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Responsibility

Norwegian researchers addressing climate change-related stress

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By Responsible Seafood Advocate

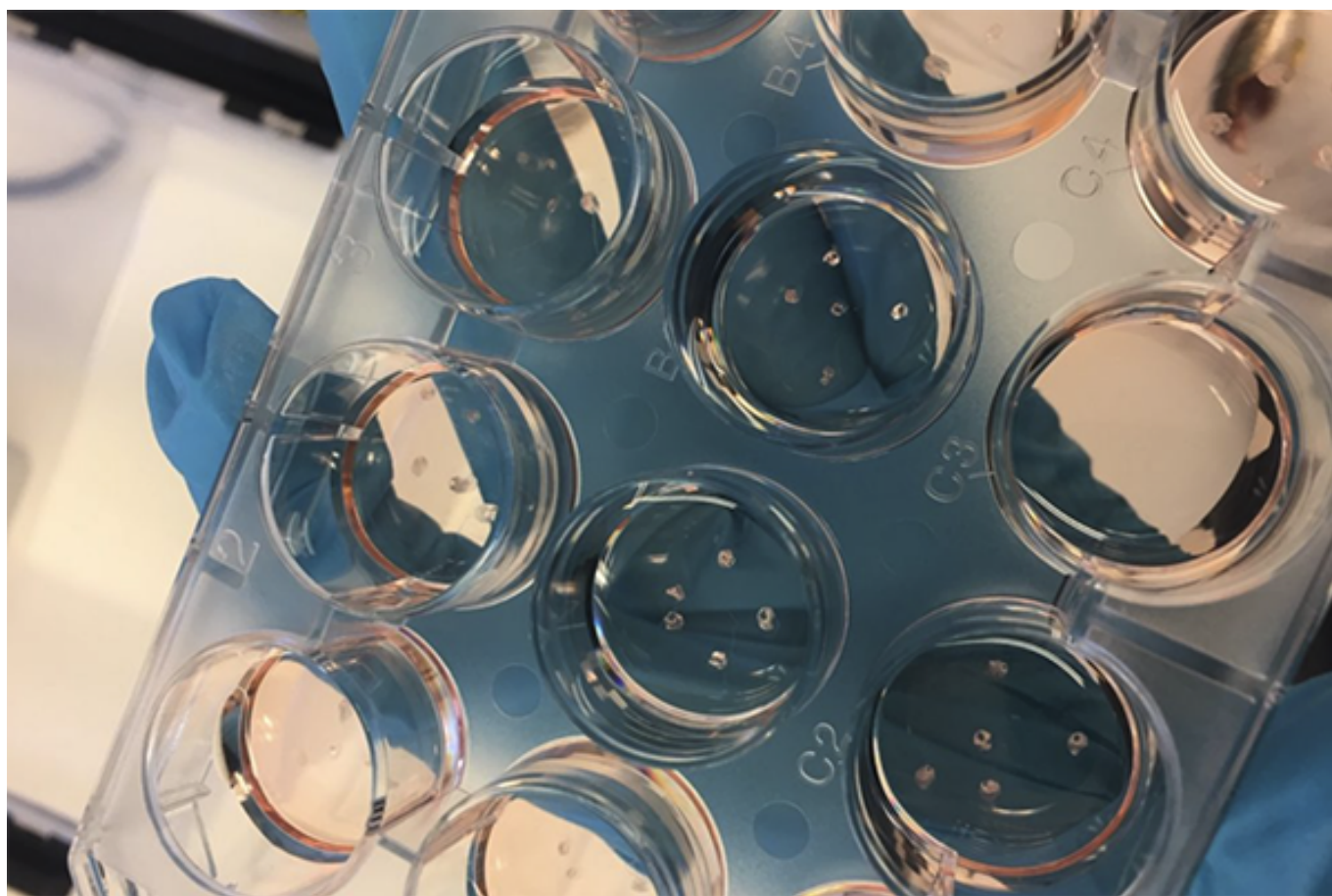
Nofima aims to glean insights on how cod, salmon and lumpfish tackle challenges in their farm environments

Norwegian food research institute Nofima is developing a methodology to help aquaculture understand climate-change-related stress for species like cod, salmon and lumpfish.

Staff scientist Elisabeth Ytteborg and colleagues have created tools to compare how stressful environments affect various species' immune systems. New *in vitro* models involve the cultivation of cells from fish organs, like the skin and nose. The fish then indirectly inform the researchers how they address changing conditions in net-pen environments.

By using cell models, scientists can gain valuable information without using animals in trials.

"We need more knowledge about temperature and fish resilience. We can make real progress by using cell models," Ytteborg said in a recent company update.



Nofima is developing a methodology to help aquaculture understand climate-change-related stress for species like cod, salmon and lumpfish. Photo of cod cells by Elisabeth Ytteborg/Nofima.



(<http://info.globalseafood.org/goal-2022-save-the-date>).

Bacterial diseases may increase as water temperatures rise, and the three species under evaluation (salmon, cod, lumpfish) do not thrive at higher temperatures.

While Norway's cod-farming industry is not large, its national cod breeding program has been running for 20 years. That knowledge should be transferred to other relevant species, added Lill-Heidi Johansen, head of fish health in the national cod breeding program.

"Climate change brings along new challenges related to fish health. This is a field that has so far been given little priority," said Johansen. "We need to improve our toolbox so that we are prepared to meet health challenges that may arise, including species other than cod and salmon."

Nofima's models will be used in research for the industry and will be further developed. The institute received Norecopa's 3R animal research prize in 2021 for its work on developing alternatives to animals in experiments.

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