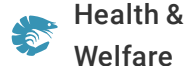




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Nofima gleans new insights on how to protect farmed salmon from winter ulcers

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By Responsible Seafood Advocate

Vaccine against *Moritella viscosa* can help if developed correctly: Nofima

Last winter, many farmed salmon in Norway died from winter ulcers, a condition caused by a bacterium called *Moritella viscosa* in cold seawater. The bacteria have different strains, making it challenging to create an effective vaccine. However, Nofima researchers have determined that the vaccine works “much better” if developed using the correct strain of bacteria.

In addition to looking at the effects of the different *Moritella viscosa* strains, Nofima scientists also learned how the bacterium starts harming fish by sticking to the surface of the scales, multiplying and forming a colony.

“The scales are covered in mucus,” said Karlsen. “The bacterium manages to get in between this layer of mucus and the scales. They can then create large wounds that can even reach muscle tissue.”

When a fish is vaccinated, it has the first bacteria on its scales. In unvaccinated fish, the bacteria go



Moritella viscosa is one of the types of bacteria that causes winter ulcers on the salmon. Here, Christian Karlsen grows two varieties of the bacteria in the lab. Photo by Jon-Are Berg-Jacobsen, courtesy of Nofima.

deeper into the skin earlier. There are now several vaccines against different *Moritella viscosa* bacteria on the market.

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“It is the organ that first receives a notice that the surrounding environment is changing,” said Christian René Karlsen, senior scientist. “The skin feels all the environmental changes that affect the fish.”

While vaccination helps, it doesn’t guarantee complete protection. In a recent trial where fish with ulcers were mixed with healthy fish, 15 percent of the fish suffered deep ulcers and 25 percent suffered superficial wounds.

The research was conducted in collaboration with the vaccine company Pharmaq, and financed by the Research Council of Norway.

[Read more here \(https://nofima.com/publication/2146135/\)](https://nofima.com/publication/2146135/).

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Author



RESPONSIBLE SEAFOOD ADVOCATE

editor@globalseafood.org (<mailto:editor@globalseafood.org>).

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