



A giant Pacific octopus  
hides in kelp.

# Aleutian Life Aquatic

Deep-sea plants and creatures hang in the balance

BY MICHAEL ENGELHARD

**W**HEN THINKING ABOUT ALASKA LANDSCAPES, “garden” is not a word that readily comes to mind. Most outsiders imagine its seas to be equally cold, stormy, and stark. Yet to Reid Brewer, a trained scientific diver, educator, and invertebrate taxonomist who worked on a nearshore assessment of the Aleutians, the islands’ Neptunian abundance and variety rival those of tropical atolls. The fog-shrouded, crystalline abyss that Bering’s naturalist Georg Wilhelm Steller probed nearly 300 years ago teems with life forms ranging from sponges and comb jellies to arthropods, mollusks, lampshells, sea urchins, bryozoans, and, of course, fish. At depths between 60 and 1,000 feet, southwestern Alaska’s appendage also harbors the world’s most diverse cold-water coral communities, featuring soft corals, sea whips and sea pens, branching gorgonian corals, stony or cup corals, fanlike hydrocorals, and black corals. Here, slower growing, light-independent, and loosely spaced “coral gardens” rather than heliotropic reefs provide habitat for subarctic fish and invertebrate species.

In hundreds of dives aided by modern technology, University of Alaska Fairbanks marine biologists between 2004 and 2007 conducted the first extensive aquatic inventory of the 1,200-mile

archipelago. They found the region’s nutrient-rich upwellings and scant muddying river sediment promoting fantastic assemblages. The lead scientist, Dr. Stephen Jewett, sinking through blue-green gulfs with visibility up to 100 feet, marveled at “a small forest of kelp that reached to the sea surface, and a menagerie of brilliantly colored plants and animals.” Visiting 50 locales in a mothership and by back-rolling off of Zodiacs, the divers discovered over 1,000 species, dozens of them new to science. Many occur nowhere else or, separated by vast trenches, thrive only near one single island. Jewett considers the Aleutians to be North America’s best diving destination.

Even at low depths, Aleutian sea-bottom fauna resembles aliens in psychedelic garb, creatures from a fever dream or from James Cameron’s blockbuster *Avatar*. Thousands of brittle stars reach out from crevices in the rocky floor encrusted by pink coralline algae. Feeling for prey, crimson anemones sway retractable arms in the current. Hairy tritons tend spiral-shaped egg clutches while pods of young king crabs pile up as thorny, red-and-white thickets. Low tides bare nipple-carpetts of yellow sea sac. Lion’s mane jellyfish pulsate through space, sheltering fingerlings amid stinging tentacles. Giants mingle

A sea urchin “forest.”



with midgets—thumb-size lumpsuckers with 30-foot octopi, eight-story dragon kelp, and sunflower stars three feet in diameter. The organisms’ common names, intriguing by themselves, suggest things far from common. Breadcrumb sponge. Puppet margarite snail. Wolf-eel. Arctic cookie star. Red Irish lord. Oval-anchored stalked jelly. Some of these denizens filter-feed. Others shape-shift, camouflage, spar, socialize, float filled with gas, drill holes into others, or exude slime as a defense.

Fishing gear had long brought up nondescript coral fragments, but before 2002 nobody suspected multiform fields of magnificence in this dark deep. Then National Oceanic and Atmospheric Administration (NOAA) scientists braved claustrophobia and the unknown in a cutting-edge orange submarine. The 15-foot Delta, “jeep of research subs,” carries one pilot plus one scientist-observer and enough oxygen to spend three days submersed. Submariners go deeper than scuba divers can; they don’t get wet or freeze while taking notes, footage, or photographs. A mechanical arm with a scoop lets them sample their surroundings.

“I’d never been in such a small place before,” says Alberto Linder, who studied deepwater corals for his Ph.D. “It was very nice and quiet, and I wished the dive would have been longer.” NOAA still bags novel species on routine collecting trips, using remotely operated vehicles also.

The coral gardens’ rockfish—some of which live more than 100 years—struck Stephen Jewett as “sentinels guarding this treasured environment.” The Alaska Maritime Wildlife Refuge, in fact, protects large parts of this unique evolutionary mosaic. Since 2006, over 95 percent of the refuge was closed to trawling, which breaks up or scars coral and sponge beds. Bottom fisheries stayed

open only in small, discrete sectors. Control sites allow researchers to monitor this ecosystem’s health and to gauge additional threats, such as invasive species or contaminants.

As in tropical regions, climate change impacts these fragile communities. “Bleaching”—the expulsion of symbiotic algae from coral tissue as seas warm, which by stressing colonies contributes to their dying—is not the problem, because deep-water corals lack photosynthetic algae. Increased ocean acidity from rampant fossil fuel use, however, weakens coral structures and their plankton food and slows coral growth everywhere. Due to the chemistry and shifting nature of north Pacific currents, Aleutian species might even be more at risk than their equatorial counterparts. Coldwater corals require a special type of skeleton-building calcium carbonate, but flows bearing this dissolved mineral soon won’t run deep enough to supply some growing beds. We stand to lose fish and invertebrates hitched to corals, and Alaskans could lose their livelihoods and subsistence foods.

Despite our fancy tools and snowballing knowledge, oceans remain among the planet’s least explored realms. Their importance, like their mystique, is undeniable.

“It was truly amazing to dive some places that no one had ever been and will likely never go again,” Reid Brewer sums up his Aleutian adventure. 🐠

*Michael Engelhard is the author of Ice Bear: The Cultural History of an Arctic Icon and of American Wild: Explorations from the Grand Canyon to the Arctic Ocean. He only has snorkeled, on winter getaways in Hawaii.*