



**Ministry of Food, Agriculture
and Fisheries of Denmark**
Danish Veterinary and
Food Administration

Guidelines on Water Quality and Handling for the Welfare of Farmed Fish EU Platform on Animal Welfare

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Animals – 19 October 2023

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Guidelines on water quality and handling for the welfare of farmed vertebrate fish

Why develop guidelines on the welfare of farmed fish?

- Fish are sentient beings who can feel pain and distress
 - ✓ Council of Europe, WOAAH, EFSA
- There is a large production of farmed fish of different species in the EU
- EU legislation (Directive 98/58/EC) applies to fish, but only the general terms in article 3:
 - ✓ ... owners or keepers shall take all reasonable steps to ensure the welfare of animals under their care and to ensure that those animals are not caused any unnecessary pain, suffering or injury



Guidelines on water quality and handling for the welfare of farmed vertebrate fish

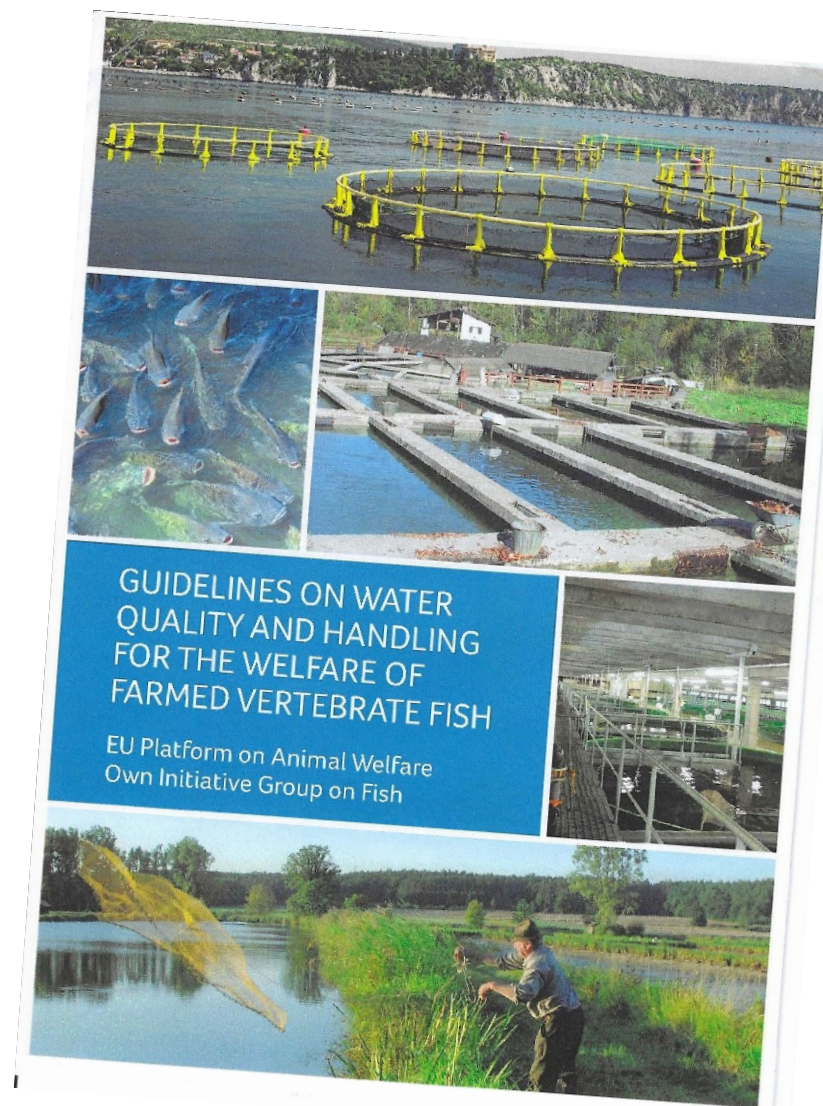
Why water quality and handling?

- Water quality and handling are very important for the welfare of fish during all life stages and farming practices

The aim of the guidelines is

- to contribute to an increased awareness on fish welfare in all sectors involved in fish farming
- to give guidance on how to understand and implement the general provision in Article 3 of Directive 98/58/EC

Disclaimer: The positions expressed in the guidelines do not necessarily represent the official position of the European Commission



Guidelines on water quality and handling for the welfare of farmed vertebrate fish

The voluntary initiative group on the welfare of fish

- Established on the initiative of the Greek representative in the Platform
 - ✓ Members of the group were from
 - Member States
 - Civil society
 - Business or professional organisations
 - Independent experts
 - Observers from DG Mare and WOAH

Secretarial support was kindly made available by Eurogroup for Animals

- The guidelines acknowledged on 15 June 2020 during the 6th meeting of the EU Platform on Animal Welfare



Guidelines on water quality and handling for the welfare of farmed vertebrate fish

The guidelines consist of two separate parts

- ✓ Guidelines on water quality
- ✓ Guidelines on handling

Both parts consist of

- ✓ A section with provisions from the Council of Europe Recommendation concerning farmed fish
- ✓ A section with guides to good animal welfare practice developed by the group and consisting of:
 - General principles / facts related to fish welfare
 - Guidelines concerning the operator
 - Guidelines specific for water quality or for handling of fish



Guidelines on water quality

Some examples

- A sufficient supply of water of good quality is essential for the welfare of fish, as
 - ✓ Poor water quality elicits a stress response in fish
 - ✓ Fish have certain tolerance limits with regard to water quality, where they are able to maintain homeostasis. However, limits for good welfare may be narrower
 - ✓ Water quality refers to the environment fish are exposed to, and it comprises a complex set of interacting factors.
 - ✓ Managing these interactions requires monitoring the behaviour and condition of fish as well as controlling and monitoring water quality parameters regularly and preferably with an automated system



Guidelines on water quality

Some examples

- The most important parameters for monitoring water quality are: oxygen, ammonia, carbon dioxide, pH and temperature
 - ✓ In aquaculture systems with a high degree of recirculation these parameters should be monitored continuously by way of a system, which accurately reflects the water quality
 - ✓ When corrective actions are necessary abrupt changes need to be avoided, as fish homeostasis is slow to adapt to changes
 - ✓ Establishments where maintenance of an adequate water quality depend on automatic equipment or other mechanical systems should have an alarm system and backup generators to handle equipment failure



Guidelines on handling

Some examples

- Handling causes stress and raise activity as well as oxygen demand, and inappropriate handling procedures can lead to injury, pain, distress and suffering for fish, therefore
 - ✓ Handling should be kept to a minimum
 - ✓ Prior to any handling procedure, the health and welfare of fish should be assessed to ensure that the fish are fit to withstand the stress of handling
 - ✓ The effect of handling is temperature dependent, thus handling should be avoided when water or air temperature reach the lower or upper optimal limits in relation to the ontogenetic or physiological state of the fish
 - ✓ If fish during handling show sign of oxygen deficiency, measures should be taken to allow fish to recover, e.g. by increasing the water flow or adding oxygen



Guidelines on handling

Some examples

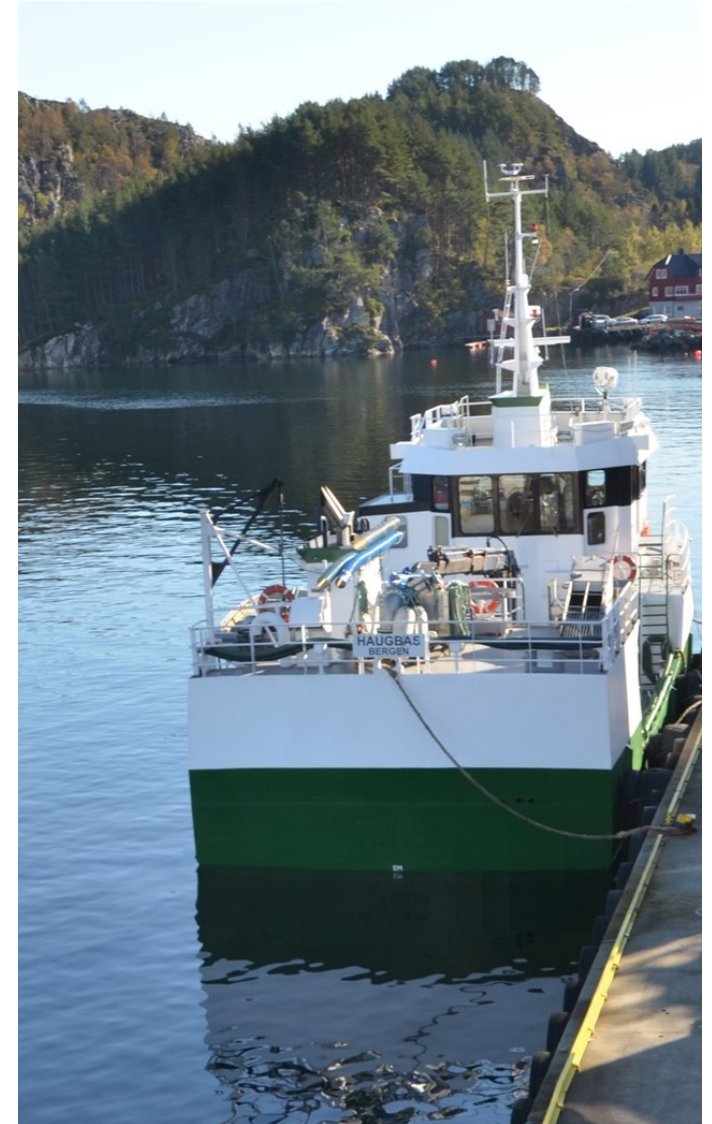
- ✓ Crowding should be as short as possible and should avoid invoking a maximal stress response.
- ✓ During crowding water quality, especially oxygen level, should be monitored.
- ✓ Equipment, including pumps and nets, should be designed to avoid physical injury and be maintained in good condition
- ✓ Handling in water if possible
- ✓ Fish should be inspected during and after handling for signs of injuries. In case of injury or excessive mortality the procedure should be evaluated in order to avoid similar in the future
- ✓ Fish should not be allowed to asphyxiate under any circumstances



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Guidelines concerning the operator – some examples

- ✓ Those responsible for the keeping of fish should have appropriate knowledge and understanding to ensure that the welfare of the fish is maintained
- ✓ They have a responsibility to provide training to their staff. This may include formal training and practical experience
- ✓ They should have procedures in place to ensure an adequate water supply and quality at all times on farm, during transport and in holding pens at the abattoir
- ✓ They should have procedures that identify critical points in the handling procedure and indicate when to discontinue handling in order to maintain adequate fish welfare
- ✓ The procedures should cover corrective measures and unforeseen events



Thank you for your attention

Questions ?

Link to the guidelines:

https://food.ec.europa.eu/animals/animal-welfare/eu-platform-animal-welfare/platform-conclusions_en

