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Intelligence

Study finds no link between salmon farms and harmful algal blooms

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By Responsible Seafood Advocate

SAMS: Farmed salmon biomass does not impact the abundance of harmful algal blooms in Scottish waters

Marine scientists investigating the formation of harmful algal blooms (HABs) in Scottish waters have found no link between salmon farms and the likelihood of a bloom.

The study, which was published in *Harmful Algae* (<https://www.sciencedirect.com/science/article/pii/S1568988323001385?via%3Dihub>) and conducted by researchers from the Scottish Association for Marine Science (SAMS) in Oban, examined blooms among the algal species that most frequently impacted shellfish farms and human health in the region: *Dinophysis* spp., *Alexandrium* spp. and *Pseudo-nitzschia* spp. They studied the cell abundance of one phytoplankton species of particular concern to the salmon farming industry (*Karenia mikimotoi*).

The researchers concluded that farmed salmon biomass alone had no significant effect on cell abundance of any of the studied phytoplankton.

“It would be a reasonable assumption to make that excess nutrients from fish farms could have the potential to ‘feed’ nearby phytoplankton, increasing their abundance and, therefore, an intensification of



Marine scientists investigating the formation of harmful algal blooms (HABs) in Scottish waters have found no link between salmon farming and the likelihood of a bloom. Photo courtesy of the Scottish Association for Marine Science.

HABs,” said Keith Davidson, a co-author on the paper. “However, our mathematical model-based analysis indicated that farmed salmon biomass had a non-significant effect on cell abundance of any of the studied phytoplankton taxa. In contrast, location or time of the year had a much greater influence on cell abundance. Overall, the analyses suggest that current levels of salmon farming activities do not markedly impact the abundance of routinely monitored biotoxin producing or fish killing phytoplankton taxa in Scottish waters.”

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The findings came partly from the analysis of data from the Food Standards Scotland regulatory biotoxin monitoring program that has generated weekly harmful phytoplankton reports from a range of locations around the Scottish coast, stretching back 15 years.



Eye in the sky: Europe employs satellites to advance aquaculture

Copernicus – the European Space Agency's €4.3 billion Earth Observation System – holds potential benefits for fisheries and aquaculture. The SAFI project is approaching the aquaculture sector about harnessing, and monetizing, this unique service from up above.



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“A possible explanation for the lack of a significant relationship between farmed salmon and harmful phytoplankton cell abundance is that aquaculture farms are generally located in hydrodynamically energetic locations where recurrent flushing likely allows efficient dilution of nutrients,” said Fatima Gianella, lead author on the paper.

Harmful algal blooms can have devastating effects on aquaculture sites. Humans eating shellfish that have absorbed these toxic phytoplankton can become ill and blooms can also be fatal to farmed fish.

[Read the full study \(https://www.sciencedirect.com/science/article/pii/S1568988323001385?via%3Dihub\)](https://www.sciencedirect.com/science/article/pii/S1568988323001385?via%3Dihub).

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