



Recommendation on Fish Welfare in Live Fish Transport

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Introduction

The movement of live fish is integral to the business of finfish farming throughout Europe. Most fish in European aquaculture are moved between sites at least once during their life, and many are moved several times between or within sites. Maintaining the welfare of fish in transport is an essential element in the economic performance of aquaculture businesses, as well as a legal and ethical responsibility.

Two types of systems are especially used to transport live fish in aquaculture. Closed tank systems are placed on flatbed trucks, on smaller road vehicles, or on boats, and are used in a wide variety of contexts. Well boats have one or more large tanks constructed within the boat, which may be open or closed to the surrounding seawater. Depending on the species other transport methods used less often include, closed plastic bags, waterless transport, and the towing of cages.

The live transport of fish is governed by EU regulation 1/2005 on the protection of animals during transport. As part of the Farm to Fork Strategy the European Commission is currently reviewing this regulation with a view to making a new legislative proposal.

Guidelines for the implementation of EU regulation 1/2005 have been developed in Italy¹ and in Germany². Best practice guidelines have also been developed by the European Animal Welfare Platform³ and at sectoral and national levels across Europe⁴. All of these guidelines focus on the needs of fish in a specific region and especially the relevant species and market and environmental context.

Special Consideration of Live Fish Transport

Transporting fish is different from transporting terrestrial animals, especially in the following fundamental ways.

- Communication between operators is necessary prior to and during transport to coordinate the size and number of fish, acclimation steps, and the timely organising of resources for unloading
- Fish should not be fed prior to or during transport
- Maintaining water quality parameters is an environmental need that is completely unrelated to the drinking water needs of terrestrial animals during transport
- Visual inspections can be important while opening containers to inspect fish can be an unnecessary stressor
- Monitoring of the impacts and success of transport is necessary for days after unloading

Some of these principles vary between species.

It is necessary to take the specific needs of fish into consideration when establishing general rules for animal transport as well as specific rules for fish transport. The general rules established in regulation

¹ https://www.salute.gov.it/imgs/C_17_pubblicazioni_2848_allegato.pdf

² https://www.lfl.bayern.de/mam/cms07/publikationen/daten/informationen/praktische-rechtliche-aspekte-transport-lebende-fische_lfl-information.pdf

³ <https://core.ac.uk/download/pdf/30804336.pdf>

⁴ <https://www.fishhealth.ie/fhu/health-surveillance/aquaplan-fish-health-management-ireland/farmed-salmonid-handbook>



1/2005 contain provisions that cannot and provisions that should not be applied in fish transport, creating implementation problems and market distortions. This situation should be corrected going forwards.

Providing for Fish Welfare During Live Transport

The following aspects are important for fish welfare during live transport.

Pre-Transport Planning and Preparations

The authorisation of transporters should ensure that:

1. Vehicles, fittings and equipment are designed, constructed, equipped and maintained to safeguard the welfare of the animals.
2. Owners, managers, drivers, and relevant personnel in transport companies and aquaculture producers have the necessary training and competences.

Journey preparations

1. Feed should be withheld prior to loading for the minimum period necessary to clear the gut.
2. In some cases, it is advisable to use a sedative under the guidance of a veterinarian, to slowly reduce the water temperature prior to loading, to use a dilute salt solution rather than freshwater, or to precondition the fish to cope with handling procedures.
3. Fish should be inspected for fitness for transport prior to loading and should not be loaded if showing signs of disease, physical damage, or unusual behaviour.
4. Operators should ensure that equipment is checked, and sufficient staff, equipment, and contingency plans are in place including 50% more oxygen than is anticipated to be used on the journey.
5. Contact should be established between the different operators supplying, transporting, and receiving the fish to ensure that suitable fish are loaded and that appropriate staff and equipment are ready for unloading as quickly as possible.
6. Vehicles and equipment should be disinfected between journeys.

Loading and Unloading

1. For most finfish species, loading and unloading is the most stressful part of live transport. Handling should be kept to a minimum, should be gentle, and time out of water should be minimised.
2. The use of pumps is preferred to the use of nets for moving fish.
3. Equipment should be designed and maintained to avoid injury to the fish, especially without sharp edges or protrusions.
4. Crowding should be carried out in steps without invoking a significant stress response.
5. Fish should be acclimated to the receiving water prior to unloading.

The Journey

1. Fish should have settled in their transport units and be calm before starting the journey.



2. The driving style should be gentle.
3. Normally, no feed should be given during the journey.
4. Oxygen and temperature should be continually monitored during the journey. Supplemental oxygen should be available, if needed.
5. Visual inspections should be kept to a minimum and determined according to the species, life-stage, transport method, and journey length.

Post-Journey

1. Appetite, behaviours, disease, and mortality should be monitored in relation to the transport for one week after unloading.
2. Documentation should include:
 - a. journey start and end time
 - b. the species, size, and number of animals loaded
 - c. the number of animals injured and number of mortalities during loading, the journey, unloading and after unloading, together with the cause of injuries and mortalities
 - d. the journey route
 - e. time and place of any release or intake of water
 - f. consumption of supplementary oxygen
 - g. key water quality parameters especially temperature before loading, after loading, at regular intervals during the journey, and the receiving water before unloading
 - h. Proof of cleaning and disinfection of tanks.

Special Contexts

1. In the case of very short journeys, movements within sites, and transport in plastic bags, it is typically not necessary to routinely monitor water quality parameters during the journey. Operator experience allows for planned measures that maintain important water quality parameters without routine monitoring.

In the case of very short journeys and movements within sites, it is not necessary to provide journey specific documentation to competent authorities.

Recommendations

- The Commission and Member States should take steps to support aquaculture operators in implementing the important measures for fish welfare detailed in this paper.
- When considering fish transport, the animal welfare legislative review should take account of the objectives of the Green Deal and Farm to Fork Strategy including improving animal welfare and having a robust and resilient food system.
- A comprehensive impact assessment should be undertaken on any new welfare requirements for live fish transport.



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Any documentation requirements should take account of existing measures for compliance in other areas, such as animal health, and not create duplicate documentation and reporting requirements.



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