

Bridging the 'practice science gap' to optimize restoration projects

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As restoration projects throughout Massachusetts and the country focus on restoring natural ecosystems, researchers are looking for ways to better bridge the "practice science gap" between practitioners and biodiversity research in an effort to optimize these types of projects. The findings were recently published in the journal *Conservation Letters*.

"Our sense was that some of the science we do wasn't being translated to restoration practice," said Dr. Randall Hughes of Northeastern University's Marine Science Center and lead author of the paper. "We aren't pointing any fingers at a particular side of this gap, we are pointing out that the gap exists and it would be nice to try and close it."

Hughes says there are more than two decades of research that show if you increase biodiversity—the living organisms that occupy an ecosystem—important ecosystem functions begin to see positive improvements.

"The goal of ecosystem restoration is to improve functioning of natural systems," said Heather Leslie of University of Maine's Darling Marine Center and a co-author of the paper. "We know a lot about how coastal and marine ecosystems work and by applying that knowledge to restoration in practice, we'll be in a better position to deliver on the benefits that motivate the efforts in the first place."

Closing this gap is easier said than done, though. Many [restoration projects](#) happen at a larger spatial scale than scientific studies. Funding

and logistical constraints may limit opportunities for involving researchers in the restoration design and monitoring, as well; often grants are available for implementing the projects, but not necessarily for monitoring. Through this research, Hughes and the team hope to build partnerships with federal and state agencies. They want to better connect practitioners, who are oftentimes thinking about logistics, funds, and practicalities, with researchers, who might have the capabilities of suggesting small, feasible modifications to possibly enhance the biodiversity and success of the [project](#).

"Unless we are on a colorful coral reef, we tend to see a coastal marine habitat as a monochrome field of green, focusing on the largest, dominant species and missing the smaller, less obvious ones," said Dr. Susan Williams, of the Bodega Marine Laboratory at University of California, Davis. "Even if we know the community is more diverse, we instinctively reach for an efficient restoration solution by focusing on a single species or the one that has been impacted most. Our instincts are often at odds with our growing understanding of the benefits of biodiversity."

As a second phase of this project, the team is conducting an online survey of organizations that focus on estuarine and marine habitat restoration. Their goal is to better understand practitioner beliefs about diversity and how they influence restoration practice. The results will give researchers a better understanding of the relationship between practitioners and researchers,

Currently, Hughes is partnering with the Massachusetts Division of Marine Fisheries on two large seagrass restoration projects. Hughes is helping design how the restoration project includes/considers biodiversity. "We're going out to collect data to see if these diversity measures have had an impact on restoration," said Hughes. "We'll be collecting data in six month intervals, and should know what the results

are next year."

Hughes, along with Professor Jonathan Grabowski of the Marine Science Center, is collaborating with the Rhode Island Division of Environmental Management and the Nature Conservancy on oyster bed restorations in the state. "They are allowing us to modify the restoration project to test out the ideas at a scale that we couldn't easily do on our own. It takes these kinds of partnerships and resources coming together to do something like this in a real-life scale."

Hughes and the team hope publishing this paper will lead to future collaborations on restoration projects.

"There is reason to believe that biodiversity may be able to enhance the success of restoration, but we need more data, and the only way we'll get that data is if more partnerships are formed between biodiversity scientists and restoration practitioners. It might be a relatively simple way to enhance the success of [restoration](#) projects," she said.

More information: A. Randall Hughes et al, Inclusion of Biodiversity in Habitat Restoration Policy to Facilitate Ecosystem Recovery, *Conservation Letters* (2017). [DOI: 10.1111/conl.12419](https://doi.org/10.1111/conl.12419)

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