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Responsibility

Study: Offshore mussel farms could benefit marine environment

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By Responsible Seafood Advocate

Scientists have assessed the environmental impact of the largest offshore mussel farm in Europe

A new study from the University of Plymouth suggests that, in addition to helping meet global fish consumption demands, offshore aquaculture farms could potentially benefit the wider marine environment.

The study, recently published in the ***Aquaculture, Fish and Fisheries (https://onlinelibrary.wiley.com/doi/10.1002/aff2.77)***, was led by a team of researchers and Ph.D. candidates from the University of Plymouth's School of Biological and Marine Sciences. The research is among the first to explore the environmental impact of offshore mussel farms and focused on Lyme Bay, which is located off the south coast of England and is the largest one in Europe.

Since it deployed its first ropes in 2013, scientists have used towed and static-baited underwater cameras for regular monitoring surveys, during which they tested the effects of the farm's trial installations on the seabed habitat and the associated species living on it. They found that in addition to growing on the ropes, mussel shells were first observed on the seabed under the lines after just six months. Larger clumps appeared within the first 18 months after deployment.

In addition to helping meet global fish consumption demands, offshore aquaculture farms could potentially benefit the wider marine environment, says a new study from the University of Plymouth. Photo courtesy of the University of Plymouth.

Both the size of mussel clumps and the percentage cover of shells under the farm increased over time and this in turn led to increases in the abundance of other species. For example, the number of Atlantic horse mackerel (*Trachurus trachurus*) around the farm increased by more than 300 percent in the space of four years compared to other areas of Lyme Bay.

There were also marked increases in the number of European lobster (*Homarus gammarus*) and edible crab (*Cancer pagurus*), both species that are commercially important in Lyme Bay but were not expected to be found in this area as it is highly degraded from years of bottom towed fishing.

“Over the past 15 years, we have consistently shown that a ban on bottom-towed fishing has had positive effects on the environment,” said Dr. Emma Sheehan, project lead and the study’s senior author. “This study has given us the first ecological evidence that offshore mussel farming can deliver similar benefits on degraded seabed habitats.”

The great mussel debate: What’s wild, what’s farmed and what certification scheme fits the bill?

Mussels are subject to an ongoing debate about whether certification should be in the realm of fisheries or aquaculture. Take a deep dive into the matter.

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In addition to assessing the effects of a ban on bottom-towed fishing, it has shown that **limits on crab and lobster pot fishing could offer long-term benefits (https://www.plymouth.ac.uk/news/managing-crab-and-lobster-catches-could-offer-long-term-benefits-to-fishermen-and-the-environment)** and that the restored seabed is now **able to recover more quickly following extreme storms (https://www.plymouth.ac.uk/news/seabed-recovers-more-quickly-following-extreme-storms-than-from-the-impacts-of-bottom-towed-fishing)**.

Recommendations from this ongoing work have been included within **the government’s 25-year Environment Plan (https://www.plymouth.ac.uk/news/university-research-informs-the-governments-ambitious-plan-for-conservation)**, and **a major UK government report into Highly Protected Marine Areas (https://www.plymouth.ac.uk/news/university-contributes-to-government-review-on-marine-protected-areas)** (HPMAs), led by former Defra Fisheries Minister Richard Benyon.

“This is the first phase of a long-term, multi-method project that is assessing how the farm impacts the surrounding marine ecosystem,” said Sheehan. “However, it immediately increases the evidence base available to policymakers to help guide the move to aquaculture installations offshore, supporting the national and international Blue Growth agenda.”

Read the full study (https://onlinelibrary.wiley.com/doi/10.1002/aff2.77).

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