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Aquafeeds

Artemia-farming startup looks to modular, land-based production model

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By Responsible Seafood Advocate

Edinburgh start-up aims to solve fishmeal ingredients crisis by farming artemia using a modular, land-based system

Aquaculture technology startup Aquanzo is working with CENSIS – Scotland’s innovation center for sensing, imaging and Internet of Things (IoT) technologies – to farm artemia, a species of brine shrimp widely considered to be the best source of protein available for feeding fish and crustacea. The Edinburgh company is developing a new modular farm system fuelled by food and beverage byproducts.

It’s anticipated that the project, funded by Innovate UK and the Biotechnology and Biological Sciences Research Council (BBSRC) and supported by Boortmalt, could help grow the global aquaculture sector by providing a “sustainable and decentralized alternative to producing a scarce fishmeal ingredient.”

“The Aquanzo system could help solve one of the biggest challenges aquaculture faces – applying cutting-edge technology to a longstanding problem,” said Corinne Critchlow-Watton, project manager at CENSIS. “The system will use an array of sensors to provide data on the environmental conditions within it and how the artemia are growing, such as water temperature and pH levels. This project demonstrates how IoT and sensing technology can be used in a range of sectors to help solve what



Aqua-tech start-up Aquanzo is working with CENSIS to farm artemia, a species of brine shrimp widely considered to be the best source of protein available for feeding fish and crustacea. Photo credit: CENSIS.

might have otherwise been considered a biological issue.”

Aquanzo’s modular recirculating aquaculture system (RAS), developed at Heriot-Watt University, enables artemia to be grown anywhere needed. It utilizes by-products from agricultural processes, initially malt production for the whisky industry. The water used in malt processing, rich in minerals and organic matter, is typically wasted but can now be used to cultivate brine shrimp.

(<https://bspcertification.org/>).

Deployed on land near agricultural processing facilities so that there is no impact on the marine ecosystem, the Aquanzo RAS system is expected to reduce the amount of carbon dioxide created in the production of fishmeal by 20 percent compared with harvesting fish. All of the water will be re-used to

further enhance its sustainability.

“It has been proven that fish prefer marine protein in their feed – studies have shown they eat much more if feed contains marine rather than plant-based protein,” said Rémi Gratacap, co-founder and CEO of Aquanzo. “The composition of their feed also influences how much they grow and their natural resistance to health challenges. The system we’re developing will give fish farmers long-term access to a sustainable source of marine protein, helping to continue aquaculture’s growth, enhance the health of their fish, make use of another industry’s waste and support aquaculture’s net-zero goals.”



With finite supplies of marine protein to harvest, one company opts to farm it

Scotland-based Aquanzo believes marine protein does not need to be replaced – it needs to be reproduced, starting with artemia.



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As part of the process and technical development, CENSIS engineers will collaborate with Aquanzo on the development of an IoT-enabled array of sensors and a “data lake” – essentially, a centralized repository for data – to help its production team collect, store and process data. The technology will help the company progress towards the development of a fully mobile recirculating system, which can be located wherever agricultural by-products are available and remotely monitor the welfare and growth of artemia.

“One of the biggest issues aquaculture faces is the sustainability of feed and the dependency on fisheries for fishmeal,” said Gratacap. “Farming, rather than harvesting, important components of feed like artemia is a better way of ensuring greater control and scale, and is similar to what is already being done with insect farms, only with marine ingredients.”

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