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Health & Welfare

Nofima unlocks ‘promising’ method for sterilizing farmed salmon at embryotic stage

9 February 2022

By Responsible Seafood Advocate

Research indicates that sterile salmon just as healthy as fertile salmon

Norwegian food research institute Nofima and its partners have developed a “promising” new method for sterilizing farmed salmon at the embryonic stage. The research, which is financed by the Norwegian Seafood Research Fund (FHF) and is in cooperation with Aqua Gen and AquaPharma, could help limit the impact of escaped farmed salmon in rivers since they can’t breed with wild salmon. The new technique will also contribute to improved meat quality, less disease and lower mortality.

There are several ways to sterilize farmed salmon, such as triploidization and gene editing. However, triploid salmon have been rejected as an option in Norway due to welfare issues and the use of genetically modified salmon in production is outlawed.

The “Nofima method” blocks a factor required for the development of reproductive cells at the embryonic stage – meaning that the fish never become sexually mature. Except for the small gonads that do not produce roe or milt, the sterile salmon have the same outward appearance and characteristics as fertile fish.

A new technique for sterilizing farmed salmon at the embryonic stage could limit the impact of escaped farmed salmon in rivers. Photo courtesy of Nofima.

Before developing “the Nofima method” into industrial large-scale production of sterile salmon, scientists must document satisfactory health and growth.

Senior scientists Øivind Andersen and Helge Tveiten at Nofima examined important production traits in sterile salmon throughout the lifecycle by studying body growth, smoltification, stress tolerance salmon lice infestation and mortality at sea.

So far, results are promising: the sterile salmon show production characteristics that are “at least as good” as fertile farmed salmon. A severe lice attack showed that sterile salmon are not more susceptible than fertile salmon. The scientists have also documented that the sterile salmon had no reproductive cells from the embryonic stage to the time of slaughter.

Andersen and Tveiten are now working on different strategies for the large-scale production of sterile salmon in partnership with the fish farming industry.

Read more about the research here (https://nofima.com/results/sterile-farmed-salmon-have-a-good-life/).

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