

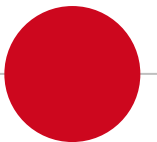
Welfare of farmed fish, transport and slaughter (WOAH Standards)



DVM Amedeo Manfrin

IZSVE-National Reference Laboratory for fish, mollusc and crustacean diseases

Workshop for WOAHP National Focal Points for Aquatic Animals in Europe
Chioggia (VE) Italy – 19.10.2023



● Animal welfare is a big issue

- Different points of view.
- **Breeder**: good production = good welfare.
- **Veterinarian**: avoid unnecessary suffering, chronic stress and distress.
- **Animalists**: any constriction or traumatic action is illegal.
- **Vegetarians and vegans**: **NO** to any kind of animal production and slaughtering.

● Legislation

- Still very lacking, both at national than international level.
- A few sentencies about fish.
- Great Britain and Norway among the most advanced countries.
- E.U. going to implement, but with typical bureaucratic slowness.



● Fish farming

- Approved the recommendation of the Council of Europe in Strasbourg (general part on "farmed fish") by the Standing Committee of the European convention for the protection of animals kept for farming purposes (T-AP) in December 2005.
- It became effective after six months from the officialization by the Standing Committee.
- Obligation from the Member States (40 different countries) to ratify.
- Poor application or different approach in each EU members

Farmed fish (finfish): EFSA opinion.....we need to update

Scientific Opinion of the Panel on Animal Health and Welfare General approach to fish welfare and to the concept of **sentience in fish – Gennaio 2009**

Animal welfare aspects of husbandry systems for farmed common **carp - Dicembre 2008**

Animal welfare aspects of husbandry systems for farmed European **seabass and gilthead seabream – Ottobre 2008**

Animal welfare aspects of husbandry systems for farmed fish - **European eel - Settembre 2008**

Animal welfare aspects of husbandry systems for **farmed trout - Settembre 2008**

Slaughtering: EFSA opinion 2008-09...again we need to update

- Species-specific welfare aspects of the main systems of stunning and killing of farmed **Sea bass and Sea bream**
- Species-specific welfare aspects of the main systems of stunning and killing of farmed **Rainbow Trout**
- Species-specific welfare aspects of the main systems of stunning and killing of farmed **Eels (*Anguilla Anguilla*)**
- Knowledge gaps and research needs for the welfare of farmed fish

Many guidelines are available

OIE – World Organization for Animal Health - Aquatic Animal Health Code 2023 - Section 7

FAO - Code of Conduct for Responsible Fishing which also includes the principles for the development of sustainable aquaculture.

FEAP – (Federation European Aquaculture Producers) - Code of Conduct for European Aquaculture

API – (Italian Fish farmers Association) Code of Good Breeding Practice in Aquaculture

Fish welfare and losses during the production cycle - defining issues and identifying research needs

Report of a workshop held within Aquaculture Europe
October 22nd 2015
Rotterdam, The Netherlands



European Aquaculture Technology and Innovation Platform

Organised by the European Aquaculture Society and European Aquaculture Technology and Innovation Platform

EAS Secretariat, November 2015



Welfare Indicators for farmed Atlantic salmon: tools for assessing fish welfare



Even in a school, there are individuals. Photo: Lars H. Stien

Edited by Chris Noble, Kristine Gismervik, Martin H. Iversen, Jelena Kolarevic, Jonatan Nilsson, Lars H. Stien and James F. Turnbull



Welfare of farmed fish: Common practices during transport and at slaughter

Final Report



ELECTRICAL STUNNING: IS IT AN ALTERNATIVE FOR CAPTURED

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An HIF-financed project, led by Nofima in partnership with:
INSTITUT FOR HANDELSRESEARCH, Nofima, NORD, UNIVERSITY OF STIRLING

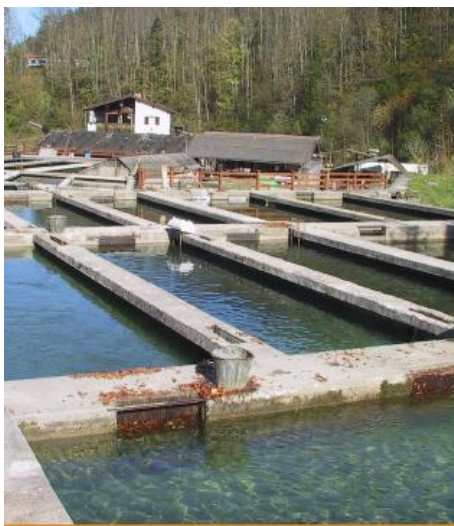


February 2018

fish farmed around the world



IMARES and AFI are cooperating in "WAGENINGEN AQUACULTURE"



Guidelines on Water Quality and Handling for the Welfare of Farmed Vertebrate Fish

EU Platform on Animal Welfare Own-Initiative Group on Fish

List of contributors

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Aquatic Animal Health Code

Contents | Index 

SECTION 7.

WELFARE OF FARMED FISH

Chapter 7.1.	Introduction to recommendations for the welfare of farmed fish
Chapter 7.2.	Welfare of farmed fish during transport
Chapter 7.3.	Welfare aspects of stunning and killing of farmed fish for human consumption
Chapter 7.4.	Killing of farmed fish for disease control purposes

Cattura rettangolare

2023 ©OIE - Aquatic Animal Health Code


Contents | Index 

● WELFARE OF FARMED FISH DURING TRANSPORT chapt. 7.2

- **Responsibilities:** Competent Authorities, owners and transporters of fish at the start and at the end of the journey.
- **Competence:** all parties supervising transport activities, including loading and unloading, should have an appropriate knowledge, understanding and training to ensure that the welfare of the fish is maintained during transport.
- **Planning the transport:** adequate planning (type of vehicle, handling equipment, water quality, preparation of fish before transport, loading and unloading procedures, contingency plan, etc) **is a key factor.**
- **Documentation:** sanitary certificates, description of the consignment and transport plan)

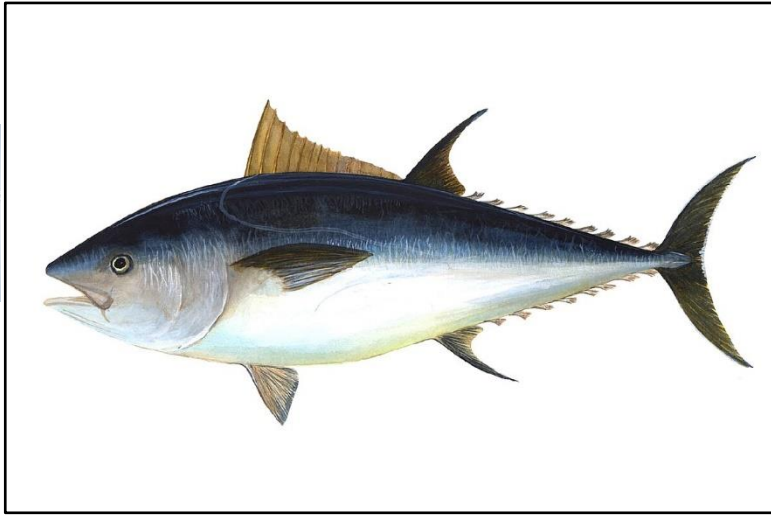
WELFARE ASPECTS OF STUNNING AND KILLING OF FARMED FISH FOR HUMAN CONSUMPTION – chapt. 7.3

- **General principles** that should be applied to ensure the welfare of fish for stunning and killing for human consumption and also applies to farmed fish killed for disease control purposes.
- **Personnel** handling fish for stunning and killing should be experienced and competent in the handling of fish
- **Transport:** see chapter 7.2
- The **holding facilities** should be designed and specifically constructed to hold a certain fish species or group of fish species.
- **Stunning and killing methods:** the choice of method should take account of species-specific information where available.

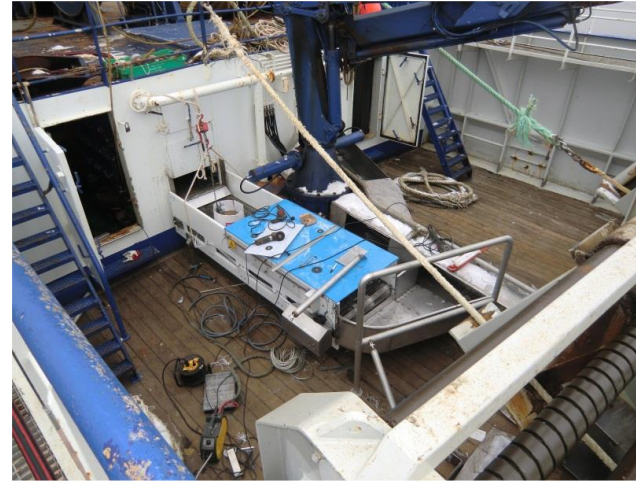


Examples of stunning/killing methods for fish groups (Aquatic code 2023 art 7.3.8)

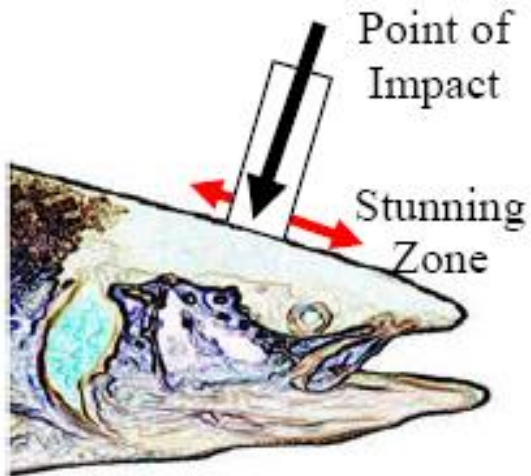
- The following methods enable humane killing for the following fish groups:
- **percussive stunning**: carp, salmonids;
- **spiking** or coring: tuna;
- **free bullet**: tuna;
- **electrical stunning**: carp, eel, salmonids.



Free bullet.....no pictures available

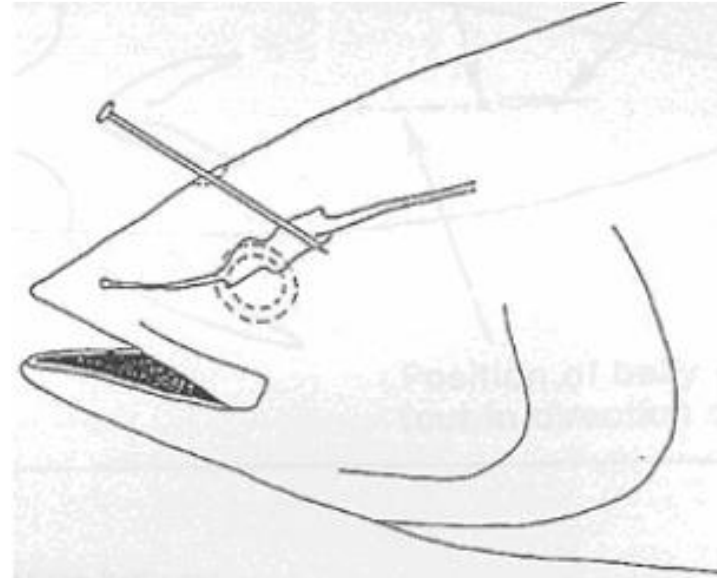


Electrical stunning



Percussive stunning

Spiking or coring



Poor fish welfare (OIE code 2023).

The following methods are known to be used for killing fish:

chilling with ice in holding water, **carbon dioxide** (CO₂) in holding water; chilling with ice and CO₂ in holding water; **salt or ammonia baths**; **asphyxiation** by removal from water; **exsanguination without stunning**.

These methods **should not be used** if it is feasible to use the methods described in points 2 and 3 of this Article, as appropriate to the fish species.

● Sea bass and bream

METHODS USED IN COMMERCIAL FARM

- Stunning in water with ice (ice slurry).
- Stunning in boxes with ice
- Asphyxiation



● No easy in off shore sea cages



● You need scuba divers and special boats



● Harvesting with special tools



● 300/400 kgs x single bin



● Stunning and killing...at the same time??

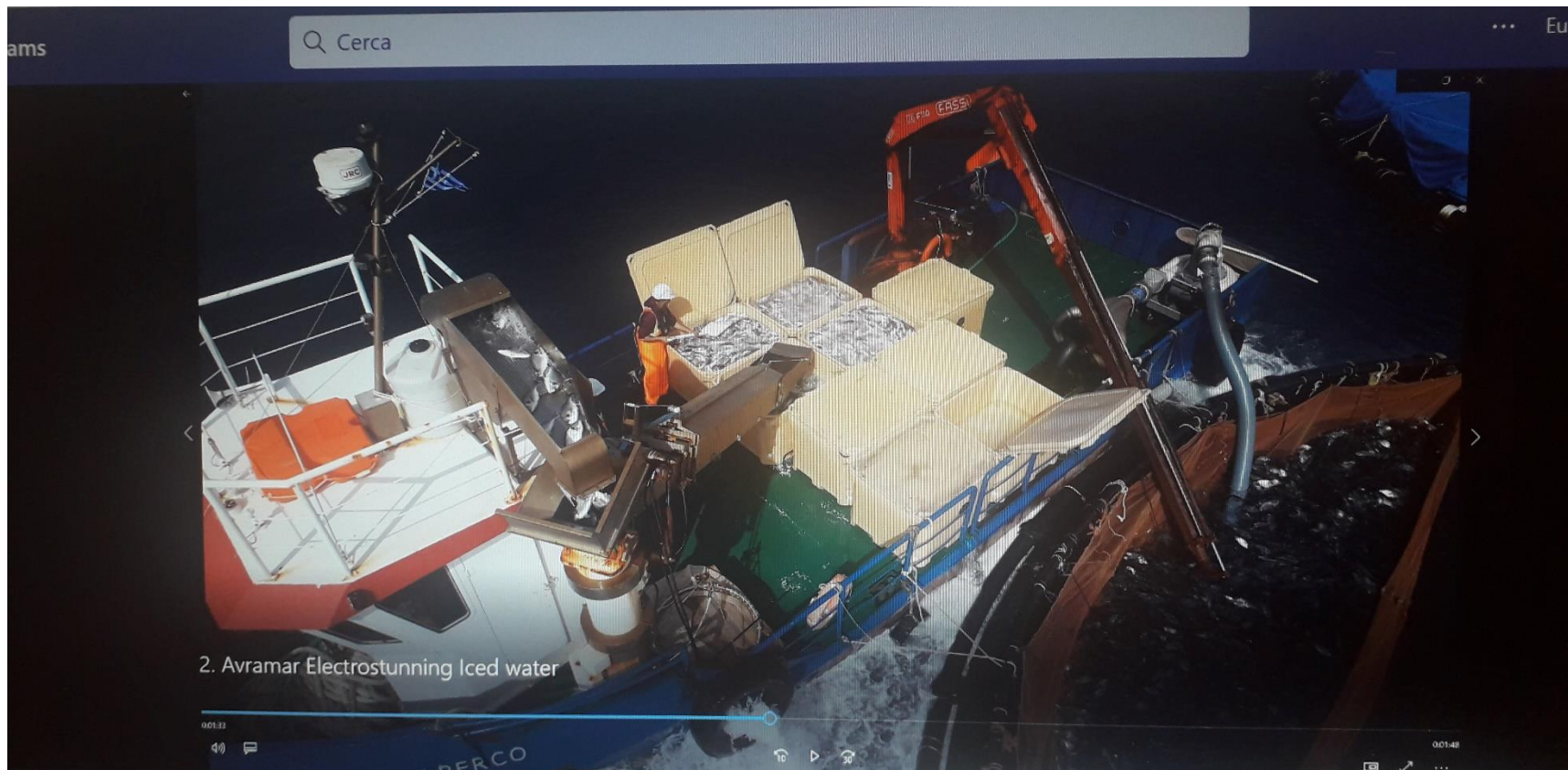


● Allowed method...waiting for some better technique...





Electrical stunning (dry or wet) in marine species ... work in progress



EU COMMISSION: work in progress



EU COMMISSION: work in progress

Farm to Fork Strategy

Transition to sustainable food systems

Need to improve animal welfare

Review of animal welfare legislation/Animal welfare labelling

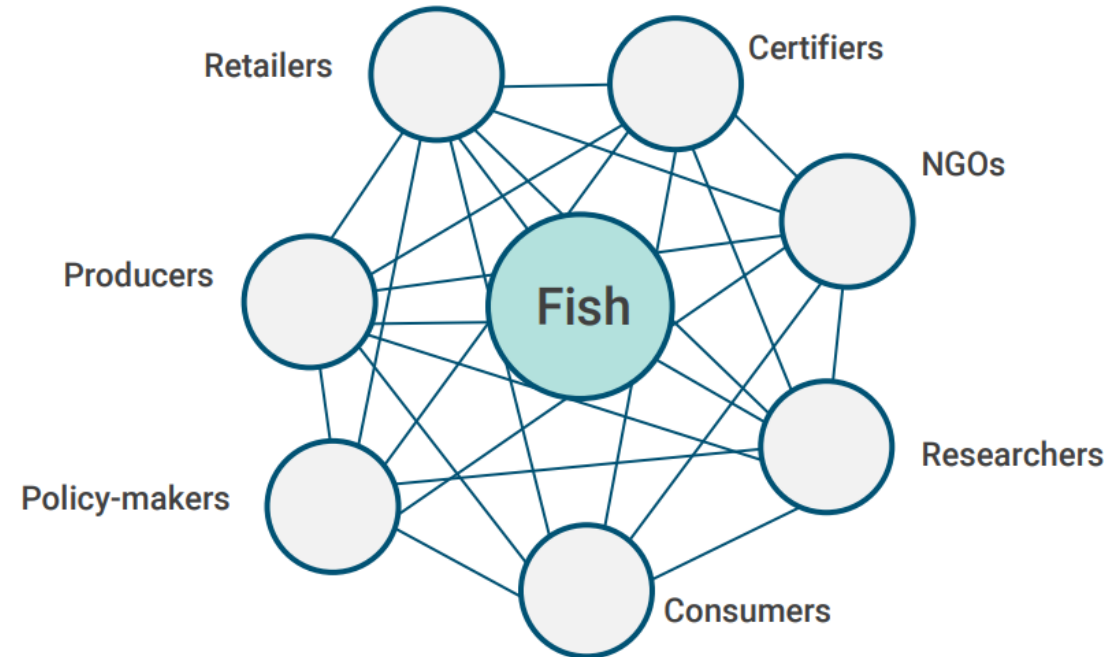
Significant increase in organic aquaculture

Action Plan on Organic Farming



RESEARCH: work in progress

Science-based collaborative approach:



João L. Saraiva



EU COMMISSION: work in progress

Roadmap of future mandates to EFSA

- 26 October 2021: Commission sent roadmap to EFSA indicating its planned future mandates in the area of farm animal welfare, after 2023:
 - Beef cattle
 - Sheep and goats
 - Turkeys
 - **Farmed salmon and trout** (June 2026); **farmed carp** (June 2027); **farmed sea bass, sea bream, European eel** (June 2028); **farmed tune** (December 2029)
 - Ducks, geese and quail
 - Equines
 - Minks, racoon dogs, foxes
 - **Certain invertebrates such as decapods** (December 2030)





EU COMMISSION: work in progress

- Established a working group on slaughtering in 2022 with some experts:
 1. Norway, Netherlands, Germany, Greece, **Italy**, Sweden, Spain, DG Mare, DG Sante, European Platform on Animal Welfare (EUPAW)
 - 5 meetings with information about salmon, trout, carp, sea bass and bream
 - Ongoing the call to select the reference laboratory (EURCAW-Fish).... within 2023

● The most important research priorities

- Welfare indicators: mainly behavioural
- Indicators of stress in larvae and juveniles
- Welfare during vaccination
- Fish density according to different species biological needs
- Assessment of welfare in Recirculating Aquaculture System
- Pre-slaughter handling techniques (crowding and harvesting methods at different temperature)



● Ready for questions??



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