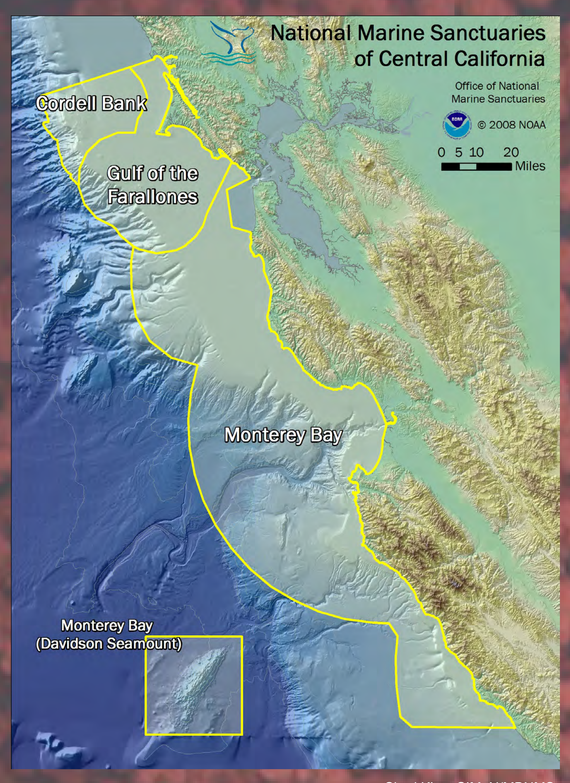
Davidson Seamount: An Internationally Famous Deep-Sea Feature In Your Own Backyard



Chad King, SIMoN/MBNMS

ABOUT THE DAVIDSON SEAMOUNT

The Davidson Seamount was added to the Monterey Bay National Marine Sanctuary in 2008. This pristine, undersea mountain – home to fragile, "old-growth" deep-sea coral forests – is the first seamount to be protected in U.S. waters. Although there are over 30,000 seamounts in the Pacific Ocean alone, less than 0.1% of the world's seamounts have been explored and relatively few protected.

Discovered by seafloor mapping in 1938, and following decades of curiosity about the seamount, scientists from the sanctuary and Monterey Bay Aquarium Research Institute launched an exploration in 2002 and discovered a unique, oasis of life, including species that were rare, endemic, never described or seen alive before. Most stunning of all were the large, lush forests of deep-sea corals and sponges that carpeted the seamount's crest. Fragile corals reaching as much as 12 feet high and unusual sponges – some bigger than a refrigerator – towered over its ridges. Above the seamount, life was just as prolific. Scientists encountered nine species of marine mammals, including the endangered sperm whale, and 15 species of seabirds.

National attention was drawn to the seamount and its magnificent qualities, but scientists realized they had only just begun to understand this remarkable ecosystem. The sanctuary organized another seamount expedition in 2006 resulting in more amazing findings – 15 species new to science and corals determined to be well over 100 years old! These exciting discoveries highlighted the importance of protecting this undersea treasure, and in September 2008, President George W. Bush announced the Monterey Bay National Marine Sanctuary would expand to include the Davidson Seamount. On November 20, 2008 the seamount officially became part of the sanctuary, ensuring it will be conserved and protected forever.

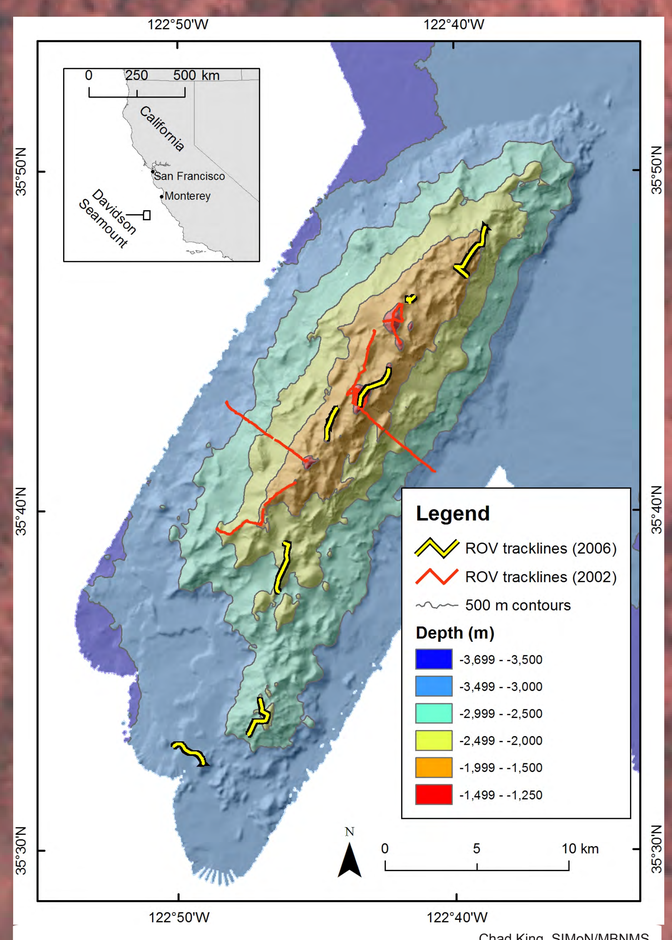
THE DAVIDSON SEAMOUNT IS:

- An inactive undersea volcano that last erupted about 9.8 million years ago
- The first geographic feature ever to be called a "seamount"
- One of four submarine volcanoes (including Guide, Pioneer, and Gumdrop) offshore of Central California
- One of the largest seamounts in U.S. waters
- Located 80 miles southwest of Monterey and 75 miles west of San Simeon
- 26 miles long and 8 miles wide
- 7,480 feet tall from base to summit
- 4,101 feet below the sea surface!

PROTECTING THE SEAMOUNT

Because of its special ecological qualities and the potential of future threats such as harvesting or mining, the Office of National Marine Sanctuaries is protecting the Davidson Seamount by:

- Prohibiting the collection, disturbance or removal of marine life and resources below 3,000 feet within the seamount zone.
- Conducting research to understand marine species distribution, abundance and the effects of ocean acidification.
- Developing outreach programs and products to inform the public about the seamount and its ecological importance.



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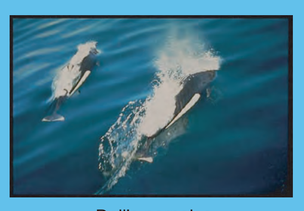
Davidson Seamount is one of the best-studied seamounts in the world. This map shows remotely operated vehicle transects from cruises in 2002 and 2006.

SURFACE HABITAT:

The waters above the Seamount host a variety of seabirds, marine mammals, and surface fishes, including albatross, shearwaters, jaegers, sperm whales, killer whales, albacore tuna, and ocean sunfish.

NOAA

Black-footed Albatross (*Pheobastria nigripes*)



NOAA

Dall's porpoise (*Phocoenoides dalli*)

NOAA

Fin whale (*Balaenoptera physalus*)

NOAA

Northern right whale dolphin (*Lissodelphis borealis*)

MIDWATER HABITAT:

From the top of the seamount to the sunlit surface waters above lies a vast, three-dimensional habitat known as the midwater.

NOAA/MBARI

Tomopterid worm swimming above Davidson Seamount at 389 meters.

NOAA/MBARI

"Mystery mollusk" (1,498 meters), known from only a handful of observations, is currently being described by Dr. Bruce Robison of MBARI.

MBARI ©2002

Jelly (*Benthocodon* sp.) slightly above the seafloor at 3,310 meters.

NOAA/MBARI

Big Red Jelly (*Tiburonia granrojo*), a newly named and described species by MBARI, was found slightly above the seamount crest at 1,363 meters.

CREST HABITAT (~1,250-1,500 m):

A diverse species assemblage can be found at the seamount crests including large bubblegum coral forests, vast sponge fields, crabs, deep-sea fishes, shrimp, and basket stars.

NOAA/MBARI

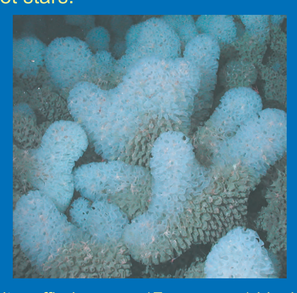
Bubble gum coral (*Paragorgia arborea*) 2 meters in height were not unusual at the seamount crest (1,257 meters).

NOAA/MBARI

Lithodid crab dangling off a yellow sponge (1,355 meters).

NOAA/MBARI

Deep-sea blob sculpin (*Psychrolutes phrictus*) at 1,317 meters.

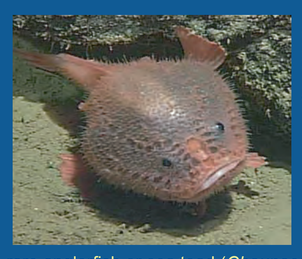


NOAA/MBARI

White ruffled sponge (*Farrea occa*) blanketed large areas, at or near the crests, of the seamount.

SLOPE HABITAT (~1,500-2,500 m):

The slope habitat is composed of cobble and rocky areas interspersed with shallow areas of ash and sediment. This area hosts a diverse assemblage of sessile invertebrates, and rare seldom seen deep-sea fishes.



NOAA/MBARI

A rare anglerfish or sea toad (*Chaunacops coloratus*), measuring 20.5 cm total length, was observed along the slope at 2,461 meters.

NOAA/MBARI

Corals at 1,958 meters.

NOAA/MBARI

Flytrap anemones (Family Hormathiidae) were found most often on the seamount slope, here at 1,874 meters.

NOAA/MBARI

Halosaur (*Aldrovandia* sp.) at 1,736 meters.

BASE HABITAT (~2,500-3,250 m):

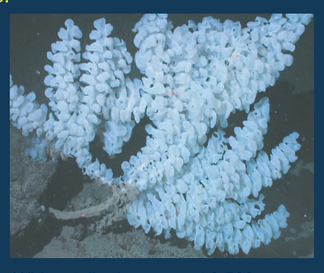
The interface between the deep soft bottom and rocky outcrops is a distinct habitat for mobile macrofauna. These consist of familiar looking species with relatives living in the nearshore including sea cucumbers, urchins, anemones, and sea stars.

NOAA/MBARI

Cerianthid anemone, sea cucumber, sea star, and brittle star at 2,854 meters.

NOAA/MBARI

Octopus (*Benthoctopus* sp.) and an orange stalked crinoid at 2,422 meters.



NOAA/MBARI

White stalked sponge at 2,563 meters.

NOAA/MBARI

Sea spiders (Pycnogonids) found at slope and base habitats.