

By Garrett Cole

Some of Bishop Museum's hidden assets include the expert staff of scientists who have helped the museum garner an international reputation of leadership in the field of natural and cultural sciences in its over 100-year history.

An expedition was recently conducted combining forces with scientists from Bishop Museum, the National Oceanic and Atmospheric Administration (NOAA), the University of Hawai'i and the State Division of Aquatic Resources to study and promote awareness about deep coral reefs. Bishop Museum ichthyologist Dr. Richard L. Pyle spearheaded this team in its underwater mission.

When it comes to being in the ocean, Dr. Pyle is far from shy. At the age of 12, a young Richard Pyle was volunteering at the Museum, sharing his love of fish with visitors. Bishop Museum has been a Pyle family affair as his grandfather, mother and father were all Museum employees.

Currently a protégé of Dr. Jack Randall, the senior ichthyologist at Bishop Museum whom he got to know while diving in Palau, "He has discovered, documented and scientifically named more coral-reef fishes than anyone in history. He is 'the guy' when it comes to reef fishes...every time I came with some fish that I was sure he had never seen before, he would tell me the story of how he had first discovered it."

Dr. Pyle's latest adventures took him on an eleven-day mission off the coast of Maui. In a remote location 300 feet below sea level, there exists a place that nearly no one has seen before. "Until these deep reefs were discovered off Maui, nobody thought there could be such a rich coral-reef ecosystem at those depths. As a result, this area has been the focal point for our



project with NOAA," Pyle said. Learning what kind of fishes are down there, what is their size distribution compared to the shallow water counterparts, what the coral covers, etc."

One of the most unique features of Pyle's expedition is use of the *Pisces V* deep-submergence vehicle simultaneously with divers. "It's very rare to have divers and submersibles working together. Because the sub pilots can't see behind the sub, they are understandably nervous about having divers in the water with them. But the University's sub pilots know us very well, and after a series of planning meetings with us, they decided 'let's give this a try' and the result was a very successful expedition. But the beauty of it is that we got to use both technologies," Pyle commented.

Another unique feature of this expedition was the depth of the dive. Normally when a submarine is used, it will dive thousands of feet for research. However, Pyle and his team were set to dive only around 300 feet—deep for divers but shallow for the sub. By using special rebreathers which allowed them to utilize their oxygen more efficiently, the divers became some of the first to witness the incredible diversity of these deep water reefs.

Pyle and his team at Bishop Museum conduct expeditions in order to showcase the importance of oceans, not only in Hawai'i, but around the world. In Hawai'i the ocean is a vital way of life, and the efforts of Pyle and his team bring to light all of the scientific discoveries that are continually happening at Bishop Museum.

Above Submersible pilot Terry Kerby stands by as the R/V KoK prepares to leave the dock and head back out to sea. Photo: R.L. Pyle.

Bottom left: Research diver Richard Pyle holds his video camera during decompression. He wore his Sunday best Aloha shirt in honor of Hawai'i Undersea Research Laboratory's 1,000th *Pisces V* submersible dive. Photo: D.F. Pence.

Opposite Page: Top: Dave Pence (left), Christina ("CJ") Bradley (center) and Ken Longenecker (right) place a dome over a set of corals 290 feet deep as part of an experiment to determine coral feeding patterns, while pilot Terry Kerby and science observers Brian Popp and Andrea Grottoli watch from the Hawai'i Undersea Research Laboratory submersible *Pisces V*. Left center: The University of Hawai'i's R/V *Ka'imikoi-o-Kanaloa* (KoK) in the early morning light prepares for the day's submersible dive off Maui, Hawai'i. Bottom left: Two Humpback Whales hung motionless for nearly ten minutes, allowing the crew to take photos and videos before eventually moving on. Bottom right: A pair of Ornate Butterflyfishes (*Chaetodon ornatissimus*) among many hundreds of three-spot Chromis (*Chromis verator*) and Lemon Butterflyfish (*Chaetodon miliaris*), and other reef fishes. Photos: R.L. Pyle.

For more information on the Coral Reef Ecosystems Studies collaboration project visit <http://www2.bishopmuseum.org/CRES/>.