

# Managing crab and lobster catches could offer long-term benefits

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A stack of crab and lobster pots at the end of Lyme Regis harbour, ready for fishing. Credit: Adam Rees, University of Plymouth

The UK's commercial fishing industry is currently experiencing a number of serious challenges.

However, a study by the University of Plymouth has found that managing the density of crab and lobster pots at an optimum level increases the quality of catch, benefits the [marine environment](#) and makes the industry more sustainable in the long term.

Published today in *Scientific Reports*, a journal published by the Nature group, the findings are the result of an extensive and unprecedented four-year field study conducted in partnership with local fishermen off the coast of southern England.

Over a sustained period, researchers exposed sections of the seabed to differing densities of pot fishing and monitored any impacts using a combination of underwater videos and catch analysis.

They found that in areas of higher pot density, fishermen caught 19% less brown crab and 35% less European lobster, and their catches of brown crab were on average 35 grams per individual (7%) lighter.

The effect on [marine species](#) was also significant with two ecologically important reef species, Ross coral (*Pentapora foliacea*) and Neptune's Heart sea squirt (*Phallusia mammillata*), 83% and 74% less abundant respectively where pot density was higher.

Researchers say the study provides evidence of a pot fishing intensity 'threshold' and highlights that commercial pot fisheries are likely to be compatible with [marine conservation](#) when managed correctly at low, sustainable levels.

The study was carried out by academics from the University's School of Biological and Marine Sciences, with funding from Defra and the Blue Marine Foundation and working with the Lyme Bay Consultative Committee.

It builds on [an interim report published by Defra in 2019](#), and research published in October 2020 which [used previously unseen footage](#) to show the environmental impacts of pot fishing.

Dr. Adam Rees, Post-Doctoral researcher and lead author on the current research, said: "The effects of bottom-towed fishing have been clearly shown as part of the University's long-term monitoring project in Lyme Bay. But before we started this research, very little was known about the precise impacts of pot fishing over a prolonged period. We have shown that—if left unchecked—it can pose threats but that changing ways of working can have benefits for species on the seabed and the quality and quantity of catches."

The study focussed on the Lyme Bay Reserve, a 206 km<sup>2</sup> area that has been protected from all bottom-towed fishing since 2008. It is part of the Lyme Bay and Torbay Special Area of Conservation, a 312 km<sup>2</sup> section of the English Channel that is predominantly fished by small boats operating out of towns and villages.



A local fishermen involved in the project out hauling fishing gear within the Lyme Bay and Torbay Special Area of Conservation. Credit: Adam Rees, University of Plymouth

The University has been assessing the seabed recovery since 2008 and has previously demonstrated that several species have returned to the area since the MPA was introduced. Recommendations from this work have been included within [the Government's 25-year Environment Plan](#), and a major UK government report into Highly Protected Marine Areas (HPMAs), led by former Defra Fisheries Minister Richard Benyon.

This latest study comes just days after the Marine Management Organisation (MMO) signalled its intent to ban bottom trawling at various offshore MPAs around the UK.



Dr. Emma Sheehan, Associate Professor of Marine Ecology and one of the study's co-authors, said: "Over a decade ago, the fishing community in Lyme Bay realised that changing the way they [fish](#) was essential to the sustainability of their industry. We have worked closely with them ever since to take their concerns into account and attempt to provide them with solutions. This study is the latest part of our ongoing work to establish the best ways to both preserve their traditions and enhance the environment they work in."

Martin Attrill, Professor of Marine Ecology and senior author on the research, added: "The fishing industry is currently facing huge uncertainty. And we of course know that every fishing community is different. But with the drive to further enhance marine protection around the UK, some of the lessons we have learned in Lyme Bay could help other fleets make changes that can secure their long-term future."

**More information:** *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-82847-4](#)

Provided by University of Plymouth

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