

Regulations relating to Operation of Aquaculture establishments (Aquaculture Operation Regulations).

Issued by the Ministry of Fisheries and Coastal Affairs 17 June 2008 pursuant to Act no. 79 of 17 June 2005 pertaining to Aquaculture § 1, § 2, § 3, § 4, § 5, § 10, § 11, § 12, § 13, § 17, § 21, § 22 and § 24, the Act of 19 December 2003 no. 124 relating to Food Production and Food Safety etc., (The Food Act) § 7, § 8, § 14, § 15 and § 19, cf. delegation of authority decision of 19 December 2003 no. 1790, and the Act of 20 December 1974 no. 73 pertaining to animal welfare § 30, cf. delegation of authority decision of 6 February 2004 no. 307.

EEA reference: The EEA agreement appendix 1 chap. I (directive 2006/88/EU).

Chapter 1. Purpose, scope and definitions

§ 1. Purpose

The purpose of these Regulations is to contribute to the sustainable development of the aquaculture industry and to its development as a profitable, competitive and viable coastal industry.

The purpose is also to promote good health in aquaculture animals and ensure good fish welfare.

§ 2. Geographic and personnel scope of the Regulations

The regulations apply to Norwegian land territory and territorial waters, on the continental shelf, and in Norway's economic zone.

The regulations pertain to anyone who possesses or is obliged to possess an aquaculture license pursuant to the Act of 17 June 2005 no. 79 pertaining to aquaculture (the Aquaculture Act) § 4, cf. § 2 and § 5. The regulation pertains additionally to anyone who is or is obliged to be registered, or possesses or is obliged to possess a license pursuant to the regulation of 17 June 2008 no. 823 pertaining to establishing and expanding aquaculture establishments, pet shops etc, §§ 4 or 5. § 18 applies to every person and every ship or vessel, as well as any other device which can be navigated, except if traffic takes place as a part of the operation of the aquaculture establishment.

§ 3. Substantive scope of the Regulations

The regulations pertain to the operation of aquaculture establishments. The regulation does not pertain to the aquaculture of crustaceans, molluscs and echinoderms in the form of bottom culture without the animals being kept in captivity (sea ranching), and operation of recovery and short-term storage pens in capture-based aquaculture.

Aquaculture of on-growing fish and brood fish is regulated by chapters 1, 2, 3, 4 and 7.

Aquaculture of hatchery-reared fish is regulated by chapters 1, 2, 3, 5 and 7.

Aquaculture of fish for cultivation is regulated by chapters 1 and 7. In addition, the following apply: § 5 third paragraph, § 6 except for first paragraph, § 7 first and second paragraph § 10 first paragraph, § 11, § 12 except for third paragraph, §§13, 14, 16, §§ 19 through to 22, §§ 24 through to 34, § 50, § 51 third, fourth and fifth paragraph, § 57 except the first paragraph litterae b, § 58 third paragraph, §§ 59 through to 62.

Chapters 1, 2, 6 and 7 apply to production of molluscs and crustaceans.

Aquaculture of echinoderms is regulated by chapters 1, 6 and 7. In chapter 6, § 64 litterae b and e, and § 66 are excepted. In addition, the following provisions apply: § 5 except the last paragraph, § 6 first paragraph, § 7 except the second paragraph, § 8, § 10 first paragraph, § 12 first, third and fourth paragraph, §§ 15, 17 and 18, § 64 litterae a, c and d and § 65.

Chapters 1 and 7 apply to the keeping of on-growing fish in short-term storage pens at abattoirs. In addition, the following provisions apply: §§ 5 through to 10, § 11 first paragraph, § 12, § 13 first and last paragraph, § 14 first paragraph, §§ 16, 17, §§ 19 through to 23, § 25, §§ 28 through to 32, §§ 37 through to 39, § 41 litterae c and g, § 42 except first paragraph littera c and second paragraph littera d, §§ 46, 47 and 54.

Chapters 1 and 7 apply to the keeping of wrasse. In addition, the following provisions apply: §§ 5, 8, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 22, 23, 25, 27, 28, 29, 31, 32, 33, 34, 37, 38 and 47.

Installations for put-and-take fishing are regulated by chapters 1, 2, 3 except § 27 and chapter 7. In addition, §§ 42, 48 and 50 apply.

Pet shops, garden centres, garden ponds, commercial aquariums and wholesalers having aquaculture animals where there is direct outlet to natural water masses without the effluent water being treated are regulated by § 5 third paragraph except for the welfare provisions, § 7 first and second paragraph except for the welfare provisions, § 10, § 11 first paragraph, § 13 except the fourth paragraph and last paragraph littera c, § 14, § 16 apart from the first paragraph.

Chapters 1, 2 and 7 apply to production other than that following from the previous paragraphs. Chapter 3 also applies if the production concerns fish. If the production pertains to aquaculture animals other than fish, molluscs or crustaceans, it is exempt from § 5 third paragraph, § 6 second, third and fourth paragraph, § 7 second paragraph, § 9, § 10 second paragraph, § 11, § 12 second and fifth paragraph, §§ 13, 14 and 16.

§ 4. Definitions

For the purpose of these regulations:

- a) *Aquaculture* means: production of aquatic organisms. Each action to affect the weight, size, number, qualities or quality of the aquatic organisms is considered to be production.
- b) *Aquaculture establishment* means: Any locality, physically limited area or installation run by an aquaculture venture at which aquaculture animals are farmed, excluding localities, areas or installations at which wild aquatic animals are harvested or caught destined for consumption, are kept temporarily awaiting slaughter without being fed. Aquaculture venture here means any private or public venture, whether idealistic or not, which carries out any kind of activity linked to the farming, keeping or cultivating of aquaculture animals..
- c) *Aquaculture animal* means: aquatic-dwelling animal, including sexual products, resting and reproduction stages, apart from marine mammals, which come from or are intended for an aquaculture establishment.
- d) *Aquarium animal* means: all fish which belong to the superclass *Agnatha*, fish belonging to the phylums *Chondrichthyes* and *Osteichthyes*, molluscs belonging to the phylum *Mollusca* and crustaceans belonging to the sub-phylum *Crustacea* which are kept, bred or sold only for ornamentation.

- e) *Anadromous fish* means: fish migrating between seawater and freshwater and which depend on freshwater to reproduce.
- f) *Aquaculture license* means: a license granted pursuant to the Aquaculture Act, which on being registered in the aquaculture register grants one the right to perform a certain type of production of a certain species, to a certain extent at one or more certain localities.
- g) *Biomass* means: the biomass of live fish (measured in kg or tonnes) in existence at the locality/site or licence.
- h) *Molluscs* means: shellfish (chitons, snails, mussels, octopuses, squids, and tusk shells).
- i) *Freshwater fish* means: fish that live their entire life in freshwater.
- j) *Increased mortality* means: mortality which is significantly higher than what is regarded as normal for the aquaculture establishment or aquaculture area for molluscs under prevailing conditions. What is considered to be increased mortality is decided in cooperation between the farmer and the Norwegian Food Safety Authority.
- k) *Installation* means: facility where aquaculture animals are fed, treated, or kept, including moorings. An installation may consist of several production units.
- l) *Installation for put-and-take fishing* means: ponds or other installations at which the population is maintained only for put-and-take fishing when stocked with aquaculture animals.
- m) *Crustaceans* means: all crustaceans, including lobsters and crabs.
- n) *Fish for cultivation* means: anadromous fish or freshwater fish produced with the aim of later release into the wild with the exception of sea ranching.
- o) *Locality/site* means: geographically limited area either on land or in the water for aquaculture operations.
- p) *Marine fish* means: fish that live their entire life in seawater.
- q) *On-growing fish* means: fish produced with the aim of slaughtering them for consumption and that do not come under the definitions of hatchery-reared fish or brood fish.
- r) *Echinoderms* means: sea lilies, starfish, brittle stars, sea urchins and sea cucumbers.
- s) *Production unit* means: net, tank, pond, cage, bags, enclosures and the like.
- t) *Joint operation* means: a form of operation involving two or more holders of an aquaculture license who have the aquaculture animals jointly at the same locality.
- u) *Joint localization* means: a form of operation involving two or more holders the aquaculture license who have aquaculture animals at the same locality, but at which the aquaculture animals are not owned jointly.
- v) *Hatchery-reared fish* means: roe, larvae, juveniles or smolts produced with the aim of transfer to other localities/sites.
- w) *Brood fish* means: fish that are to be stripped or reproduced in another manner.
- x) *Watercourse* means: all stagnant or flowing surface water where the flow of water is ensured year round, with appurtenant bottom and banks up to highest floodwater mark, including main and tributary watercourses with appurtenant catchment area.
- y) *Water quality* means: the suitability of the water environment based on the needs of the fish, including the water's chemical (oxygen, carbon dioxide, total ammonium nitrogen, iron, aluminium etc.), physical (temperature, turbidity, salinity and current speed and distribution) and hygienic (contaminants such as residual feed, faeces and fouling)

quality.

Chapter 2. General requirements¹

§ 5. *General requirements for sound operation*

Operations shall be technically, biologically and environmentally sound.

...

Operations shall be sound with respect to sanitation, hygiene and fish welfare.

§ 6. *Competence, training etc.*

Anyone ...

Operational managers at the aquaculture establishment and those tending the animals shall be competent in fish welfare.

There shall also be sufficient personnel with the necessary competence vis-a-vis their work tasks and areas of responsibility to ensure fish welfare. Such competence shall also include knowledge about the type of operation and the behavioural and physiological needs of the fish.

Necessary competence pursuant to paragraphs two and three shall be documented through practical and theoretical training. The training, which shall be approved by the Norwegian Food Safety Authority, shall be repeated every fifth year.

The fourth paragraph enters into force on 1 January 2011.

§ 7. *Contingency plan*

An updated contingency plan shall be in existence at all times. When joint operation occurs, there shall be a joint contingency plan.

The contingency plan shall serve to ensure hygienic sanitary conditions and protect the welfare of the fish in emergency situations. It shall provide an overview of sanitary and animal welfare-related measures that are relevant to implement to prevent and, if applicable, handle acute breakouts of contagious disease and mass death, including lifting, treatment, transport, maximum time fish can stay in pipe systems in the event of system failure, slaughtering and destruction of sick and dead aquaculture animals.

Furthermore, the contingency plan shall provide an overview of measures to prevent and, if applicable, handle mortality in the event of harmful algae and jellyfish infestations, harmful water temperatures, and acute pollution.

The contingency plan shall also contain an overview over how escapes can be discovered and limited and recapture carried out efficiently, including precautions for towing pens and handling fish and pens during loading and unloading.

¹ From this chapter onwards only the provisions containing welfare requirements have been translated. The specific log-keeping requirements in later chapters have been omitted.

§ 10. *Log-keeping*

There shall be an operational log which shall be kept at the aquaculture establishment for at least 4 years.

For aquaculture establishments to which the special provisions about log-keeping in chapters 4, 5 and 6 do not pertain, the operational log shall contain at the least the following updated data:

- a) Aquaculture animals and aquaculture animal products which have entered and left the aquaculture establishment, including their place of origin and destination,
- b) Mortality per production unit which is relevant to the form of production, and
- c) Results of completed health checks: the number of health checks completed, samples, examinations conducted, diagnoses and treatments performed.

§ 11. *Hygiene*

Necessary following and cleaning of installations and production units shall be undertaken regularly. Steps shall be taken to ensure that personnel, work clothes, equipment, objects, used packaging etc. do not spread infection. Used seines, objects, equipment etc. shall be cleaned and disinfected before they are moved to another aquaculture establishment.

If necessary, production units shall be covered to protect against infection.

Systematic steps shall be taken to prevent the spread of infection by roe and milk. Newly fertilised roe of salmonids shall be disinfected before placement in incubator. Roe from species other than salmonids shall also be disinfected if a suitable method of disinfection exists.

§ 12. *Own supervision of aquaculture animals and installations*

The person responsible for daily operations shall ensure that risk-based supervision be carried out of factors of significance for the environment, health and welfare of aquaculture animals, including supervision of installations, technical appliances and production equipment. Supervision of fish farms shall be done at least once daily insofar as weather conditions permit. Supervision of farms with molluscs, crustaceans and echinoderms shall be carried out at least once a week.

Supervision shall be carried out in a manner that disturbs the aquaculture animals as little as possible. Should abnormal behaviour occur or there be a risk of significant suffering, the person who is responsible for the fish or who is tending them shall ensure all relevant steps are taken to ensure fish welfare.

In the event bad weather is predicted, a special inspection shall be done to ensure that installations are properly secured. The installations shall be inspected immediately after the storm.

Faults and defects in the installations, technical appliances and equipment shall be repaired immediately.

Alarms on aquaculture establishments shall be inspected as needed, and at least once a week.

§ 13. *Health checks and notification*

Risk-based health checks shall be made of aquaculture animals to prevent and treat disease and injury.

In the event of increased mortality, apart from when such mortality is obviously not caused by disease, or other reason for the suspicion of contagious or non-contagious disease in one or more production units, a health check shall be carried out without undue delay to determine the cause.

In the event of persistent increased mortality, a new health check shall be carried out within 14 days, unless the cause is unambiguous and determined.

When aquaculture animals enter an aquaculture establishment, at least one health check shall be carried out before the aquaculture animals are removed from the aquaculture establishment.

The Norwegian Food Safety Authority shall be notified immediately if there is:

- a) unexplained increased mortality,
- b) reason to suspect diseases on lists 1,2 or 3, or
- c) other factors which have led to significant repercussions in terms of fish welfare, including disease, injury or failure.

§ 14. *Content of health check*

The health check shall be performed by veterinarians or fish health biologists. With the permission of the Norwegian Food Safety Authority, other personnel with equivalent competence may be used.

The operating log shall be reviewed during each health check. On the basis of a risk evaluation, a representative sample of the production units shall be inspected. A representative sample of newly dead animals or animals exhibiting abnormal behaviour shall be examined and relevant tests shall be performed. Revealing any cases of diseases on lists 1, 2 and 3 shall be particularly stressed.

In the event of increased mortality, apart from when such mortality is obviously not caused by disease, or when there is no reason to suspect contagious/non-contagious disease, the health status of the entire aquaculture establishment shall be assessed. Specimens shall be taken and tests performed to establish the cause.

Chapter 3. Special requirements for the production of fish

§ 19. *Installations and production units*

Installations and production units shall:

- a) be such that the fish have adequate space for movement and other natural behaviour, and if applicable have a suitable substrate for support and shelter,
- b) not have sharp edges and protrusions that may cause the fish discomfort or be made of material which could harm the fish.
- c) entail minimal risk of injury to the fish, including during stocking and capture,
- d) be such that it is simple to undertake an inspection of the fish,
- e) be such that it is possible to give the fish good care and treatment, including effective medical treatment for all affected individuals

- f) facilitate cleanliness, and
- g) be well suited, with respect to weather conditions etc., to the site where they are to be used.

The construction and maintenance of installations and production units shall be of a nature which protects best possibly the fish from attacks by predators.

§ 20. *Methods and technical appliances*

Methods, technical appliances and equipment used for fish, including relocation equipment, pipe systems and automatic vaccination equipment, shall be suitable with respect to the welfare of the fish.

New methods and technical solutions shall be tried and tested, and shall have been documented to be sound in terms of welfare, before use.

If operations depend on electricity to meet the needs of the fish in a proper manner, there shall be access to sufficient electricity and access to an emergency generator or emergency oxygen with the necessary capacity.

§ 21. *Alarm system*

Technical devices and equipment which need an emergency generator or emergency oxygen pursuant to § 20 third paragraph, shall have an alarm system which alerts one to power failure or the failed supply of oxygen.

Land-based aquaculture establishments shall have alarm systems that provide an alert in the event of power failure, low level of oxygen and other system failures of significance for the welfare of the fish so that steps can be taken as soon as possible.

§ 22. *Water quality*

Fish shall at all times have access to sufficient amounts of water of a certain quality so that the fish have good living conditions depending on their species, stage of development, weight and physiological and behavioural needs, and not risk undue suffering or injuries being inflicted on them, including later injuries such as deformities .

The water quality and the interaction of the various water parameters shall be monitored as needed. Effective measures shall be implemented if there is a risk of unnecessary suffering or injury.

The quantity of metabolic waste products accumulated in the water shall be within sound limits.

§ 23. *Water quality in aquaculture establishments in the sea*

Installations in the sea shall be located, designed and maintained in a manner that ensures good throughflow of clean water.

Based on risk assessments, oxygen saturation and temperature and salinity shall be measured as needed.

§ 24. *Water quality in land-based aquaculture establishments*

The intake water and effluent water system in land-based aquaculture establishments shall be designed and maintained in a manner that ensures sufficient throughflow of water.

The establishment shall have a backup system that upon failure of the system can meet the fundamental physiological needs of the fish with respect to oxygen and metabolites.

Systematic measurements of water quality parameters O₂, pH, salinity and temperature shall be taken. The salinity measurement requirement does not apply when the water stems exclusively from a freshwater source. Measuring of pH does not apply when the water stems exclusively from the sea.

§ 25 *Density*

The density of the fish shall be sound and adapted to the water quality, the behavioural and physiological needs of the fish, their health status, the type of operation and feeding technology.

§ 26. Tests and release in seawater

Tests that subject fish to considerable stress shall not be used. Fish shall not be exposed to water with a salinity higher than 35 ppt.

Anadromous fish shall be of a size and condition that allows them, after stocking, to survive for a period in salt water without diminished welfare, and adequate smoltification shall be documented through suitable tests. When stocking with underyearlings from salmon (*Salmo salar*) in salt water with falling sea temperatures, the temperature at the location of the stocking shall be 7 °C or higher.

§ 27. Feeding

The amount of feed shall be sufficient and of a composition that promotes good health and welfare. The feed shall be adapted to species, age, development stage, weight, physiological and behavioural needs.

Fish shall normally be fed daily unless this is not practical for the species or development stage in question. They shall be fed in such a manner that all of the fish have easy access to feed without being injured while feeding.

Fish shall not be fed when feeding is disadvantageous out of consideration for the welfare, hygiene or quality of the fish. The period without feeding shall be as short as possible.

§ 28. Handling and care of fish

Fish shall be kept in an environment that fosters good welfare based on species-specific needs and that affords the best protection against injury and undue suffering. Fish shall not be stocked into an aquaculture establishment at which there is a persistent clinical outbreak of disease if there is reason to believe that the fish being stocked will fall ill and suffer unnecessary suffering.

Fish shall be graded and placed according to size where necessary to protect the welfare of the fish and not be in conflict with health considerations.

Fish shall not be handled unnecessarily. Handling, including crowding, landing and pumping, shall take place in a sensitive manner and at a proper tempo to avoid inflicting injury or unnecessary suffering on the fish. Fish shall be taken out of the water as little as possible.

The pumping distance shall be as short as possible. When pumping the fish, it shall be ensured that the height of the pump, the pressure and distance of the fall are of a nature which avoids injury to the fish.

When being handled, the fish shall have sound water quality based on the needs of the species concerned. During crowding, the oxygen level shall be checked using suitable measuring equipment. Crowding which lasts less than 30 minutes at sea temperatures lower than 6 °C are exempt from this requirement for measuring oxygen. If the fish exhibit signs of behavioural changes beyond what is normal during handling, necessary measures shall be implemented immediately to ensure their welfare.

§ 29. In-house moving

The fish shall be checked before being moved in-house at the establishment, and fish which are not fit for this, shall not be moved.

The level of oxygen in the transport tank shall be kept at a sound level, the amount of carbon dioxide shall be kept low, and great changes in the temperature of the water and pH shall be avoided.

Fish which die during in-house moving shall be removed underway and at the latest when transferred to a new production unit.

Cleaning of equipment shall be performed so that fish which are later moved with the same equipment shall not be caused injury or unnecessary suffering.

§ 30. *Predators, algae and jellyfish*

Measures ensuring the sound keeping of fish shall be implemented when there is significant danger of injury or unnecessary suffering from predators, algae or jellyfish.

§ 31. *Ban on operating and removing body parts*

Performing operations on and removing body parts from live fish are prohibited.

The provision in the first paragraph does not preclude tagging which does not cause the aquaculture animals behavioural restrictions, injury or unnecessary suffering, or preclude veterinarians or fish-health biologists from performing operations for reasons of fish health.

§ 32. *Chemical substances and hormones*

Fish shall not be given any form of chemical disinfectants, pharmaceuticals or additives which may affect their physiological functions, including salt, or be treated with hormones, if this could have a negative impact on fish welfare. The use of substances and hormones stated in the first sentence is permitted should this be necessary for reasons of fish health.

Pharmaceuticals shall not be used as routine compensation for the poor operational running or to hide signs of poor welfare.

§ 33. *Display*

Fish to be used for public display or demonstrations shall not be exposed to injury or unnecessary suffering.

§ 34. *Killing of fish*

If continuing to live subjects a fish to unnecessary or considerable suffering, it shall be removed from the production unit, properly anaesthetised and killed as soon as possible.

Fish shall be anaesthetised before killing and remain unconscious until death occurs. The method of anaesthesia/stunning shall not inflict injury or undue suffering on the fish. Anaesthetising/stunning shall be accomplished by a blow to the head, use of suitable medication or other suitable method.

Fish shall die as the result of bleeding and subsequent loss of blood from the brain, medicinal overdose or other suitable method. It shall be ensured that the fish are dead before further treatment. All serum, other parts or trimmings of fish shall be collected and ensilaged, cf. § 16.

Killing large quantities of fish in aquaculture establishments is not permitted. The Norwegian Food Safety Authority may grant permission for such killing should this be necessary for compelling fish health or welfare reasons.

Chapter 4. Further requirements for the production of brood fish and on-growing fish

§ 46. *Density*

Fish density per production unit of brood fish and on-growing fish from salmon and rainbow trout shall not exceed 25 kg/m³. When calculating fish density in pens, the volume the fish can move between the main edge and the bottom edge shall be used as a basis.

§ 51. *Breeding and reproduction*

In breeding work, emphasis shall be placed on producing healthy and strong fish. Domesticating fish shall be emphasised.

No fish shall be kept farmed unless the genotype and phenotype of the fish facilitate maintaining good welfare and health.

Natural or artificial fertilisation procedures that cause, or that probably will cause, injury or unnecessary suffering shall not be used.

The number of times the same fish is handled when being examined prior to stripping and during stripping shall be restricted as much as possible to avoid injury and unnecessary suffering. If live fish are to be stripped, or examined prior to stripping, an anaesthetic or sedative shall be used to the extent it is necessary for the species in question. If compressed air is used to make stripping easier, the fish shall be stunned.

Any fish whose gonads are to be removed shall be killed before this.

§ 54. *Short-term storage pen at abattoirs*

Fish may be kept in a short-term storage pen at abattoirs for a maximum of six days. Sick and injured fish shall be killed as quickly as possible.

Fish shall not be placed in short-term storage pen at abattoirs whose environmental conditions are particularly stressful for the fish, including temperatures which exceed the fish's tolerance limits.

Fish from different aquaculture establishments shall not be kept in the same short-term storage pen. After a short-term storage pen has been filled up with fish, it shall be emptied before re-filling with fish from the same or different aquaculture establishment. At a maximum there may be fish from three different aquaculture plants at the same time in the abattoir's short-term storage pens.

Pulling up seines shall to the greatest extent possible be restricted in time, and shall only take place when fish are pumped or landed at the abattoir. The oxygen level in the water shall be monitored both in the pulled-up seine or during crowding in vessels on land.

Fish delivered to the short-term storage pen at abattoirs shall proceed directly to slaughter at the appurtenant abattoir.

Chapter 5. Further requirements for the production of hatchery-reared fish and for fish for cultivation

§ 63. Vaccination

Vaccinating fish shall always take place as carefully as possible. Thorough monitoring of the correct administration of the vaccination method shall take place. If an error is discovered, it shall be corrected immediately.

When vaccinating by injection the species *Salmo salar*, conditions such as the size, weight, stage of development of the fish and water temperatures shall be emphasized when the point of time for vaccination is chosen. Fish shall not be vaccinated during smoltification.

All hatchery-reared fish of the species *Salmo salar* shall at the minimum be vaccinated against furunculosis, vibriosis and cold-water vibriosis.