such as rapid ventilation or abnormal swimming;

iii) recent exposure to stressors that adversely affect behaviour or physiological state (for example extreme temperatures, chemical agents);

iv) insufficient or excessive length of fasting.

5. Species-specific recommendations

Transport procedures should take account of variations in the behaviour and specific needs of the transported fish species. Handling procedures that are successful with one species may be ineffective or dangerous for another species.

Some species or life stages may need to be physiologically prepared prior to entering a new environment, such as by feed deprivation or osmotic acclimatisation.

6. Contingency plans

There should be a *contingency plan* that identifies the important adverse fish welfare events that may be encountered during the transport, the procedures for managing each event and the action to be taken in such an event. For each event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.

Article 7.2.5.

Documentation

1) Fish should not be loaded until the required documentation is complete.

2) The documentation accompanying the consignment (the transport log) should include:

a) description of the consignment (e.g. date, time, and place of loading, species, biomass load);

b) description of the transport plan (e.g. including route, water exchanges, expected time, date and place of arrival and unloading and receiver contact information).

3) The transport log should be made available to the dispatcher and the receiver of the consignment as well as to the *Aquatic Animal Health Service* upon request. Transport logs from previous journeys should be kept after completion of the transport for a period of time as specified by the *Aquatic Animal Health Service*.

Article 7.2.6.

Loading the fish

1) The issues which should be addressed to avoid injury and unnecessary stress to the fish include:

a) crowding procedure in farm pond, tank, net or cage prior to loading;

b) equipment (such as nets, pumps, pipes and fittings) that are improperly constructed (e.g. sharp bends or protrusions) or improperly operated (e.g. overloading with fish of incorrect size or number of fish);

c) water quality - some species of fish should be acclimatised if there is a likelihood of the fish being transported in water of a significantly different temperature or other water parameters.

2) The density of fish in a *vehicle* and/or *container* should be in accordance with scientific data where available and not exceed what is generally accepted for a given species and a given situation.

3) Loading should be carried out, or supervised, by operators with knowledge and experience of the behaviour and other characteristics of the fish species being loaded to ensure that the welfare of the fish is maintained.

Article 7.2.7.

Transporting the fish

1. General considerations

   a) Periodic inspections should take place during the transport to verify that acceptable welfare is being maintained.

   b) Ensure that water quality is monitored and the necessary adjustments made to avoid extreme conditions.

   c) Travel in a manner that minimises uncontrolled movements of the fish that may lead to stress and cause injury.

2. Sick or injured fish

   a) In the event of a fish health emergency during transport, the *vehicle* operator should initiate the *contingency plan* (see point 6 of Article 7.2.4.).

   b) If the killing of fish is necessary during the transport, it should be carried out humanely in accordance with Chapter 7.4.

Article 7.2.8.

Unloading the fish

1) The principles of good fish handling during loading apply equally during unloading.
2) Fish should be unloaded as soon as possible after arrival at the destination, allowing sufficient time to ensure that the unloading procedure does not cause harm to the fish. Some species of fish should be acclimatised if there is a likelihood of the fish being unloaded into water of a significantly different quality (such as temperature, salinity, pH).
3) Moribund or seriously injured fish should be removed and humanely killed in accordance with Chapter 7.4.

Article 7.2.9.

Post-transport activities

1) The person in charge of receiving the fish should closely observe them during the post-transport period, and keep appropriate records.
2) Fish showing abnormal clinical signs should be humanely killed in accordance with Chapter 7.4.or isolated and examined by a *veterinarian* or other qualified personnel, who may recommend treatment.
3) Significant problems associated with transport should be evaluated to prevent recurrence of such problems.

NB: FIRST ADOPTED IN 2009; MOST RECENT UPDATE ADOPTED IN 2012.