

Aquatic Animal Health Standards Commission
Report

New

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WELFARE OF FARMED FISH DURING TRANSPORT

Transport is stressful to fish. This Chapter provides information to minimise the effect of transport on the welfare of fish. It applies to the transport of fish by air, by sea or on land within a country and between countries, and considers only the welfare of fish. Recommendations for measures to control the *aquatic animal* health risks related to the transport of fish are included in Chapter 1.5.1 Recommendations for safe transport of *aquatic animals* and *aquatic animal products*.

Article 3.4.2.1.

Responsibilities

The welfare of farmed fish during their transport is the joint responsibility of all personnel involved. All parties handling fish prior to loading as well as during loading and unloading have a personal responsibility for the welfare of the fish being handled.

The roles of each of the various personnel are defined below:

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 and record keeping;
 - b) ensuring appropriate awareness and training of personnel involved in transport;
 - c) ensuring implementation of the standards, including possible accreditation of transport companies.
2. Owners and managers of farmed 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 competent personnel supervise operations at their facilities for fish to be loaded and unloaded in a manner that causes minimum stress and injury;
 - c) having a contingency plan available to enable humane killing of the fish at the start and at the end of the journey, if required.

3. Transport companies, in cooperation with the *Competent Authority* and farm owner/manager, are responsible for planning the transport to ensure that the transport can be carried out according to fish health and welfare standards including:
 - a) choosing an appropriate, well maintained *vehicle*;
 - b) ensuring that competent staff are available for loading and unloading;
 - c) having contingency plans to address emergencies and minimise stress during transport;
 - d) selecting appropriate technology 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 guidelines for welfare of fish during transport.

Article 3.4.2.2.

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 according to their responsibilities listed in Article 3.4.2.1.
2. *Competent Authority*, farm owners/managers, and transport companies have a responsibility in providing appropriate training to their staff and 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;
 - 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 adverse weather conditions, and emergencies;
 - g) appropriate logbooks and record keeping.

Article 3.4.2.3.

Planning the transport1. General considerations

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. Adequate planning is a key factor affecting the welfare of fish during transportation. Before the transport starts, plans should be made in relation to:

- i) type of *vehicle* and transport equipment required;
- ii) route – such as distance, expected weather and/or sea conditions;
- iii) nature and duration of the transport;
- iv) need for care of the fish during the transport;
- v) emergency response procedures related to fish welfare;
- vi) assessment of the necessary biosecurity level (e.g. washing and disinfection practices, safe places for changing water, treatment of transport water (refer to Chapter 1.5.1.)).

2. 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.

3. Vehicle design and maintenance

- a) *Vehicles* and *containers* used for transport of fish should be appropriate to the species, size and weight of the 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 to meet variations in the conditions during the journey.
- d) The fish should be accessible to inspection en route to ensure that fish welfare standards can be assessed and shortcomings appropriately addressed.
- 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.

4. Water

- a) Water quality (e.g. oxygen, pH, temperature, salinity) should be adequate for the species being transported.
- b) Equipment to maintain adequate water quality (e.g. oxygen, pH, temperature, salinity) and to monitor water quality may be required depending on the length of the transport.

5. Documentation

- a) Fish should not be loaded until the required documentation is complete.
- b) The documentation accompanying the consignment (the transport log) should include:
 - i) description of the consignment (e.g. date, time, and place of loading, species, biomass load)
 - ii) description of the transport plan including (e.g. route, water exchanges, expected time, date and place of arrival and unloading and receiver contact information);
- c) The transport log should be made available to the dispatcher and the receiver of the consignment as well as to the *Competent Authority* upon request. Transport logs from previous journeys should be kept after completion of the transport for a period of time as specified by the *Competent Authority*.

6. 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. Except for disease control purposes, only fish that are fit for transport should be loaded.
- c) Signs of unfitness for transport includes:
 - i) significant physical injuries or abnormal behaviour, such as rapid ventilation or abnormal swimming;
 - ii) recent exposure to stressors;
 - iii) history of exposure to disease agents.

7. 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 feed deprivation or osmotic acclimatisation.

Article 3.4.2.5.

Loading the fish

1. The issues which should be addressed to avoid unnecessary stress and injury to the fish include:
 - a) overcrowding;
 - b) improperly constructed or operated equipment (such as nets, pumps, pipes and fittings);
 - 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;
 - d) air temperature, tide level and time of the day.
2. The density of fish in a *vehicle* and/or *container* should 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 3.4.2.6.

Transporting the fish

1. General considerations
 - a) Where necessary, periodic inspections should take place during the transport to verify that acceptable welfare is being maintained.
 - b) Where necessary, the person in charge should ensure that water quality is monitored and the necessary adjustments made to avoid extreme conditions.
 - c) The *vehicle* operator should travel in a manner that minimises uncontrolled movements of the fish.
2. Emergency procedures
 - a) In the event of a fish health emergency during transport, the *vehicle* operator should initiate the procedure to implement the contingency plan (Article 3.4.2.3 point 2)
 - b) If the killing of fish is necessary during the transport, the person in charge should ensure that the killing is carried out humanely in accordance with the Chapter on the Humane Killing of Fish for Disease Control Purposes (in preparation), and in compliance with relevant legislation.

Article 3.4.2.7.

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 the Chapter on the Humane Killing of Fish for Disease Control Purposes (in preparation).

Article 3.4.2.8.

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 the Chapter on the Humane Killing of Fish for Disease Control Purposes (in preparation) 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.

Article 3.4.2.9.

Actions in the event of an extreme situation

1. Extreme weather conditions are hazards for fish transport and require appropriate *vehicle* and *container* design to minimise risks. Fish should not be transported in extreme weather conditions that threaten fish welfare.
2. If fish cannot be unloaded, temporarily or permanently, the welfare of the fish should be given due consideration while attempts are undertaken to rectify such situations. Fish whose welfare may be irrevocably impacted should be humanely killed in accordance with the Chapter on the Humane Killing of Fish for Disease Control Purposes (in preparation).