

Community-led marine reserve produces benefits for fisheries and conservation

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King scallop and growth in the reserve. Credit: Howard Wood

The first and only fully protected marine reserve in Scotland is continuing to provide benefits for fisheries and conservation, according to new research by the University of York.

Backing from the local community has been crucial to the success of Lamlash Bay [marine reserve](#) after its creation off the Isle of Arran in

2008, following a decade-long campaign by the local Community of Arran Seabed Trust (COAST).

The new study, published in *Marine Biology*, reports on monitoring surveys conducted inside and outside the marine reserve by scientists in the Environment Department at York from 2010 to 2013. Marine reserves, where fishing and other extractive activities are restricted, are being established across the globe, allowing natural ecosystems to recover and flourish.

Over the course of this new study, the abundance of commercially important juvenile scallops was consistently higher within the reserve than outside. These scallops were strongly associated with seaweeds and other marine life thriving on the seabed within the protected area.

Adult scallops showed benefits too. In particular, the size and reproductive capacity of scallops was much higher inside the reserve by the end of the study. The resultant high level of breeding within the reserve is likely to be seeding the surrounding fishing grounds.



Lamlash Bay marine reserve with Holy Island in the background. Credit: Bryce Stewart

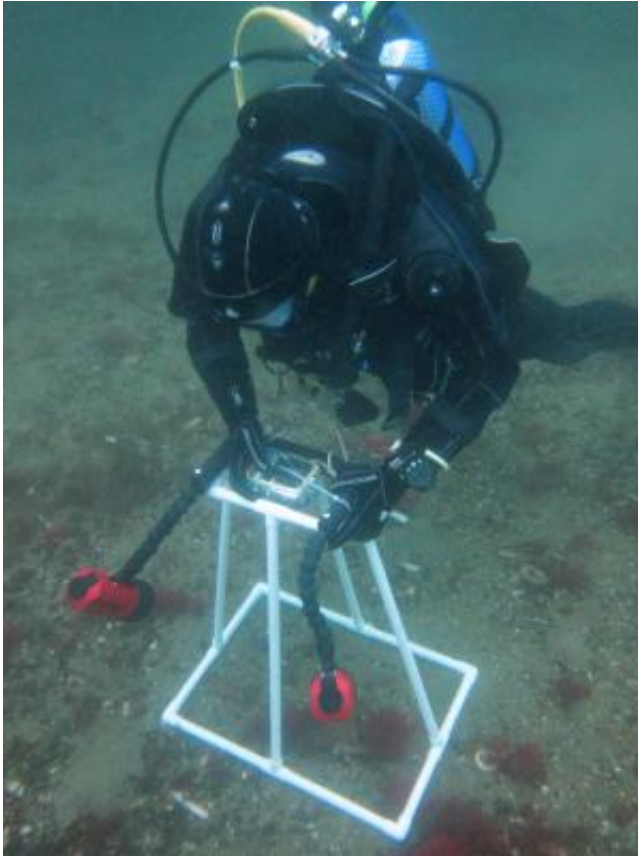
Lead author of the study, Dr Leigh Howarth, who conducted the research as part of his PhD in the Environment Department at York, said: "We found strong evidence that protecting Lamlash Bay from fishing has allowed seaweeds, hydroids and other organisms on the seafloor to recover. These animals act as a magnet for settling juvenile scallops which seek out these habitats for shelter, and to mature to adulthood. Our study shows that protecting some areas from fishing activity can benefit both conservation and fisheries."

The results of the study come as fisheries for king and queen scallops have become some of the most important in the UK, generating more than £60 million first sale every year. Fisheries for scallops have grown

dramatically over the past decade, but scientists have raised concerns over the damage to the seabed caused by the dredges and trawls normally used to catch them. In other countries, such as the USA, strategically placed protected areas have proved successful in protecting vulnerable areas of seabed while boosting the breeding and growth rates of scallops.

Both the English and Scottish governments have recently declared networks of [marine protected areas](#) (MPAs) around their coasts and are currently deciding on how to manage them. However, there are concerns that the preferred option of both governments is to do little to actually restrict fishing within these MPAs. On the basis of this new research, and a growing number of other studies, this would be wasted opportunity.

Dr Bryce Stewart, who supervised the work, added: "Scallop fisheries are ideally suited to management using protected areas. This approach can protect sensitive habitats, which also act as nursery grounds for scallops and other species, while boosting the overall productivity of the fisheries. We urge the UK governments to create more highly [protected areas](#) which can provide this win-win scenario for the management of our oceans."



A scientist records the habitats on the seafloor of Lamlash Bay marine reserve.
Credit: Leigh Howarth

Crucial to the success of the Lamlash Bay marine reserve has been the involvement of the [local community](#) group COAST. They assisted greatly with the research and encouraged the community to keep a watchful eye on activities in the area. In other marine reserves illegal fishing has been a problem, but in this case any suspicious activity has been reported to the authorities and in several cases fishing boats have been encouraged to move on by COAST members.

Chair of COAST, Howard Wood, said "I am delighted to see these positive results emerge from the protection of Lamlash Bay. COAST now trusts that this evidence will be used to inform future government

fisheries and marine environmental policy, as was promised by the now Cabinet Secretary for Rural Affairs and Environment, when the reserve was being set up."



Dredge tracks on the seabed outside the reserve. Credit: Howard Wood

The Firth of Clyde, in which Lamlash Bay and the Isle of Arran sits, is also the subject of a visionary proposal by another non-governmental organisation, the Sustainable Inshore Fisheries Trust (SIFT), to revolutionise fisheries management in the entire area. Their plans, instigated by the collapse of fin fish populations and the vulnerable nature of shellfish [fisheries](#) in the Clyde, are also being released this week. The centrepiece of their approach is to zone different fishing activities into discrete areas and to create some highly protected replenishment zones.

Dr Stewart added: "Our research adds further evidence that such a system could well provide the path to more sustainable use of our seas."

More information: The full manuscript is available at:
link.springer.com/article/10.1007%2Fs00227-015-2627-7

Provided by University of York

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