

# Scientists report on animal welfare in aquaculture

29 May 2020



Dr Sonia Rey Planellas is lead author of the new report.  
Credit: University of Stirling

Scientists at the University of Stirling have authored a new report providing guidance on identifying and strengthening best practices for animal welfare in aquaculture.

The paper—published by the Global Aquaculture Alliance (GAA) – states that a better understanding of the welfare of farmed fish, centring on the concepts of sentience and cognition, is essential for the improvement of care standards.

The 56-page report, [Farmed fish welfare practices: salmon farming as a case study](#), is authored by Dr. Sonia Rey Planellas, Professor Dave Little, and Dr. Maureen Ellis, all of the University of Stirling's Institute of Aquaculture.

The team reviewed existing [best practices](#) in [animal welfare](#) in aquaculture—focusing on salmon as a model species—and looked at the factors that lead to poor welfare, including stocking density, [water flow](#), water quality, vaccination and grading, handling, transport, parasites and diseases, and humane slaughter. They then identified key operating indicators (KOIs) in farmed salmon and

compared them to KOIs for other farmed seafood species, to determine if best practices in animal welfare in salmon could be applied to tilapia and catfish.

Dr. Rey, lead author of the report, said: "Our study found that salmon aquaculture production has increased and improved its standard procedures considerably as the [knowledge base](#) regarding site selection, basic husbandry, feed formulation and availability of genetically improved fish has developed."

She highlighted that there has been recent investment in developing novel technologies to improve production and avoid fish health issues, but said: "Despite the pace of development, many challenges for salmon aquaculture addressed in this overview still remain to be solved.

"Key issues like control of parasites, bacterial and viral infections continue to undermine both the welfare of the farmed animals and the profitability of the systems. Management of predators has, rightly, become increasingly subject to regulation and increased societal scrutiny as aquaculture shares space with other human activities and natural habitats.

"The control and mitigation of the effects of extreme events like storms, or trends in temperature changes linked to climate change, will require animal welfare-centred responses. Handling and vaccination and [water quality](#), transport and stunning methods remain problematic with regards to the welfare of fish and need to be improved based on validated technology."

## Other species

Professor Little, principal investigator of the study, said: "The main gaps to be addressed in improved welfare [salmon farming](#) also have relevance to the needs of other species."

Steve Hart, vice president of GAA, said:

"Consumers are starting to demand more from their seafood, and the message is very clear that animal health and [welfare](#) is one of the issues they are thinking about. They want to know that the animals have been well cared for and treated humanely.

"We undertook this project with the University of Stirling so we could evaluate our Best Aquaculture Practices (BAP) farmed salmon standards as well as our other BAP standards to find ways to improve them."

The findings will inform the development of BAP standards and online educational content, to provide best practices training to [aquaculture](#) and seafood professionals.

Provided by University of Stirling

APA citation: Scientists report on animal welfare in aquaculture (2020, May 29) retrieved 2 March 2021 from <https://phys.org/news/2020-05-scientists-animal-welfare-aquaculture.html>

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