Hatchery reviving Britain's near-extinct local oysters

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This oyster, dubbed Grand Ma by the researchers, is over 15 years old

Decimated by over-fishing and pollution, British oysters could make a comeback as a hatchery in the Channel port city of Portsmouth is helping to revive a native species.

At Portsmouth University's Institute of Marine Sciences, huge piles of empty oyster shells are stacked in the courtyard, ready for the young oyster larvae to move in.

"In the wild environment, the oysters will be reproducing roughly May through to September, and we're hoping that that will be mimicked here in the hatchery," said Luke Helmer, a scientist at the Blue Marine Foundation, which co-launched the project in 2015 with the university of Portsmouth.

The hatchery is the first in Britain to focus solely on saving oysters, without any commercial motivation. It aims to reintroduce millions of the European flat oysters (ostrea edulis), a species that is almost extinct in this region.

At the centre of the research centre is a small room full of salt water tanks that hold the adult oysters that will lead their revival.

The team of scientists are "feeding them, keeping the conditions right," said Helmer.

The team of eight researchers will soon start slowly raising the water temperature to match that of nearby seawater, triggering the oysters to release their larvae.

Oysters reproduce by male oysters releasing sperm into the water, which fertilises eggs released by female oysters. Larvae initially drift in the water but then seek out an oyster shell to attach to and live in.

At the hatchery, the larvae will live in incubators before being released in June into the Solent, a shallow strait next to the laboratory.

Water conditions are monitored regularly

Overfishing and pollution

Human intervention is required because oysters have almost disappeared from the Solent in recent decades.

"If you take it back to the 1970s, there were about 15 million oysters taken out from the fishery each year," said Helmer.

"That has now declined to almost nothing."

In Europe as a whole, the population of this oyster species has fallen by

90 percent since the end of the 19th century, according to the University of Portsmouth, and is almost extinct in some regions.

The reasons for this is "mainly overfishing and harvesting," said Monica Fabra, a Ph.D. student in marine biology.

Other factors include pollution and the introduction of non-native species which compete for space and food, she added, most importantly the Pacific oyster.

Also known as the "Japanese oyster," this was introduced in the last century to compensate for falling numbers of native molluscs and it is now the main species in Europe. It proved a highly invasive species that has a profound effect on the ecosystem and squeezed out the European oyster.

These molluscs will hopefully lead to a revival of their native oyster species in the waters near the British city of Portsmouth

"Making them reproduce in the hatchery is a safer environment," said Fabra as she gently handled Grand Ma, who is over 15 years old and as large as a hand.

Here, "we can ensure that they survive until the very end of the production," when they enter the sea, she added.

Environmental clean-up

Even though it will take a while to reverse the drop in the oyster population, Helmer hopes to reintroduce "somewhere between half a million and a million larvae" into the Solent in the next year or so. If successful, these will help clean up the water.

Each oyster can filter up to 200 litres of water a day (4.4 gallons), "which is a phenomenal amount," said Helmer.

They used to play a considerable role in improving water quality in the area when you take into account the millions of oysters that used to live on the seabed.

"The oysters are known as an ecosystem engineer so they enhance the environment", due to their constant filtering, he added.

Oysters will also improve the biodiversity of the reef where they settle, as their shells can shelter many other species, said Fabra.

The Langstone Channel where the oysters will be released from the hatchery

During a preliminary trial, researchers put oyster cages down into the sea and were astounded when they pulled them up and discovered 97 species.

This result is particularly spectacular for European oysters since it has evolved to live alongside local species, he said.

What's more, some studies have shown that the European oyster could be better adapted to deal with the warming climate than the Pacific one.

The hatchery's findings could be rapidly duplicated around Europe as the researchers are collaborating with similar projects in Germany and the Netherlands.

But Helmer cautions that a commercially viable population is still a long way away, and it could take a decade to sample delicious local oysters in Portsmouth.