

# Vailulu'u Seamount

Vailulu'u Seamount is the only active underwater volcano in the Samoan Archipelago. Located 45 km east of Ta'u Island, and protected within the National Marine Sanctuary of American Samoa, Vailulu'u is a hotspot volcano where a hot magma plume rises from within the Earth, fueling oozing eruptions through the overlying crust. The hotspot will eventually build the volcano high enough to become the next island in the Samoan chain.

Vailulu'u rises over 4,400 m from its base to ~600 m deep, making it larger than famous volcanoes like Mt. Fuji (Japan), Mt. Etna (Italy), or Mt. Hood (USA).



## The volcano is still active

Earthquakes here have been recorded worldwide. In the spring of 2000, Vailulu'u averaged four earthquakes per day and a maximum of 40 per day.

Between 2001-2004, eruptions grew a new volcano over 300 m (~1,000 ft) tall inside the milewide crater.

This cone was named Nafanua after the Samoan goddess of war.

## Hosts unique ecosystems

A large population of cutthroat eels (*Dysommima rugosa*) lives inside the deep caldera, feeding on crustaceans trapped by currents swirling up the seamount slopes.



## Home to hydrothermal vents

Hydrothermal vents — openings in the seafloor where magma-heated water carrying dissolved minerals flow — form towers inside the crater, fueling chemical-consuming microbial life and bacterial mats. Temperatures have been recorded as warm as 80 °C (176 °F).

Vailulu'u has some of the densest submarine hydrothermal plumes observed anywhere in the ocean. The caldera is filled with turbid, murky water created by mixing mineral-rich waters from the hydrothermal vents and surrounding seawater.



## More to learn

Scientists explore Vailulu'u to better understand the diverse and dynamic seafloor where volcanic, hydrothermal, oceanographic, and biological processes are closely interlinked.

