

For seagrass, biodiversity is both a goal and a means for restoration

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Seagrass beds are important but vulnerable coastal ecosystems in the Coral Triangle. New research shows that planting multiple species of seagrass is more effective for restoring seagrass beds than single-species planting. From left, Jordan Hollarsmith of Hasanuddin University, and Susan Williams and Katie DuBois of UC Davis look at seabed plots in Indonesia. Credit: Christine Sur/UC Davis

Coral reefs, seagrass meadows and mangrove forests work together to make the Coral Triangle of Indonesia a hotspot for marine biodiversity. The system supports valuable fisheries and endangered species and helps protect shorelines. But it is in global decline due to threats from coastal development, destructive fishing practices and climate change.

A UC Davis study published recently in the journal *Proceedings of the National Academy of Sciences* found that in the case of seagrasses, biodiversity is not only a goal, but also a means for [restoration](#) of this important ecosystem.

The Coral Triangle is home to about 15 species of seagrasses, more than almost anywhere else on Earth. Previous seagrass restoration efforts have primarily focused on a single species.

For this study, the scientists transplanted six common seagrass species at four species-richness levels: monocultures, two, four, and five species. They analyzed how well the initial transplants survived and their rate of expansion or contraction for more than a year. The results showed that planting mixtures of diverse seagrass species improved their overall survival and growth.

"Seagrass beds are important habitats for fisheries species, for protecting shorelines from storm damage, and they provide livelihoods for many millions of humans around the world," said Susan Williams, a professor in the UC Davis Department of Evolution and Ecology and the UC Davis Bodega Marine Laboratory. "Seagrass habitat is being lost at a rate of a football field's area every half-hour, which threatens these important functions. We demonstrated we could improve seagrass restoration success by planting a mix of species, and not just a single [species](#), which has been the common restoration practice in warm regions such as Florida, Texas, and also in Indonesia, where we performed the experiment."

More information: Susan L. Williams et al, Species richness accelerates marine ecosystem restoration in the Coral Triangle, *Proceedings of the National Academy of Sciences* (2017). [DOI: 10.1073/pnas.1707962114](https://doi.org/10.1073/pnas.1707962114)

Provided by UC Davis

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