

Developing Canada's Code of Practice for the Care and Handling of Farmed Salmonids: What We Heard and How We Addressed It

Introduction

In 2018, the Canadian Aquaculture Industry Alliance initiated the development of Canada's first-ever Code of Practice for farmed salmonids (salmon, trout, charr). The Code's development was led by a committee of 14 professionals, including farmers from across Canada, government, animal welfare advocates, researchers, and veterinarians brought together to collaborate on this national standard.

This report summarizes some of the input received on priority topics during the comment period and provides insights on how it informed the final Code of Practice. The report is intended to be read alongside the actual Code (available [here](#)). It focuses mainly on [top-of-mind concerns](#) identified in NFACC's 2019 survey not only because these topics were a focus throughout the process but also because they tended to coincide with the sections of the Code that received the most input during our 60-day public comment period.

Top of mind concerns:

- Water quality
- Biodensity (stocking density)
- Handling
- Health monitoring and management
- Euthanasia and slaughter

Lighting and feed withdrawal were also topics of interest during the comment period and are discussed in this report. The report also covers the Sea Lice section since it received the most comments of all health monitoring/management topics.

Rearing Systems and Units

Section 2.3 Water Quality (p.13)

Water quality was a top-of-mind concern for survey participants and committee members alike, and the Code Committee devoted significant time and effort drafting this section for the comment period. Thanks to this, the section was well received, and few changes were made in the final iteration.

The Committee considered the many thoughtful, technical comments in favor of more detailed section covering all water quality parameters but ultimately reaffirmed their initial approach, which was to address essential aspects of water quality knowing that many other credible resources address the topic more comprehensively.

The committee appreciated the comments about how good fish welfare outcomes can be achieved outside the optimal ranges for some of the parameters in the first recommended practice but made no changes since they are still good ranges to strive for.

Section 2.4 Lighting (p.15)

The many concerns about 24-hour lighting programs prompted good discussions for the committee including whether continual lighting was unnatural for fish (in the wild, moonlight provides light even under water). Given the complexity and uncertainty around moving away from continual lighting, it is still permitted in the Code. However, the Code is transparent about the welfare benefits and risks and encourages provision of dark periods. The committee also identified this as a priority research need.

Many stakeholders expressed concerns about abrupt changes in light intensity and while the committee shares these concerns, the proposed requirement for dimmers in new builds was removed but they kept the requirement about ensuring abrupt changes in light intensity are avoided (this applies to all farms as of the publishing of this Code). As noted in the updated preamble, gradual light transitions can be achieved in many ways beyond installing dimmers (e.g., turning lights on/off in stages, removing tank lids gradually, having windows or other natural sources of light).

To address the concerns about strobing or flickering, the last requirement was refined to ensure that the lights (in addition to lighting systems) must be in good condition.

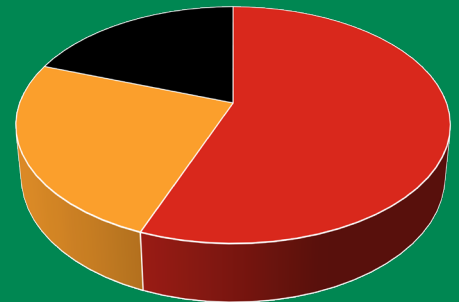
Public Comment Period by the Numbers

The public comment period ran from **November 2, 2020 – January 7, 2021.**

20 organizations and 125 individuals participated.

The Code Development Committee had **14 online meetings over several months to consider all the input and reach consensus on the Code of Practice.**

Who we Heard From



TOP THREE RESPONDENT GROUPS

- Animal Welfare Advocates 43%
- Consumers 19%
- Seafood Farmers/Industry Representatives 15%

Where we Heard From



TOP THREE GEOGRAPHIC REGIONS

- British Columbia 40%
- Ontario 33%
- Atlantic Provinces 7%

“Having a comprehensive Code will keep our industry competitive with other major food production industries and up to date with consumer expectations. While it has been challenging to try and balance what is best for the fish with what is logistically possible for producers, I believe we’ve arrived at a Code that is achievable by both small- and large-scale producers alike, and can be embraced by industry, regulators, and concerned stakeholders.”

**Amanda Borchardt,
producer representative
on the Code Committee**



Rearing Systems and Units

Section 2.5 Biodensity (stocking density) (p.16)

Comments suggested strong support for the overall approach taken in this chapter which was largely informed by the assertion that the overall condition and behaviour of the fish should serve as the main considerations when assessing welfare in relation to biodensity.

Changes were mainly focused on the indicators in the requirement that trigger investigation or action. The committee agreed with the many concerns that emaciation was a late-stage indicator, and that action needs to be taken sooner. Emaciation was removed from the requirement, and the requirement now includes earlier indicators notably a slower than expected growth rate, fin or skin erosion, excessive size variation, or reduced feeding response.

While the lack of sufficient research precluded our ability to set required thresholds for biodensity indicators (e.g., % injured), the Code includes recommendations for benchmarking and continual improvement and the resources the committee developed for the appendix will support farm-level targets.

Husbandry Practices

Section 3.2 Handling (p.19)

The first requirement now includes fins, to ensure clarity that fish must not be lifted or carried by their fins.

The committee was not able to accommodate requests for a maximum time fish are out of water that would be achievable for all handling contexts on all farms and given any such maximum would be based on very limited research. The recommended practice to return fish to water within 30 seconds was kept as an important guide.

The potential to require sufficient staff and that equipment be prepped prior to handling was considered but ultimately it remains a best practice since it provides examples of the many ways in which the fundamental obligation of minimizing time out of water can be achieved. No single strategy can minimize handling time and farms must implement multiple strategies across the entire process to ensure time of water is minimized.

Given concerns about the number of protocols required in the draft Code, the handling SOP became a recommended practice; however, farms must still ensure that handling is appropriate relative to fish health and water quality and that requirement was refined to better reflect that a health check would be done prior to handling.

Feeding Management

Section 4.3.3 Feed Withdrawal (p. 29)

The committee added important context to the preamble about the differences between ectotherms and endotherms. These physiological differences mean that salmonids (as ectotherms) do not depend on frequent meals to stay healthy, and internal energy resources take a significantly longer time to deplete compared to endotherms. Salmonids also naturally experience prolonged periods of no food intake in response to life stage (e.g., maturity) or environment (e.g., food scarcity).

Most commenters were opposed to feed withdrawal and were keen to have a maximum time for withdrawal. However, this practice does bring certain welfare benefits for fish (e.g., promoting water quality during husbandry procedures or transport, preventing mortality during an algae bloom) making it impossible to establish a maximum time that would be achievable on all farms or desirable for fish in all circumstances. The committee did review the requirements and recommendations again and found them to be consistent with the research (summarized in the [Scientific Committee’s report](#), in addition to studies published since).¹ The requirements also establish important protections for fish welfare when feed is withdrawn (e.g., it must be based on veterinary recommendation and outlined in the fish health plan, fish must have sufficient fat reserves).

¹ See, for example, Hvas M., Stien L.H. & Oppedal F. (2020) The metabolic rate response to feed withdrawal in Atlantic salmon postsmolts. *Aquaculture* 529:735690.

Health Management

Section 5.5 Sea Lice (p. 36)

The committee considered the suggestions that the first requirement stipulate that all personnel be knowledgeable in signs of sea lice infection but ultimately felt that a requirement elsewhere in the Health Management chapter requiring that all personnel be knowledgeable in signs of disease addressed the issue well. They therefore kept the sea lice requirement focused on the more specific skills and knowledge required for those directly involved in sea lice management.

The word “direct” was removed in the third requirement so that it is clearer that lice counts can be monitored through automated systems (not only through hand counting of lice).

The committee agreed with feedback that a requirement on when to euthanize fish for sea lice was needed; however, they felt that euthanasia may not always be the most appropriate option and that veterinary guidance would be needed on a case-by-case basis. As such, a new requirement was added stipulating that, if sea lice are compromising fish welfare, personnel must determine if further treatment, euthanasia or harvest is appropriate, in consultation with a veterinarian. This new requirement is complemented by a requirement in the Euthanasia, Slaughter, and Mass Depopulation chapter outlining when fish must be euthanized for humane reasons (p. 39).

The requirement about using licensed products was removed, as it is a regulatory requirement and there is no need to repeat it in the Code of Practice.

Euthanasia, Slaughter, and Mass Depopulation

Section 6.2 Methods (p.40)

This section was noteworthy not only for having received the highest number of comments of all Code sections but also for the very divergent perspectives expressed. To work through the feedback, the committee focused on the fundamental requirement that methods must be quick; cause minimal stress and pain; and result in rapid, irreversible loss of consciousness. This requirement was supported by all stakeholders in the comment period.

Ice slurry slaughter: Commenters were variously in support of phasing out ice slurry slaughter but wanting a shorter transition; in support of the phase-out but wanting a longer transition; or fully opposed to this change.

The requirement to phase out ice slurry slaughter was kept given this method does not meet the stated criteria for a humane death as is outlined in the [Scientific Committee's report](#). However, an additional year was given for this transition respecting the input that this will be a very complex and costly change for some farms. While additional time was needed to ensure proper planning and successful implementation on all farms, the new wording encourages farms to phase this method out as soon as possible and the industry notes that some farms have recently transitioned away from this method well in advance of the final deadline.

Those who were opposed to the phase out were, in part, concerned about the appropriateness and feasibility of accepted methods; however, the industry has much experience with alternate methods and is confident that acceptable methods can be used on all farms with proper planning and advisory support.

Other methods: While concerns were expressed about blunt force trauma, the method is still listed as acceptable (at specified weights) provided a secondary step is used. This two-step method causes rapid, irreversible loss of consciousness and is accepted by credible veterinary guidance the committee consulted. Decapitation and cervical transection were removed from the list of acceptable methods given that they do not affect the brain first thereby potentially causing pain or not resulting in rapid, irreversible loss of consciousness.

Lastly, and for greater clarity, a requirement was added that when a secondary step is needed, it must be performed as soon as possible and before fish recover consciousness.



Photo credit: Cermaq Canada

“I commend the aquaculture sector for initiating the development of this Code. A significant milestone has been achieved in releasing Canada’s first Code of Practice for the Care and Handling of Farmed Salmonids. This Code reflects the hard but very important conversations we had on how to bring meaningful improvements to the welfare of farmed salmonids in Canada.”

**Leigh Gaffney,
animal welfare
representative on the
Code Committee**

A common thread throughout all aspects of the Code Development Process, including the Public Comment Period, is the principle of continual improvement. Canada has set a unique path that is based on pursuing this goal through the multi-stakeholder, consensus-based approach that is led and coordinated through NFACC.

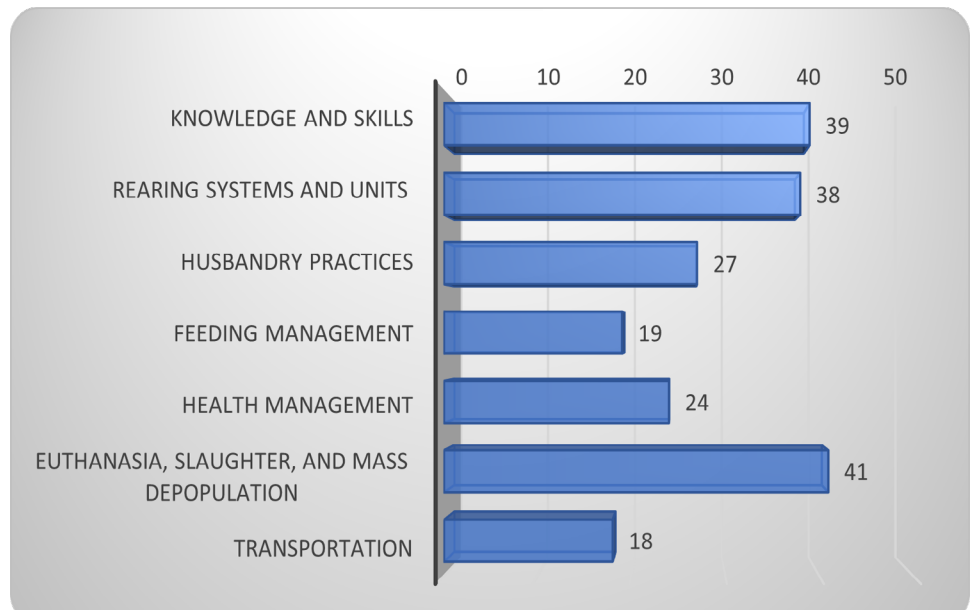


Your Guide to the Public Comment Period
for draft Codes of Practice
Updated November 2021

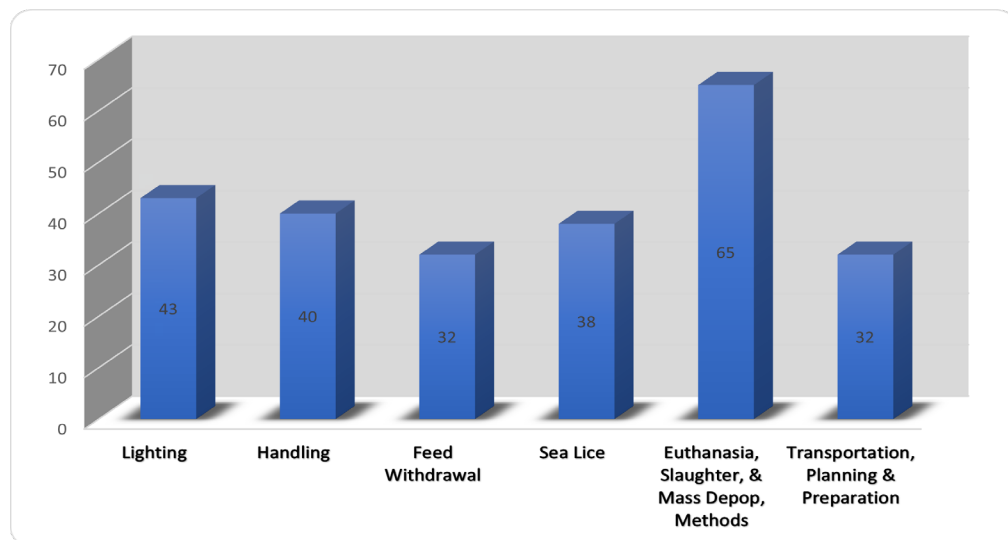
Your Guide to the Public Comment Period

Funded in part by the Government of Canada under the Canadian Agricultural Partnership's AgriAssurance Program, a federal, provincial, territorial initiative.

Summary of Average Number of Comments in Each Chapter of the Code



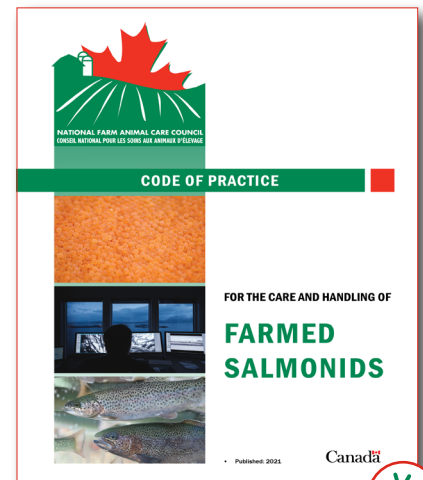
Chapter Subsections that Received the Most Comments



Thank you!

Thank you to all those who participated in the public comment period. Your feedback brought important improvements to the Code not only in the sections discussed above but throughout the entire Code of Practice.

Research needs identified through this project are summarized [here](#).



[CLICK HERE TO VIEW THE CODE](#)

