

Citizen scientists tend oyster gardens

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Oyster garden after seven months of deployment (left panel). The cage in the image contains a mix of Sydney Rock Oysters (*Saccostrea glomerata*), Leaf Oysters (*Isognomon ehippium*) and Hairy Mussels (*Trichomya hirsuta*). Top

right: Marble Fortescue (*Centropogon marmoratus*) one of the most common fish found in association with the oyster gardens. Middle right: The Oyster Goby (*Omobranchus anolius*), made up 80% of the total abundance of fish in oyster gardens. Bottom right: Oyster gardens also supported a diverse range of invertebrates, like this sea urchin. Credit: *Ecological Management & Restoration* (2023). DOI: 10.1111/emr.12565

Australia's first "oyster gardening" project has shown the practice benefits the environment and could be an easy way for citizen scientists to improve marine environments.

Dr. Lisa Boström-Einarsson is an Adjunct Senior Research Fellow at James Cook University. She said oyster gardening is a community-driven activity where [oysters](#) are grown in cages hanging off docks, pontoons or other coastal infrastructure.

"Oyster reefs are severely threatened, with over 85% of reefs lost globally. In Australia, we've seen a loss of 90% of the two primary reef building species—the Sydney rock oyster and the Australian flat oyster," said Dr. Boström-Einarsson .

She said oyster gardening could provide adult oysters for restoration programs, supply habitat for fishes and invertebrates, and improve local water clarity and nutrient cycling.

"We gave 30 households in the canal estate on Bribie Island in Moreton Bay two types of oyster gardens (small plastic mesh cages) each. These were deployed off their floating pontoons. One of the cages contained Sydney rock oysters only and one contained a mixture of Sydney rock oysters, leaf oysters and hairy mussels," said co-author Dr. Ben Diggles, who led the oyster gardening project.

He said after a year the scientists found the cages supported a diverse range of invertebrates and fishes.

"It's likely oyster gardens provide shelter from predators and a [food source](#) supplied by associated invertebrate and fouling communities.

"Oyster gardens in canal estates provide islands of structural complexity with [high surface area](#), similar to historical [oyster reefs](#)," said Dr. Diggles.

He said the cages containing the mix of three oyster species supported a higher abundance and [species richness](#) of both invertebrates and fish than the cages solely containing Sydney rock oysters.

"The study indicates that oyster gardening presents a great opportunity for people to get involved in citizen science. Australia has the greatest expanse of residential canal estates in the world.

"Oyster gardening is ideally suited to citizen science, and it's a great way to increase the habitat value of artificial ecosystems such as canal estates," said Dr. Diggles.

The paper is published in the journal *Ecological Management & Restoration*.

More information: Lisa Boström-Einarsson et al, An ecological assessment of Australia's first community oyster gardens, *Ecological Management & Restoration* (2023). [DOI: 10.1111/emr.12565](https://doi.org/10.1111/emr.12565)

Provided by James Cook University

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