

Policy on salmon welfare

Mowi's definition of fish welfare

Mowi's practices recognise the Five Freedoms for animal welfare and adopt the World Organization for Animal Health (OIE) definition of animal welfare: Animal welfare means how an animal is coping with the conditions in which it lives and refers to the state of the animal. A good state of welfare is if it is healthy, comfortable, well nourished, safe, able to express innate behaviour and it is not suffering from unpleasant states such as pain, fear and distress. To this end, Mowi fully recognises salmon as sentient animals. Good welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter. Mowi recognises animal welfare as a strategic business consideration.

Governance

Mowi's strict production practices and standards, matched by our dedicated fish health professionals and trained staff, ensure the welfare of our fish is monitored and secured on a daily basis, throughout the entire production cycle. Our Managing Directors and Group Management Team have responsibility for our fish welfare policy and implementation of welfare criteria.

Our Group Manager for Fish Health and Welfare coordinates our Global Fish Health and Welfare Technical Team, which meets (as a minimum) on a quarterly basis to discuss and address specific health and welfare topics.

Policy scope

Mowi's policy on salmon welfare serves as a global (Mowi Group) policy, covering all our farmed Atlantic salmon, at all farm sites and in all countries. This policy is complemented by internal standards and position statements on specific welfare related topics, such as medicine use, harvesting methods and genetically modified salmon.

In addition, our Code of Conduct requires that our suppliers adhere to animal welfare practices no less stringent than our own and to undertake appropriate measures and risk assessments to minimize potential welfare impacts from new equipment, products or services. Mowi's training on animal welfare is made available for relevant suppliers.

This policy applies to farmed Atlantic salmon, which is the only species that Mowi produces for human consumption. It also applies to all Mowi brand products. All principles stated below in this policy apply to 100 % of farmed Atlantic salmon farmed and processed by Mowi. Other animal products used in Mowi VAPs in 2023 contributed <0.1% of our total production.

Mowi safeguards salmon welfare through:

1. Employee training and awareness

Our staff are dedicated to the care and well-being of our fish and our fish health professionals continuously exercise their duty of care and attention to our fish. Each of our farming business units has a dedicated fish health and welfare manager/director (and fish health team) who is responsible for fish welfare and who forms part of the local senior management team. Day-to-day management of farmed salmon welfare is the responsibility of each site manager.

Our site staff regularly attend fish welfare courses (internally and externally), which focus on optimising welfare and minimising stress throughout production. Mowi has a global internal training programme on fish welfare covering all aspects of our welfare policy, ensuring a common understanding of, and focus toward, fish welfare in our farming operations. As a minimum, training is undertaken annually, and new site personnel also complete the training as part of their on-boarding. Health personnel receive additional training on animal welfare

which covers, amongst others, topics of husbandry, slaughter and fasting. In the event of non-conformities with this policy, corrective actions (e.g. further training, additional welfare monitoring) are identified and followed up by the fish health and welfare responsible person in each farming business unit. Mowi also engages with consumers to raise awareness on fish welfare. Mowi is proactively communicating with its stakeholders and the public about its efforts to secure best possible welfare for our livestock, such as on its websites and through social media.

2. Farming under optimal environmental conditions

Our salmon farming sites are located in areas where the environmental conditions are optimal for fish welfare and their well-being. This ensures our salmon grow in areas where water quality (such as oxygen and temperature) matches their needs, provides natural comfort and allows them to thrive. Further, these natural conditions promote a positive affective state. If natural weather conditions may threaten oxygen levels, we have systems in place to provide additional water flow and aeration to our fish.

Currently, we do not use RAS grow-out systems.

At all our seawater sites we measure oxygen and temperature daily, and salinity on a regular basis. At our freshwater sites we measure oxygen and temperature on a more frequent basis, as well as a suite of water quality parameters. Mowi are currently involved in developing advanced sensor systems for monitoring environmental conditions/water quality on a continuous basis.

All our seawater sites/pens are designed and approved to avoid injury to the fish. Equipment used within seawater pens is designed to reduce the risk of injury and abrasion.

Our procedures on plankton monitoring and mitigation practices, together with continuous training on plankton surveillance, risk management and response plans, contribute to maintaining fish welfare. In Chile, Canada, Scotland, Ireland and at-risk regions in Norway we use monitoring protocols adapted to seasonal risk, ensuring that surveillance is carried out on a frequent basis during high-risk periods. During harmful algal bloom events we follow a management and response plan to protect the welfare of our fish, and use measures such as aeration systems, bubble curtains, halting surface feeding and guiding fish to safer depths using deep lights. In addition, fish vulnerable to algal blooms are relocated to other unaffected sites/areas if such a practice is permitted and there is no biosecurity or welfare risk from such an operation.

3. Securing optimal health and, when needed, responsible medicinal treatment

The application of good husbandry and management practices, biosecurity programmes and veterinary health plans, all under the supervision of our fish health professionals, contribute to the optimisation of fish welfare and their well-being. Our health plans, which address potential treatment needs, are reviewed and updated after each production cycle.

Any fish loss (salmon or cleanerfish) is retrieved and disposed in a bio-secure manner. All mortality is categorised and recorded in our livestock management system on a daily basis and the specific cause of mortality is registered. We assemble data on total loss per cause (for all our sites and pens), including the proportion of fish affected by sores (wounds/lesions)¹ and the main causes of reduced survival (both infectious and non-infectious) in our integrated annual report.

¹ Total mortality due to sores/wounds (% biomass) for Mowi Group was 0.9%, 1.2%, 1.4%, 1.9% and 2.0% in 2019, 2020, 2021, 2022 and 2023, respectively. Therefore, the proportion of our farmed salmon unaffected by sores/wounds/lesions has been approximately 98.5% over this period.

This allows us to analyse disease data and trends, identify areas for improvement and mitigating actions, and this also steers our R&D focus and priorities. Through our integrated annual report, we report seawater survival rates² and the main causes of disease and loss across our operations. This reporting is audited by an independent third party, for all operations. Incident/acute based mortality is also disclosed in our quarterly financial reports. All mortality (salmon and cleanerfish) is reported to the relevant regulatory authorities as per local requirements. Losses related to our freshwater operations are categorised, recorded and analysed in a similar manner³.

We stock all our farmed salmon (100%) at densities that safeguard their welfare and enhance performance, and we track stocking densities across all our sites, pens and countries, at all times. Our stocking densities, throughout production, are well below the regulated maximum permitted stocking density at sea of 25 kg/m³. This ensures fish have ample space to swim and express natural behaviour, as our net pens contain minimum 97.5% water and only 2.5% fish as a maximum. Our actual stocking densities across our seawater sites are consistently and significantly lower, with an average monthly standing stocking density of approximately 7kg/m³ in Mowi Group (see Appendix 1 for details). For our sites certified to organic (Mowi Ireland, representing 2% of Mowi Group production volume in 2023) and RSPCA standards (Mowi Scotland, representing 12% of Mowi Group production volume in 2023), maximum stocking densities are 10kg/m³ and 15kg/m³ respectively. If required, stocking densities are reduced to address aberrant environmental challenges.

Stocking density is calculated based on the volume of the entire pen and standing biomass [volume / (number of fish x weight)]. For each pen, on all sites and across all countries, the surface area (m²), depth (m), diameter (m) and volume (m³) are recorded in our livestock management system. This system also records number of fish, size of fish, and calculates/reports stocking density per pen accordingly.

We vaccinate 100% of our salmon to reduce the risk of disease and compromised welfare. In addition, where suitable vaccines are available and licensed, they are used on cleanerfish. We minimise stress during handling operations by using approved anesthetics. In addition, our breeding programme focuses on improving survival and disease resistance.

We do not use, and are committed to not using, antimicrobials or hormones as growth promoting substances in our global production. Therefore, 100% of our farmed salmon and cleanerfish are free from growth-promoting substances, across all countries. In addition, 100% of our farmed salmon and cleanerfish are not genetically-engineered, triploid or cloned across all farm sites and countries.

100% of our farmed salmon and cleanerfish are not subjected to routine mutilations (eg. fin clipping) at all farm sites, across all countries.

Predator management, with potential impacts on fish welfare, is described in our biodiversity policy and through local management plans.

² reported in accordance with the Global Salmon Initiative (GSI) methodology: (total # mortality in sea last 12 months / (closing # in sea last month + total # mortality # in sea last 12 months + total # harvested last 12 months + total # culled fish in sea) X 100)/12

³ Freshwater average monthly survival rate(%) in Mowi Group (defined as total number of fish from 1g, corresponding to the completion of transition to exogenous feeding/standing count of fish): 99.4% in 2023, 99.2% in 2022, 99.2% in 2021, 99.3% in 2020 and 99.3% in 2019. Data per country (2023, 2022, 2021, 2020 and 2019 respectively): A. Norway – 99.8%, 99.6%, 99.6%, 99.8% and 99.7%; B. Scotland – 99.3%, 99.2%, 99.1%, 99.2% and 99.2%; C. Ireland – 99.3%, 99.2%, 99.1%, 99.2% and 99.2%; D. Faroes – 99.3%, 99.2%, 99.1%, 99.2% and 99.2%; E. Chile – 99.2%, 99.1%, 99.2%, 99.5% and 99.3%; F. Canada (West & East) - 99.3%, 99.2%, 99.1%, 99.2% and 99.2%.

In cases of disease outbreaks and the need of medicinal treatment to safeguard the well-being of our fish, we only treat the fish with approved veterinary medicines. All treatments are prescribed by certified veterinarians/fish health professionals and are strictly controlled by the authorities. Further, all treatments, across all countries, are registered in our livestock management system. All registrations include treatment dates and duration, product and quantity used, health indication, and the number/biomass of fish treated.

We only use licensed antimicrobial medicines when fish health and welfare are at risk from bacterial infection and to avoid unnecessary suffering. To not use antimicrobial medicines under such circumstances would be unacceptable from a welfare and well-being perspective. Whenever possible, a sensitivity test is performed before any antimicrobial treatment. Furthermore, if antimicrobial medicines are used, the respective withdrawal periods are applied at all times prior to harvest, ensuring any potential residues are below safe levels in our final products. In addition, antimicrobial medicines are never used prophylactically, across all our farm sites and countries.

4. Securing optimal feed and feeding practices

We ensure that 100% of our farmed salmon, at all sites and across all countries, obtain the necessary nutrients for good health and welfare throughout their lives.

Fish welfare, resilience and well-being remain integral in our feed strategy and feed development. We target the use of functional ingredients to support fish welfare based on seasonal risk and when exposed to conditions that may compromise the fish. Additionally, we continue our search for solutions that support gut health with a view to maximising nutrient retention.

Our feeding methods and regimes, which are controlled daily, ensure our fish have access to food without competition. Further, our feeding controllers monitor feeding behaviour and appetite and adjust feeding rates accordingly, ensuring optimal satiation in the population.

Fasting/feed deprivation is only applied when necessary ie. pre-harvest or prior to any handling / treatment activity. Such fasting events are agreed with our fish health professionals and the number of days applied are in accordance with best practices for sanitary hygiene and welfare. We systematically record and report fasting events, duration and reasons, in all our sea farming operations. These records also include periods of feed deprivation related to environmental restrictions.

5. Observing fish behaviour

100% of all our sites and across all farming countries have underwater cameras that allow us to monitor fish behaviour, including appetite and swimming activity. Mowi uses environmental enrichment; where cleanerfish are used, we deploy artificial kelp forests (or hides) in 100% of the pens to allow both cleanerfish and salmon to shelter, express natural behaviour and also to create a positive affective state. Hides provide protection, a resting place and access to good water quality.

Hides are designed to be stable, easily cleaned and provide the least possible risk of escapes, and ensure cleanerfish efficiency. The number, size and positioning of hides is adjusted to cleanerfish needs and to ensure they are placed relative to the salmon biomass, thereby also providing enrichment for salmon⁴.

⁴ The described ongoing activities on enrichment are already integrated in our operational procedures. Therefore, in 2023, R&D expenditure specifically on enrichment was zero.

6. Handling and transport

We minimise the need for handling. If we handle our fish, this is done according to standard protocols and as gently as possible to minimise stress. Approved anaesthetics are used where necessary. During transport, we ensure transport tanks have good water exchange and/or circulation to minimize stress. In addition, water quality is monitored continuously (including temperature, O₂ and CO₂). Fish behaviour is monitored during transport, by wellboat vendors, and such vendors have action plans in place should there be behavioural changes eg. increased water exchange and oxygenation. Stocking densities during transport are set by the authorities. Mowi's maximum transport time for smolts is 40hr but is generally much lower (min. average = 4hr; max. average = 25hr). For live harvest fish, in wellboats, maximum transport time is 28hr and again is generally much lower (min. average = 2hr; max. average = 16hr).

Crowding events are kept to a minimum and are only associated with lice treatments and harvesting. Maximum crowding time, for treatments and harvesting, is ≤2hr. The frequency of crowding is therefore related to the frequency of lice treatment. Local procedures are in place for monitoring fish behaviour, environment during crowding and the duration of crowding, and crowding is never performed for longer than required.

Our fish are never handled out of water for more than 15 sec without sedation, and are never handled by the gills. Further, our fish are never transported within nets and are only transported using wellboats. Pumps are used when loading fish for transport and for lice treatment in wellboats. All pumps are approved for fish handling, and the required speed, flow, and pressure are designed not to injure the fish.

Passive grading is performed when required, and the equipment used is designed to avoid any injuries and minimize stress.

7. Humane stunning and slaughter methods

We focus on handling our fish carefully during harvesting and we percussive stun 100% of our salmon from all our farm sites and across all countries to ensure they are effectively and humanely stunned and killed. Following percussive stunning, our fish are exsanguinated by gill cutting and bleeding.

In the event that automated percussive stunning fails for any individual salmon, Mowi implements a back-up method of manual percussive stun by trained staff to ensure that these fish are humanely stunned and killed

8. Internal and global standards on fish welfare

We implement standards that meet and exceed regulatory requirements and industry guidelines on fish welfare. We have developed and implemented internal standards to assess fish welfare during mechanical sea lice treatments.

We are committed to certify all our farms to recognised standards, namely GLOBALG.A.P., ASC and GSA BAP that cover several welfare aspects, including those related to feed and water quality, health management, transport, harvesting and slaughter. 100% of Mowi's farms are either Global G.A.P., ASC or GSA BAP certified. In addition, our Scottish operations are 100% certified against the RSPCA (Royal Society for the Prevention of Cruelty to Animals) standard and our Irish operations are 100% organic certified, with freshwater sites also being RSPCA certified.

9. Our suppliers and fish welfare

Our suppliers of equipment, products and services are required to follow fish welfare standards no less stringent than our own. Our Code of Conduct defines what suppliers are required to do with respect to safeguarding fish welfare.

10. Monitoring and reporting operational welfare indicators

Through our camera based feeding operations and feeding control centres (sections 4 & 5), behaviour and welfare are observed on a daily basis. This allows us to observe indicators such as depth/positioning in the water column, swimming activity, interaction, appetite and feeding, respiratory activity and aberrant behaviour, amongst other things.

Fish welfare is monitored on a routine basis. Our Operational Welfare Indicators (OWIs) are based on scientifically validated indicators, such as those developed by NOFIMA (Fishwell, Handbook on Welfare Indicators for Atlantic Salmon) and include environmental, individual and group-based welfare indicators. At present, we report publicly our fish health and welfare strategy, our targets (on survival, medicine use and meeting global standards) and performance. We have a standardised and systematic global system for welfare monitoring and OWI data capture. This is operational and allows our seawater farming units to regularly check and report on the welfare status of our fish. We disclose performance data on welfare metrics and our OWIs in our integrated annual report.

11. Continuous improvement through R&D and other initiatives

We continuously search for new farming, technological and health solutions and we will continue to engage and support research institutes, health product / service suppliers and relevant stakeholders to advance fish welfare and well-being in our operations. Our R&D portfolio includes, but is not limited to, research and data analytics on the main causes for reduced survival, infectious diseases, nutritional health, production related disorders and harvesting methods. We continue to engage with stakeholders on the further development of Operational Welfare Indicators for farmed raised salmon and cleanerfish.

Dr Gordon Ritchie

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Examples of external communication

- <https://public.3.basecamp.com/p/66UVYT6x4c5nf6bXNpgZPCRB>
- <https://public.3.basecamp.com/p/EM12yb7sLZT1iBLfbngujuo9>
- <https://public.3.basecamp.com/p/y36CGLSg8v2Y8ZagF5bneoLo>
- <https://public.3.basecamp.com/p/yWvqFqjhC6gG29SrTSaoF5ba>
- https://fb.watch/dR9g_pZ215/
- <https://fb.watch/dR9iz4IFvu/>
- <https://fb.watch/dR9mBGM7xK/>
- <https://fb.watch/dR9ptWc71y/>
- <https://fb.watch/dR9rNCion0/>
- <https://fb.watch/dR9tucEXST>

Appendix 1

Average monthly standing stocking density of farmed salmon (kg/m³) per business unit and for Mowi Group, 2019 - 2023

BUSINESS UNIT	2019	2020	2021	2022	2023
NORWAY	8.8	9.0	8.0	8.1	7.7
SCOTLAND	6.5	6.8	6.7	6.6	5.8
IRELAND	4.4	4.6	4.4	4.3	4.6
FAROEES	10.7	10.6	10.2	7.2	9.8
CANADA	7.4	7.2	6.1	7.1	6.5
CHILE	6.4	7.4	7.0	6.1	6.6
MOWI GROUP	7.7	8.0	7.3	7.3	7,1

Mowi Norway, Scotland, Ireland, Faroes, Canada and Chile represented 59%, 12%, 2%, 2%, 6% and 16% of the total production volume in Mowi Group in 2023.