STANDING COMMITTEE OF THE EUROPEAN CONVENTION FOR THE PROTECTION OF ANIMALS KEPT FOR FARMING PURPOSES (T-AP)

RECOMMENDATION CONCERNING FARMED FISH

adopted by the Standing Committee on 5 December 2005

(In accordance with Article 9, paragraph 3 of the Convention, this Recommendation entered into force on 5 June 2006)

PREAMBLE

(1) The Standing Committee of the European Convention on the Protection of Animals kept for Farming Purposes,

(2) Having regard to its responsibility under Article 9 of the Convention for the elaboration and adoption of recommendations to the Parties containing detailed provisions for the implementation of the principles set out in Chapter I of the Convention based on scientific knowledge concerning the various species of animals;

(3) Aware also of the established experience in the implementation of the principles of animal welfare set out in articles 3-7 of the Convention;

(4) Aware that the basic requirements for the welfare, including health of farmed fish consist of good stockmanship, husbandry methods appropriate to the biological characteristics of the animals and a suitable environment, so that the conditions under which farmed fish are kept fulfil their needs.

(5) Concerned with the possibility that the results of developments in breeding and biotechnology may further influence the welfare of farmed fish and aware of the need to ensure that such developments do not adversely affect their welfare, including health;

(6) Bearing in mind that it is an obligation of the Committee to consider any recommendation when relevant new knowledge is available and therefore wishing to encourage the continuation of research by all Parties with the object of making optimum use of new techniques to ensure that the needs of farmed fish are met and hence that their welfare, including health are good;

(7) Considering that in the light of established experience and scientific knowledge about the biological needs of fish, methods of husbandry and slaughter at present in commercial use may fail to meet all their needs and hence result in poor welfare;

Bearing in mind that the environment and management have to fulfil the animals' biological

needs;

(9) Considering therefore that strong and continuous efforts have to be made to adapt existing systems and methods and to develop new husbandry systems and methods in line with the Convention so that the needs of the animals can be met;

(10) Aware that scientific knowledge and practical experience indicate that the provision of a Recommendation concerning farmed fish is necessary;

has adopted the following Recommendation concerning farmed fish.

BIOLOGICAL CHARACTERISTICS OF FISH

General biological characteristics of fish

a. When considering husbandry practices the following general biological characteristics of fish should be borne in mind:

• With a few exceptions, such as tuna, fish are cold blood animals (poikilotherms) and, as a result, their metabolic processes are dependent on the environmental temperature;

• Fish obtain the oxygen which they need from water via their gills and for some species via their skin. The heart and circulatory system are adapted to this means of respiration;

• The basic structure and function of muscles, liver, hormonal control mechanisms and nervous system are similar to higher vertebrates;

• The skin of the fish is the first line of defence against disease and provides protection from the environment. It contains sensory receptors for touch, pressure and pain and also has respiratory, excretory and osmoregulatory functions. Within the skin are pigment cells and, sometimes light emitting structures that provide for concealing, advertising or sexual behaviours. The skin also contains mucus glands, which secrete a protective layer over the skin, scales and occasionally poison secreting or electric organs;

• Most fish species show maximal emergency responses under stressful conditions, such as:

- when they are subjected to low oxygen tension in the water or the presence of certain noxious substances in the water or attacked,

- when they are removed from water.

However, in the same situations, certain species will show little behavioural reaction even though physiological stress response will be substantial.

b. Long lasting stressful events, poor water and feed quality, and behavioural problems, may result in immunosuppression and disturbance of reproduction and growth.

c. Fish respond to the environment and such characteristics are valuable in preserving life and maximising the biological fitness of individuals.

GENERAL PROVISIONS

Article 1

1. This Recommendation shall apply to farmed vertebrate fish (hereinafter named fish").

2. Special Provisions contained in the Appendices to this Recommendation constitute an integral part thereof.

Article 2

When considering husbandry practices the biological characteristics of fish should be borne in mind. In particular, it has to be emphasised that in fish pronounced interspecies differences exist with respect to the requirements for water conditions, social behaviour and environmental structures.

All fish species kept for farming purposes, including new species and those already farmed, but not included in the species-specific Appendices to this Recommendation[1], shall be farmed without detrimental effects on their welfare, including health, taking into account their biological characteristics, the scientific evidence and the practical experience available, and the farming system used.

STOCKMANSHIP AND INSPECTION

Article 3

1. Any person who owns farmed fish, or has farmed fish under his or her control (hereafter referred to as "the stockman"), and every person engaged in the keeping of farmed fish shall, according to their responsibilities, ensure that every reasonable step is taken to safeguard the welfare, including health of such fish.

2. A substantial period of training appropriate to their responsibilities, including practical experience, as well as continued training, are considered

essential for those engaged in the keeping of fish.

3. A system of certificate of competence should be considered by the competent authorities at least for the stockman.

4. Farmed fish shall be cared for by a sufficient number of personnel with adequate training and experience of the fish and of the husbandry system used to be able to:

(a) recognise whether or not the fish are in good health;

(b) understand the significance of behavioural changes; and

(c) appreciate the suitability of the total environment for the fishes' welfare, including health.

5. Fish should be caught and handled only by competent, trained staff, working under the supervision of the stockman and in accordance with Article 14.

6. The number of fish and farm units (group of enclosures such as ponds, cages, etc. situated in a same area), shall be such that, under normal circumstances, the stockman is able to ensure that animals are properly looked after to safeguard their welfare, including health.

Article 4

Farmed fish shall not be used for public spectacle or demonstrations, if such use is likely to be detrimental to their welfare, including health.

Article 5

1. Enclosures containing fish shall be inspected at least once a day, preferably more frequently, unless such a frequent inspection is impossible due to adverse weather or to the specific characteristics of certain extensive husbandry systems. Inspection should be made with minimal disturbance to the fish.

2. The inspection should focus on factors affecting adversely the welfare of the fish, and signs of abnormal behaviour, injury, poor health or increased mortality.

3. If fish are behaving abnormally, are injured or in poor health or if increased mortality is registered, the person responsible for their care shall act promptly to establish the cause and take remedial action, if necessary with the assistance of a veterinarian or other expert.

If such action requires fish to be examined closely, they must be handled

in accordance with Article 14.

If the fish are to be killed, this shall be done humanely in accordance with Article 19.

4. Any dead or dying fish shall be removed as soon as possible in a way that does not adversely affect the welfare of those remaining.

5. Water quality (at least turbidity, oxygen, temperature, pH and salinity) shall be assessed; visually or with an appropriate technical device according to the parameter to be considered, with a frequency appropriate to the species and the system involved in order to avoid poor welfare, including health in fish.

ENCLOSURES, BUILDINGS AND EQUIPMENT

Article 6

1. Professional advice on health and other aspects of welfare should be sought when new farm units for farmed fish are planned or when existing farm units are modified.

2. New methods of husbandry, and new design of equipment and enclosures for fish should be comprehensively and objectively tested from the point of view of fish welfare, including health and when tests are undertaken, shall not be put into commercial use unless found to be satisfactory, in accordance with a procedure laid down by the competent authority.

Article 7

1. When the welfare, including health of the fish depends on automatic or other mechanical systems, effective alarm systems shall be installed. Where appropriate, backup systems shall be installed to secure the welfare of the fish, including their health, in case of possible power or equipment failure.

2. Sites shall be carefully chosen or designed so as to:

• ensure an adequate flow of clean water, of suitable quality, in the enclosures, according to the characteristics of the husbandry systems and to the species' requirements;
• minimise the risk from natural and man-made hazards.

3. Sites for sea-based units shall also be chosen so as to avoid excessive damage to fish under adverse sea conditions.

Article 8

1. The design, construction and maintenance of enclosures, buildings and equipment for farmed fish shall be such that they:

a. allow the fulfilment of essential biological requirements and the maintenance of good welfare, including health;
b. facilitate management of the fish;
c. minimise the risk of injuries and stress;
d. avoid sharp corners, projections and material which may be harmful to the fish;
e. allow a thorough inspection of the fish in accordance with the provisions of Article 5.1;
f. are appropriate to the weather conditions and surroundings in which they are to be used;
g. minimise the risk of escape of farmed fish and entry of wild fish;
h. allow for the prevention and treatment of disease, in particular cleaning and disinfection, or where possible fallowing;
i. allow for easy maintenance of good conditions of hygiene and water quality, including removal of waste, depending on the requirements of the fish and the systems.

2. Buildings, equipments and enclosures, shall be designed and maintained as far as possible to provide protection to the fish from predators.

3. A method for the removal of dead and moribund fish appropriate to the enclosures used shall be available.

4. Feeding equipment shall be designed, constructed, placed, and maintained in such a way that:

• contamination of the water is minimised;
• all fish have sufficient access to feed to avoid undue competition between individuals;
• it operates in all but severest weather conditions and
• the amount of feed provided can be monitored.

5. Equipment used for size grading, netting and the mechanical transfer on-farm of fish should be designed so that fish are not injured during their operation.
Where nets are used to handle fish, they shall cause as little injury as possible to the fish and the mesh size should be appropriate to the size of fish to avoid entanglement.

MANAGEMENT

Article 9

1. Measures shall be taken to minimise stress, aggression and cannibalism. Since fish grow at different rates, where appropriate, they shall be separated according to size. When grading is carried out it shall be done with a minimum of handling and shall cause a minimum of stress.

2. Stocking density shall be adjusted in line with the following criteria:
- the biological needs of fish with regard to environmental conditions in addition to health and welfare;
- the farming system used, in particular the ability to maintain water quality and the feeding technology.

Stocking density shall be based on knowledge of the water quality parameters and other local farming conditions, the physiology of fish and animal health and welfare indicators such as behaviour, the level of stress, injuries, appetite, growth, mortality and disease.

3. Enclosures should be regularly cleaned and – where possible - fallowed to reduce the risk of accumulation of agents that can harm the fish or induce diseases, and to prevent the spread of disease from one production group to another.

4. No substance other than those given for therapeutic or prophylactic purposes shall be administered to an animal unless it has been demonstrated by scientific knowledge or established experience that the effect of the substance is not detrimental to the welfare, including health, of the animals.

5. The routine use of medicines as part of a management system to compensate for poor hygienic conditions, poor management practices, or to mask signs of poor welfare such as pain and distress shall not be allowed.

Article 10

Where the welfare, including health of the fish depends on automatic or other mechanical systems, these shall be checked at least daily. Where defects are discovered these shall be rectified immediately, or, if this is impractical (e.g. in very rough seas) other appropriate steps taken to safeguard the welfare, including health of the fish until the fault can be rectified.

Article 11

1. All fish shall have access to adequate amount of nutritious, balanced and hygienic feed according to their physiological needs. Feed should be distributed in a way which precludes excessive competition between fish.

2. Before certain management practices, transport, slaughter or for therapeutic reasons, fish shall be starved in order to reduce metabolism

and excretion of waste products. The period during which fish may be deprived of food prior to certain management procedures or slaughter shall be appropriate to the species and take into account environmental conditions, in particular temperature. In any case, this period shall be kept as short as possible. Species-specific information on food deprivation is provided in the Appendices[2].

3. The feeding, especially of fry and young fish shall be monitored.

4. Sudden changes in the type or quantity of feed and feeding procedures shall be avoided except where necessary for the welfare, including health of the fish. Methods of feeding which may be detrimental to the fish or adversely affect the water quality shall not be used.

Article 12

1. The parameters affecting water quality, such as oxygen, ammonia, CO_2, pH, temperature, salinity and water flow, are interrelated. Their variation will influence the water quality and therefore affect the welfare of fish. Water quality parameters shall at all times be within the acceptable range that sustains normal activity and physiology for a given species unless certain parameters in exceptional situations cannot be managed by the farmers provided that the site has been chosen in accordance with Article 7. Water quality parameters shall also take into account the fact that the requirements of individual species may vary between different life-stages e.g. larvae, juveniles, adults or according to physiological status e.g. metamorphosis or spawning. Species-specific water quality parameters are provided in the Appendices[2]. In recirculation systems special attention should be given to monitoring and management of water quality

2. Fish show varying degrees of adaptability to changing water quality conditions. Some degree of acclimatisation may be necessary and this should be carried out for a period appropriate for the fish species in question. Appropriate measures shall be taken to minimise sudden changes in the different parameters affecting water quality.

3. Oxygen concentration should be appropriate to the species and the context in which they are held. It will vary depending on abiotic factors (temperature, salinity, atmospheric pressure, carbon dioxide concentration, etc.) and it is affected by management practices (feeding, handling, etc.). In pond culture, the oxygen level should be monitored closely in case of high density and warm water. In recirculation systems, the oxygen level should be monitored continuously by way of a system which accurately reflects the oxygen available to the fish, and an alarm system should be in place. Oxygen levels can be increased by different means, such as aeration, direct oxygen injection, increasing the flow rate or reducing temperature.

4. Ammonia and nitrite are very toxic to fish and their accumulation to harmful levels shall be avoided. The toxic form of ammonia is unionised ammonia; the unionised portion of total ammoniac nitrogen concentration depends on pH, salinity and temperature. The accumulation of ammonia and nitrite can be avoided by different means according to the farming system used, such as increasing flow rate, reducing feeding, biofiltration, reducing density or temperature.

5. Carbon dioxide is produced by fish during respiration and dissolves in water to form carbonic acid thus lowering pH. The carbon dioxide level may be affected by plant and bacterial metabolism as well as by the temperature, salinity and alkalinity of the water. Accumulation of carbon dioxide to harmful levels shall be avoided, for example by using aeration systems or by chemical means, according to the farming system used.

6. pH depends on many water quality factors, among others the concentration of humic acids, CO_2 and dissolved calcium salts. Where possible, pH shall be kept stable, as all changes in pH initiate complex water quality changes which may cause harm to the fish.

7. Water flow and water exchange should ensure, according to the farming system used, appropriate water quality for fish, once other factors - such as temperature and stocking density - have been taken into account, in such a way that excretion- and metabolism-related products are kept below the toxic levels.

Article 13

1. In the breeding of farmed fish, the stripping and milking process shall be carried out by trained and competent persons.

2. During the monitoring of fish prior to stripping and milking, sedation may be necessary. The number of times a fish is handled and exposed to sedation shall be minimised to limit injury and stress.

3. If live fish are to be stripped or milked, anaesthesia or sedation should be used as necessary for the species concerned.

4. Where compressed air is used to assist stripping and milking in live fish they must be fully anaesthetised.

5. If gonads are removed from fish, the animal shall be killed prior to their removal.

Article 14

1. Where handling is necessary, it shall be carried out with a minimum of stress and disturbance for the fish handled and to the other fish and for the

shortest time possible. Sedation or anaesthesia may be appropriate.

2. Procedures and equipment used in handling fish shall be, maintained and operated to minimise stress and injury. When handled, the body of the fish shall be adequately supported and fish shall not be lifted by individual body parts only, such as the gill covers. The most preferable way is to handle fish without taking them out of the water (e. g. size grading by machines carrying water along the run). If fish have to be taken out of the water for handling, this shall be done in the shortest time possible and all equipment in direct contact with fish should be moistened.

3. Procedures involving pumping should minimise the risk of injury. In particular, it should be ensured that pumping height, pressure and speed, and the height from which fish fall when they emerge from the pump, are adjusted to this aim. All equipment must be free of rough surfaces liable to cause injury.

4. Where fish are crowded to aid handling, the water quality and especially levels of oxygen should be monitored and kept within acceptable limits. The period in which fish are kept crowded should be as short as possible. If fish show sign of undue stress during crowding, immediate action must be taken as appropriate, for example, by increasing the volume available to fish or by addition of supplementary oxygen.

5. During treatments in an enclosure, water quality parameters shall be monitored and maintained at levels acceptable to the species concerned.

6. Packing live fish in ice as an on-farm handling practice shall not be allowed.

Article 15

For the transport of fish within a farm, the following provisions shall apply:

a. Fish shall be checked before transport and unfit or unhealthy fish shall not be transported, except for therapeutic reasons. Fish which die during transport shall be separated from the live fish as soon as possible, unless such operation adversely affects the welfare of those remaining.

b. Fish shall be inspected regularly. It is essential that:

• oxygen levels in transport tanks are maintained above the level set as a critical value of different fish species;
• carbon dioxide levels are kept low; and
• excessive changes in water temperature and pH are avoided.

c. Transport equipment shall be cleaned and disinfected where appropriate to avoid a spread of disease and in a manner which is not harmful to the

fish.

Article 16

In the interest of good management, the responsibility for keeping on-farm records shall lie with the stockman. Records shall be kept of details of feeding, numbers and weight of fish, stocking density, growth and water quality measures, as well as the movements of fertilized eggs, gametes, fry and live fish onto or off the site, fish mortalities, diseases diagnosed, and medicines used.

CHANGES OF GENOTYPE

Article 17

1. Natural or artificial breeding procedures which cause or are likely to cause suffering or injury to any of the animals involved shall not be practised; no animal shall be kept for farming purposes unless it can reasonably be expected, on the basis of its phenotype or genotype, that it can be kept without detrimental effects on its health or welfare.

2. In breeding programmes, at least as much attention shall be paid to criteria conducive to the improvement of fishes' welfare and health, as to production criteria. The conservation or development of breeds or strains of fish, which would limit or reduce animal welfare problems shall be encouraged.

CHANGES OF PHYSICAL APPEARANCE

Article 18

1. For the purposes of this Recommendation, "mutilation" means a procedure carried out for other than therapeutic purposes and resulting in damage to or loss of a sensitive part of the body or the alteration of the bone structure.

2. The mutilation of fish shall be prohibited.

3. Notwithstanding paragraph 2, marking methods may be used but only where they cause minimal damage to the fish.

EMERGENCY KILLING

Article 19

1. If fish are ill or injured to such an extent that treatment is no longer feasible and transport would cause additional suffering, they must be killed on the spot and without delay by a person properly trained and

experienced in the techniques of killing except in an emergency when such a person is not immediately available.

2. The choice of the emergency killing method to be used depends on the farming system, on the species, on the size and on the number of fish to be killed; the need for rapid killing of large batches of fish for disease control purposes should also be considered.

The methods used shall either:
a. cause immediate death, or
b. rapidly render the fish insensitive until death supervenes, or
c. cause the death of a fish which is anaesthetised or effectively stunned.

3. It is essential to monitor the effectiveness of the procedures used for emergency killing. Monitoring should be performed using reliable indicators such as the following:

• immediate and irreversible cessation of respiratory movements (rhythmic opercular activity);

• immediate and irreversible loss of eyeroll (vestibulo-ocular reflex - VOR), that is, the movement of the eye when the fish is rocked from side to side. In a dead fish the eye does not move.

If large groups of fish are to be killed, the effectiveness of the procedure should be determined on a sample.

4. Except when larger numbers of fish have to be killed rapidly, to protect their welfare or for disease control, carbon dioxide shall not be used.

5. Severing the gills or gill arches without prior stunning shall not be allowed.

RESEARCH

Article 20

Contracting Parties shall seek to encourage research on the developments of husbandry systems, which fully respect the biological needs and welfare, including health, of fish. Studies should in particular address:

• the development of husbandry systems, including stocking densities, and other limiting factors, inspection methods, predator control, and environmental stimulation, in order to improve the welfare, including health of these fish. Such studies should include the interrelationship between water quality, feed distribution, fish size, welfare and mortality;

• pain perception;

• food deprivation;

• methods of killing these fish and mass killing for disease eradication purposes;

• water quality parameters;

• other indicators of the welfare of fish.

SUPPLEMENTARY PROVISIONS

Article 21

This Recommendation shall be reviewed within five years of coming into force. It shall be completed with:

• species-specific Appendices, as soon as adequate scientific knowledge or practical experience, in particular on the requirements for water quality, stocking density, feeding, social behaviour and environmental structures is available;

• an Appendix providing a description of certain emergency killing methods, as soon as adequate scientific knowledge or practical experience, is available.

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[1] This Recommendation shall be completed with species-specific Appendices as soon as adequate knowledge, in particular on the requirements for water quality, stocking density, feeding, social behaviour and environmental structures is available.

[2] This Recommendation shall be completed with species-specific Appendices as soon as adequate knowledge, in particular on the requirements for water quality, stocking density, feeding, social behaviour and environmental structures is available.