

FISH FARMING

Current situation

Fish farming is the world's fastest growing sector of food production, currently accounting for nearly 50% of the world's food fish. The EU-27 production increased by about 27% from 1993-2005. In the same period the production in Norway (largely of Atlantic salmon) increased by about 270%⁴⁷.

The EU aquaculture industry produces a total of 1.3 million tonnes of fishery products a year.

Atlantic salmon is economically the most important farmed fish in Europe, with Norway - the world's largest producer - producing 736,000 tons in 2007⁴⁸ (141,000 tons in the EU). In Europe, Scotland is the second biggest producer, with over 125,000 tons or 32 million salmon slaughtered for the market annually. In economic terms, Europe's second most important farmed fish is the Rainbow trout.

A wide range of other fish species is now farmed in Europe; Sea bass and Sea bream are widely farmed in Mediterranean countries, whilst traditional carp rearing is prominent in Eastern Europe. Eel farming is centred in Denmark, Italy, and the Netherlands, and involves catching elvers (young eels) from the wild for rearing in captivity. Species new to aquaculture, such as cod, halibut, tuna and turbot are now also being farmed.

The vast majority of farmed finfish in Europe are reared intensively, with large numbers of fish at high stocking density. Lighting, water temperature, feeding regime and breed selection are often manipulated to increase production. The fish are confined in a range of pens, tanks, fast-flowing raceways and earth ponds.

The main welfare issues include high stocking densities leading to tail and fin injuries, disease and behavioural abnormalities, parasitic sea lice infestation in salmon that are treated with strong chemical nerve toxins, slaughter methods, pre-slaughter starvation, and genetic manipulation.

Stocking density not only affects water quality, it is also a crucial factor affecting fish welfare⁴⁹. Crowding fish at high stocking densities can cause chronic stress, behavioural problems (e.g. stereotypic behaviours or aggression), skin injuries caused by aggression and a greater susceptibility to disease and parasitic attack.

⁴⁷/Eurostat Fishery Statistics Data 1990-2006 http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-DW-07-001/EN/KS-DW-07-001-EN.PDF

⁴⁸/EUROSTAT statistics available at: <http://epp.eurostat.ec.europa.eu/portal/page/portal/fisheries/data/database>

⁴⁹/In 2008 EFSA adopted opinions on animal welfare aspects of husbandry systems of farmed fish, covering trout, salmon, eel, carp and seabass and seabream.

Although the capacity of fish to feel pain has been questioned for many years on the basis of the different brain structure compared to other vertebrate animals, it is now recognised that fish do experience pain and stress. The Scientific Panel for Animal Health and Welfare of the EFSA states: “(...) *the results of many studies lead to believe that fish have the structures necessary and the capacity to experience fear and pain and can thus suffer and therefore, welfare considerations for farmed fish should take these into account*”⁵⁰.

The humaneness of the most common slaughter methods can be assessed on the basis of the pain and stress they cause.

The most widely used slaughter methods for farmed fish are inhumane as they cause prolonged pain and distress and result in very poor welfare for the fish⁵¹. These include:

- suffocation in air or on ice often followed by live stripping (taking away the organs of the fish): The cooling effect of the ice prolongs the time it takes for fish to become unconscious, and the fish is aware of what is happening to them almost 15 minutes after being taken from the water
- the use of carbon dioxide stunning, which causes the fish to stop moving after 30 seconds, but not to lose consciousness for 4-9 minutes. When the gills are cut as part of the slaughter process, the fish may be immobile but conscious.
- Bleeding without prior stunning by simply cutting the gill arches and allowing the fish to bleed to death. After gill cutting, fish react vigorously for 4-7 minutes.
- Eels are killed by cutting the necks when fully conscious, or anaesthetised and allowed to bleed to death. Alternatively, they are bathed in dry salt, which gradually penetrates and desiccates their bodies, before being gutted despite an estimated 80% of them still being alive. A significant proportion are still alive after 30 minutes.

Only slaughter methods that cause an instant death or render fish instantly insensible to pain until dead should be permitted. These include percussive stunning techniques and electrocution where properly designed and effectively carried out.

Farmed fish are normally starved for about 7-10 days before slaughter to empty the gut and minimise the risk of the flesh becoming contaminated when gutted. Farmed fish are conditioned to expect frequent and plentiful feed. To suddenly cut off that feed is likely to be detrimental to their welfare.

Dependent on temperature, research shows it takes 24-72 hours to achieve gut clearance. The UK Farm Animal Welfare Council⁵² (1996) recommends that periods in which fish are deprived of food prior to slaughter must be kept to a minimum and should not normally exceed 48 hours for trout and 72 hours for salmon.

Environmental threats include the impact of ‘predator control’ on wildlife such as seals. ‘Genetic pollution’ from escapees breeding with wild salmon can have a detrimental effect on the survival of wild populations. Wild fish can become infested with sea lice from salmon farms, causing increased death rates. Contrary to popular belief, the farming of carnivorous fish such as salmon, trout, halibut and cod *adds* to the pressure on wild fish stocks. Over 3 tonnes of wild-caught fish are needed as feed to produce 1 tonne of farmed salmon. For the newly farmed marine species such as halibut and cod, the ratio is over 5 to 1.

⁵⁰/EFSA (European Food Safety Authority), 2004. Welfare aspects of animal stunning and killing methods. http://www.efsa.eu.int/science/ahaw/ahaw_opinions/495/opinion_ahaw_02_ej45_stunning_report_v2_en1.pdf

⁵¹/In 2009 EFSA adopted 7 opinions on species-specific welfare aspects of the main systems of stunning and killing of farmed fish, covering turbot, trout, salmon, eel, seabass and seabream, carp, and tuna: http://www.efsa.europa.eu/EFSA/ScientificPanels/ahaw/efsa_locale-1178620753812_Opinions5.htm

⁵²/Farm Animal Welfare Council (1996). Report on the welfare of farmed fish: <http://www.fawc.org.uk/reports/fish/fishr-toc.htm>

Legislation

Council of Europe

The Council of Europe Convention on the welfare of animals kept for farming purposes applies for farmed fish. A *Recommendation Concerning Farmed Fish* covering on-farm welfare, transport and emergency slaughter was adopted in 2005 by the Standing Committee to the Convention. Since then the Standing Committee has been working on several species specific appendices to the recommendation.

European Union

There is currently no species-specific Community legislation to protect the welfare of farmed fish.

The slaughter of farmed fish is currently covered under the general provisions of Council Directive 93/119/EC on the protection of animals at the time of slaughter or killing, which specifies that "Animals shall be spared any avoidable excitement, pain or suffering during movement, lairaging, restraint, stunning, slaughter or killing." Regulation 1099/2009 on the protection of animals at the time of killing, adopted in 2009, will replace the Directive from 1st January 2013. Farmed fish are covered by a general provision under Article 3 (1), which states: "Animals shall be spared any avoidable pain, distress or suffering during their killing and related operations".

The specific requirements of this legislation do not cover farmed fish. The new regulation, however, includes a requirement for the Commission to submit to the European Parliament and to the Council, no later than 8 December 2014, a report on the possibility of introducing certain requirements regarding the protection of fish at the time of killing, taking into account animal welfare aspects as well as the socioeconomic and environmental impacts. This report shall, if appropriate, be accompanied by legislative proposals with a view to amending the Regulation, by including specific rules regarding the protection of fish at the time of killing.

In April 2009, the Commission presented a communication to give new impetus to the sustainable development of aquaculture.

The *Council Regulation on the common organisation of the markets in fishery and aquaculture products (104/2000/EC)* requires that fish must be labelled according the production method (taken at sea or farmed). This compulsory labelling law should help those consumers wishing to avoid intensively farmed fish.

Under *Council Regulation (EC) No 834/2007 on organic production*, the Commission has adopted detailed rules on organic aquaculture which include provisions concerning farming, transport and slaughter of fish. These are set up in Commission Regulation (EC) No 710/2009 of 5 August 2009.

International

The World Organisation for Animal Health (OIE) is developing recommendations and standards on the welfare of animals used in agriculture and aquaculture, with priority given to transportation, humane slaughter and killing for disease control purposes. At its General Assembly in 2010, a new Aquatic Code Chapter (7.3) on stunning and killing of farmed fish for human consumption was adopted. Future work will address the humane killing of farmed fish for disease control purposes.

Future action

- Specific welfare standards for the stunning and killing of fish should be developed.
- The Council of Europe *Appendices of the Recommendation Concerning Farmed Fish* should be finalised and implemented by the Community and Member States.
- The EU should adopt welfare standards for farmed fish, implementing the Council of Europe recommendations
- Future OIE welfare standards and guidelines for aquaculture should include:
 - Low maximum stocking densities, taking into consideration the density-related welfare problems encountered currently in the intensive salmon and trout industries.
 - A prohibition to use genetically modified fish
 - Provisions for emergency killing using humane techniques based on research results
- The already published OIE standards on stunning and killing of farmed fish for human consumption must be amended in line with the ICFAW comments prepared in august 2010 and especially with regard to the following two points:
 - Provisions for pre-slaughter starvation periods
 - The prohibition to use inhumane slaughter methods