

[Feature Stories](#) : Exploring the South Pacific

Exploring the South Pacific: *Witnessing the Birth of an Undersea Mountain*

NOAA's Undersea Research Program (NURP) provides scientists with the tools and expertise they need to investigate the undersea environment, including submersibles, remotely operated vehicles, autonomous underwater vehicles, mixed gas diving gear, underwater laboratories and observatories, and other cutting-edge technologies. NURP also provides extramural grants to both the federal and non-federal research community.

Taema Bank and Fagatele Bay

Dives on the highly active hot spot volcano were followed by a series of dives by Dr. Dawn Wright in the Eastern Samoan islands, on Taema Bank and at Fagatele Bay, off the island of Tutuila. Dr. Wright's goal was to map pristine benthic habitats, to "ground-truth" previously made seafloor maps of very sensitive biological areas. The work supports a major American Samoa government initiative to designate "no take" zones within pilot marine protected areas. Areas of 20 percent or greater coral cover are mandated for special protection.

Fagatele Bay is an especially sensitive National Marine Sanctuary. This small bay and adjacent canyon were subject to a devastating infestation of Crown of Thorns starfish in the late 1970s, as well as several hurricanes and a severe coral bleaching event in 1994. The Sanctuary is now well on the way to recovery, but stringent management protocols are needed to continue the recovery process.

The NURP submersible work was able to identify biological "hot spots," verify key benthic habitats from previous terrain maps, and photograph and video a far wider range of deep marine life than previous SCUBA studies had been able to ascertain. At least nine of the species identified in the dive work were new records for Samoa.

Additionally, two secondary school teachers were brought on the cruise as observers. They will be using the photos, videos, and maps provided by the science team directly in their classrooms to educate and inspire students who otherwise would never have access to the deeper marine world right off their coast.



Deep reef at Taema Bank, American Samoa. [Click image for larger view.](#)

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Conclusion

The five-month South Pacific expedition represents HURL's longest and most successful cruise in its 25-year history. As a result of the cruise, scientists gained a deeper understanding of many of the processes that form islands and change their benthic habitats – especially given that none of these areas had ever had any systematic deep-diving or submersible investigations. This information will help maximize efforts to protect many of these threatened and pristine environments in the South Pacific.

A follow-up submersible expedition to revisit some of these critical sites is already in planning for 2008-2009.

Contributed by John Wiltshire and Felipe Arzayus, NOAA's Office of Oceanic and Atmospheric Research

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Pisces V, secured to the back deck of Ka'imikai-o-Kanaloa (Kok), rides out some bad weather and rough seas.