



The Role of
Percival Scientific Chambers
in the Race to Save Corals



CASE STUDY

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Growing up in Southern California, Shumpei Maruyama* spent much time exploring tide pools and discovering creatures to keep in aquariums. As he got older, his fascination for marine ecosystems shifted to coral reefs after watching several enlightening documentaries about the threats they face from climate change. But it wasn't until he was snorkeling along the

southernmost tip of the Great Barrier Reef during a college study abroad program in Australia that he had an "aha" moment: "I was looking at [the corals] and realized I wanted to dedicate my life to this. I knew I wanted to save them."

Helping Corals Survive Rising Temperatures

Currently finishing up his Ph.D. at Oregon State University, Maruyama studies the cellular and molecular biology involved in coral-algal symbiosis. His research aims to predict the future scenario for corals and find ways to help them survive on a warming planet. His advisor, Dr. Virginia Weis, is the world leader in coral symbiosis cell biology. Maruyama, who learned about Weis when he was still in high school and read many of her papers, feels extremely fortunate to be part of her team in the Weis Lab at OSU.

Although Maruyama has studied the hosts of coral-algal symbiosis using sea anemones as proxies for coral, he is centering his dissertation on the other side of the symbiotic relationship.

"I'm looking at how algae behave after they're expelled by their host due to heat stress," he explains. "We've learned that they're alive [when expelled] and then die pretty quickly after 48 hours. This all plays into the question, 'Where do corals get their algae?' We still don't know the answer to that."

Racing to Change the Outcome

Because both corals and algae depend on each other for survival, discovering where the algae come from is one of the keys to figuring out how to prevent coral bleaching, which occurs when corals become stressed and expel the algae that live inside them and create their fantastic colors. This phenomenon is killing the world's corals, which provide about half the earth's oxygen supply, at alarming rates. Maruyama and other marine biologists are racing to help corals and their algae partners become more resilient before most of the reefs die, as they are predicted to do by the year 2040.

Reliable Chambers for Growing Crucial Biomass

To work quickly and continuously against the clock, Maruyama and his team in the Weis Lab rely on a large stock of anemones maintained in climate-controlled chambers. When Weis tasked Maruyama with purchasing new chambers for the lab, Percival Scientific caught his attention as the only manufacturer he found that specifically designed climate chambers for algae growth. He ordered two for growing both anemones and algae.

"They're incredibly reliable. They've allowed an increase in biomass so that we have a lot more anemones to work with."

He says reliability is crucial for the chambers they use. He once experienced a devastating loss of an experiment when a chamber broke down and killed the entire stock. "We lost months of work," he remembers. "It takes time to grow the numbers that you need. [Percival chambers] have been the most reliable, so I don't worry about that happening again."



Space-Efficient Design and Even Light Distribution

Another reason he appreciates Percival chambers is that "they're designed so that every bit of shelf space is usable with evenly distributed light." He says the vertical height of the shelving is ideal so that no space is wasted. This is important in a lab where several researchers share chambers for multiple experiments.

After completing his doctorate, Maruyama plans to continue his research of coral-algal symbiosis and may have many opportunities to use his passion for teaching, whether by sharing his knowledge in the classroom or a lab of his own. Whatever path his research takes, he plans to keep using Percival chambers. "If I ever start my own lab, I will definitely buy Percival chambers," he says. "And I recommend them to everyone."

For more information, please visit www.percival-scientific.com, call 1.800.695.2743 or email info@percival-scientific.com.

* Shumpei Maruyama's views do not represent those of Oregon State University. The information in this case study reflects his individual, real-life experience regarding the use of Percival Scientific chambers. Maruyama received no goods, services, or incentives of any kind from Percival Scientific in exchange for information or opinions regarding Percival Scientific products and/or services.