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# Are stress hormones to blame for rising infections in Norwegian farmed salmon?

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By Responsible Seafood Advocate

## Researchers suspect delousing methods elevate stress hormones in farmed salmon, promoting bacterial growth

Could stress hormones explain rising infections in Norwegian-farmed salmon? Scientists suspect it's possible.

Researchers from Iowa State University and the Norwegian Veterinary Institute (NVI) are collaborating on a three-year research project to investigate whether stress hormones are making farmed salmon more susceptible to bacterial disease, which costs the industry an estimated \$100 million per year.

In Norway, bacterial diseases are on the rise at sea farms where salmon are raised. The outbreaks involve numerous pathogens, both re-emerging and new concerns, but there's no indication of any decisive genetic changes in the bacteria or the fish, which are bred for disease resistance. The environment in the sea cages, including the water temperature, has remained steady.

However, the spike in disease rates in recent years coincides with the steep rise in physical delousing –



Researchers are studying whether rising disease rates in salmon raised in large sea pens might be caused by stress hormones from increasingly intensive handling methods. Photo courtesy of Snorre Gulla/Iowa State University.

a method that may trigger the release of “fight or flight” stress hormones, such as norepinephrine and epinephrine. These neurochemicals can prompt physical reactions (like an increased heart rate and blood sugar levels) in the fish as well as also promote bacterial growth that can lead to increased infections. Symptoms often appear shortly after the delousing treatments, which can be conducted as frequently as every month during the summer, according to Dr. Snorre Gulla, a senior researcher at NVI.



(<http://penverproducts.com>).

“Our overall ambition is to create new knowledge and increased understanding of important bacterial diseases in Norwegian aquaculture through unraveling whether microbial endocrinological processes are important facilitators of bacterial diseases in fish,” said Gulla. “This can hopefully lead to better mitigation strategies.”

Starting in July, the researchers will expose fish-associated bacteria to stress hormones in a lab and to stressed fish in water. The team also aims to develop tools for monitoring stress hormone levels in salmon stocks.

**Read more about the study here (<https://www.research.iastate.edu/news/stress-hormones-could-explain-rising-infections-in-norwegian-salmon/>).**

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