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Swarms of purple eels grace the summit of young Nafanua.

New Volcano Rises From Old Volcano

GEOLOGY — The setting would be perfect for an underwater chapter of the *Indiana Jones* saga: A 1,000-foot-tall underwater volcano swathed in yellow fluff and patrolled by a swarm of deep-sea eels. The young cone was discovered in March, rising from the bowels of another volcano 30 miles east of American Samoa. Scientists named it Nafanua, after the Samoan goddess of war.

Geologist Hubert Staudigel of the Scripps Insti-

tution of Oceanography and geochemist Stan Hart of the Woods Hole Oceanographic Institution discovered the parent volcano, Vailulu'u, in 1999 while searching for the source of a tectonic hot spot. Over the next two years, they returned twice to the underwater terrain—a giant crater two miles across—and studied its seismic and hydrothermal activities.

Then in March, a team of deep-sea scientists led by Craig Young of the

University of Oregon and Adele Pile of the University of Sydney returned with a submersible to look for life. Before they descended, their sonar revealed a new feature in Vailulu'u's massive crater, a volcano—Nafanua—that was absent four years earlier. The young volcano is rising about eight inches per day and could breach the surface within a decade.

The submersible crew landed on Nafanua's summit, about 2,000 feet below the surface, and looked out on a teeming landscape. Sulfur-colored mats of microbial life blanketed porous tubes of new lava. Hundreds, perhaps thousands, of foot-long purple-gray eels snaked in every crack and crevice, prompting researchers to nickname Nafanua "Eel City."

Finding the eels (*Dysommia rugosa*, a species known from Atlantic and Pacific fishing trawls) in such numbers is startling, Young says, because deep-sea eels are normally solitary. Their abundant presence on this peak may be tied to the liquid carbon dioxide spewed by the volcano's hydrothermal vents, which kills virtually all life in the deeper reaches of the crater.

"My hunch is that currents going by contain all kinds of life, including bright red shrimp, the eels' main food source," Staudigel says. The eels can live inside the plume, but everyone else either dies or is stunned—it's easy pickings."

—Megan Mansell Williams