



# KEY AQUATIC ANIMAL WELFARE RECOMMENDATIONS FOR AQUACULTURE

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# FOREWORD

This document is intended to provide an overview of what the Aquatic Animal Alliance, having consulted with experts globally, has identified as key areas where welfare intervention is most needed for animals used in aquaculture. Information about more detailed and species-specific recommendations can be found in the extended version of this text and the accompanying references.

# OUR CONCEPT OF WELFARE

The best available evidence clearly establishes that many commonly farmed aquatic animals, who have been excluded historically from the animal welfare discourse, have a capacity to suffer that is analogous to terrestrial animals.<sup>1</sup> For this reason, the welfare of farmed aquatic animals should be given the same scrutiny and concern as that of other farmed animals, and their welfare in farm systems must be reassessed at the individual level, not just as a batch.

The Five Freedoms model of welfare, which is the standard for all terrestrial farmed animals, must also apply to aquatic animals. It is our position that in order to experience a 'life worth living,' each animal must have:

- 1** Freedom to<sup>2</sup> access sustenance that sustains health and vigour,
- 2** Freedom to live in an appropriate environment that enables and does not impair wellbeing,
- 3** Freedom to live in an environment that prevents disease and does not expose to undue risk of injury, and have diseases rapidly and appropriately treated,
- 4** Freedom to live with sufficient space, and with such companionship and materials required to express natural behaviours,
- 5** Freedom to live in conditions that promote good psychological health, and avoid mental suffering.

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<sup>1</sup> "Pain in aquatic animals" Sneddon, L, Journal of Experimental Biology" 2015

<sup>2</sup> Usually formulated as 'freedom from-', we have rearticulated these freedoms as 'freedom to-'.

# OUR CONCEPT OF WELFARE

Recent research shows that many aquatic animals are capable of both positive and negative physical and psychological experiences. Thus, standards set by AAA will include both positive and negative welfare parameters in order to provide aquatic animals the developmental opportunities required for a true allostatic “life worth living” rather than focusing merely on freedom from the worst forms of suffering.<sup>3</sup>

A welfare-based approach to aquaculture must consider every life-stage of the animals being farmed, as well as the wellbeing of all other species used in their production. This includes cleaner fish, animals used for feed, and all other sentient beings involved in the supply chain.

Concern for the welfare of all animals used in aquaculture must be maintained across the life span, from breeding, through birth, to slaughter and to all other animals used in production. This must include broodstock, juveniles, cleaner fish, animals used for feed, and all other sentient beings involved in the supply chain

**Standards should be specific to species, life stages,  
and holding environments.**



<sup>3</sup> Positive Welfare for Fishes: Rationale and Areas for Future Study” Fishes 2019, 4, 31. Fife-Cook, I.; Franks, B. - “Positive animal welfare states and encouraging environment-focused and animal-to-animal interactive behaviours” (Mellor, 2013)- “A review of animal welfare assessment, focusing on ‘positive’ welfare” Mellor, 2015

# THE 5 PILLARS OF AQUATIC ANIMAL WELFARE

## 1. ENRICHED ENVIRONMENT

Environmental Enrichment is one of the most neglected areas of farmed aquatic animal welfare. In order to express their natural behaviors, aquatic animals must be provided with an environment that meets their species-specific ethological needs in a way which is analogous with how they would prefer to live in their ideal habitat.

## 2. FEED COMPOSITION & FEEDING

It's hard to predict exactly how many animals are fed to other animals, as they vary so greatly in size and species composition. The Aquatic Life Institute (ALI) estimates conservatively that 1.2 trillion aquatic animals are used every year in the farming supply chain. <sup>4,5</sup> Animals used for feed are individuals with their own welfare concerns. As sentient beings, the number animals used for feed in the supply chain should be minimized in order to reduce suffering, including reduction and elimination of terrestrial, aquatic, and insect animal ingredients. Species that are smaller in size and have a larger individual-to-weight ratio, such as insects and krill, should never be used as feed. To this end, producers where possible must move toward the use of alternative feed products, higher feed efficiency ratios (while maintaining good nutrition and health), and the substitution of carnivorous farmed species with herbivorous species, extractive species, and systems where animals and their feed are coproduced.

Appropriate feeding is critical for good welfare. Insufficient amounts of feed, or feed in unavailable forms (e.g. excessively large pellets or feeding in a location where smaller fishes are outcompeted) can result in poor health and welfare. Providing too much feed can cause poor water quality, which in turn will affect health and welfare. Producers should strive to provide appropriate feed formulations in appropriate amounts that are available to all fishes in the farm. Starvation periods should only be used when absolutely necessary and when advised by a vet, with 72 hours as the absolute maximum.

<sup>4</sup> Borthwick et. al. "'Blue Loss', estimating how many aquatic animals are hidden in the food system", Aquatic Life Institute, (2020). Available at: <https://tinyurl.com/BlueLoss>

<sup>5</sup> See Estimate of numbers of fishes used for reduction to fishmeal and fish oil, and other non-food purposes, each year 1. Overview 2, Mood & Brooke. 2019. "

# THE 5 PILLARS OF AQUATIC ANIMAL WELFARE

## 3. SPACE REQUIREMENTS & STOCKING DENSITY

Stocking density levels appropriate for species and life stage must be maintained to avoid negative physical, psychological, and behavioral impacts. Producers should strive to increase the total swimmable water volume per individual to reflect the species needs.

## 4. WATER QUALITY

Key water quality parameters—including but not limited to oxygen and carbon dioxide levels, pH, temperature, turbidity, salinity, ammonia and nitrate—should be monitored continuously or at least once a day. Water quality assessments must be coupled with an action plan in case poor water quality is detected.

## 5. STUNNING & SLAUGHTER

All animals must be effectively stunned before slaughter. It is highly recommended to follow the World Organization for Animal Health's 'Aquatic Animal Health Code' (2010). The method used for stunning should be adequate for each species and shall render the aquatic animal immediately and fully unconscious (i.e. within one second by a scientifically-validated method) and not just immobilize the animal. Death must be induced without consciousness recovery. All stunning and slaughter equipment must be calibrated appropriately for the specific species and animal size to be processed, in order to achieve immediate and irreversible stun.

In order to minimize the risk of consciousness being recovered, time elapsed between stunning and slaughter must be minimized. Concurrent methods of stunning + slaughter (e.g. via electrocution) are preferred, but processes which are stun followed by immediate decapitation are acceptable. Asphyxiation in ice, the use of salt, CO<sub>2</sub>, or ammonia baths shall not be used.

# ADDITIONAL CONCERNS

## Transport & Handling

Where handling is absolutely necessary, it shall be carried out with minimum stress and disturbance for both the aquatic animals handled and any other aquatic animal present. Handling should occur for the shortest time possible, and anaesthetic must be applied if handling is expected to exceed a few seconds. In all new facilities, slaughter must occur on site to reduce transportation and handling. Where this is not possible, transport and handling prior to slaughter must be as limited as possible.

## Health: Medical Treatment Including Parasite Management, Routine Mutilations & Antibiotics

Farmed aquatic animals are often exposed to disease and parasites. In order to minimize the effects on welfare, effective prevention strategies should always represent a first line of defence against disease and parasites. The methods used for removal of parasites must conform to rigorous scientific welfare documentation, and steps must be taken to reduce the adverse effects on the welfare of all animals used in this process (for instance, the welfare of cleaner fish used for the treatment of sea lice). When vaccination is necessary, it shall be done with minimal distress and with the animal anesthetized, performed only by certified veterinarians or adequately trained animal health professionals. AAA opposes the routine or prophylactic use of antibiotics. However, we do not oppose the metaphylactic use of antibiotics when absolutely necessary to ameliorate the suffering of captive animals. <sup>6</sup>

## Welfare Indicators & Adequate Training

Welfare indicators used to monitor the above must be specific to species, lifestage and holding environment. The current best practice, evidence-based behavioral and physiological welfare indicators, must be used. On-farm protocols evaluating the psychological aspects of welfare must be required as soon as they are scientifically validated and available. All staff must be adequately trained to implement and monitor the above standards.

<sup>6</sup> We also oppose the use of antibiotics deemed critically important for human medicine by the World Health Organization.

# ADDITIONAL CONCERNS

## **Data-Driven Approach**

All these recommendations must respond to the best available science, and producers should actively seek to expand and share knowledge of best practices in aquatic animal husbandry. Availability of data on the wellbeing of animals is in the public interest, including data generated in private facilities. All farms must record and retain records of disease, treatments, transport, mortality rates, and causes of mortality for all animals in their care, and must use these records actively to further improve conditions within their production.

## **Predator Killings & Impact on Wildlife**

Lethal predator control techniques should not be used on any species, regardless of whether they are listed as threatened or endangered. Harmful or lethal measures to control predators should be banned, and the use of preventative measures should be promoted. Every effort must be made to ensure the biosecurity of the farm, including the prevention of disease transmission as well as genetic dilution of wild fish stocks.

# SIGNATORIES

**Aquatic Life Institute**  
**Animal Equality**  
**Compassion in World Farming**  
**Dyrevernalliansen**  
**Essere Animali**  
**Fish Welfare Initiative**  
**The Humane League**  
**Mercy for Animals**



Dyrevernalliansen

