

The Abalone: *Marvelous Mollusk in Need of Help*

Ranger Jim Serp

The water stung my face like a thousand tiny needles as I tried to breathe in and out calmly. I had just jumped into the 51 degree ocean from a small ledge that waves were now washing over. The visibility wasn't really all that bad, considering the swell and wind had picked up during the night. I patiently waited for my partner, off-duty North Coast Ranger Kirk Marshall, to join me.

What would cause me to brave these frigid waters, you might ask? The simple answer was abalone, more specifically Red Abalone, *Haliotis rufescens*. With abalone off limits down in our neck of the woods, Southern California, I had persuaded Kirk to take me out just north of Van Damme State Park to try my luck. Kirk jumped in and as I acclimatized to the water temperature, he took a deep breath and dove down. Next thing I knew Kirk came up with a large Red Abalone. Amazing!



The abalone is a member of a group of animals called mollusks. These animals are often characterized by a soft body and a large fleshy foot. This foot can exert a gripping power of 180kg and is what has helped put the abalone in the predicament it is in today. The foot, when prepared correctly, is simply delicious. Now, that is not to say it is without work. Abalone are often covered in a layer of thick growth and are difficult, at best, to spot. After you remove the animal from the shell you slice the foot into thin "steaks" and pound them until tender. Following this you can cook them several ways, but care must be taken so as not to overcook them or they take on the consistency of a fine innertube.

The most common abalones in Southern California are the Green Abalone (*H. fulgens*), Pink Abalone (*H. corrugata*), Black Abalone (*H. cracherodii*) and the Red Abalone (*H. rufescens*). The most abundant abalone up north is the Red, which happens to be the biggest member of the species, as well as the tastiest.

There is a story I've heard that tells of the local Indian tribes offering the Spanish explorers some of their cherished abalone. The Spaniards couldn't bring themselves to even taste this cousin to our garden snail. If the story

is true, boy-o-boy, did they miss out!

Abalones are strictly herbivorous, preferring to dine on local types of brown and red algae. Different species tend to be found in different depth zones, probably dictated by temperature. The Black Abalone is usually found in the surf zone, Greens are spotted a little deeper, Pinks are often found in more sheltered areas and Reds inhabit the coldest areas. Like many mollusks, abalones possess a file-like tongue (radula) for scraping food. They also have short sensing tentacles sticking out from under the shell that vary in color depending on the species.

There are a series of holes found on the abalone shell which differs by species but cannot, by themselves, be used as an indicator of the species. The abalone breathes by pulling water under the shell, passing this oxygenated water over its gills and then expelling it, along with other wastes, back through these holes.

Abalone blood lacks a clotting agent and they often bleed to death if even superficially cut. This brought about the law which forbids divers from using anything but a specially designed "ab iron" to pry the abalones from their secure hold on a rock. These "ab irons" reduce the likelihood of injury to the muscle foot, which in turn cuts down on unnecessary abalone mortality. Scientists are now studying properties in abalone blood that make it useful in fighting penicillin resistant bacteria.

Many abalones, especially adults, will travel little, if at all, after they have found a desirable location in a crevice or under a ledge. At Doheny we have one pink abalone that has moved only once in the four years since I placed him in our tide pool exhibit. Shortly after moving, the abalone went back to its favorite spot.

Normal predators, excluding man, include otters, crabs, lobsters, sea stars, certain fish, predatory snails and the octopus. This, along with the fact that many of the abalones planktonic larvae are swallowed before they even settle on a rock, and the large number of juveniles that are crushed by strong wave action, makes it seem a miracle any survive at all!

The abalone is in trouble, especially in Southern California. According to a recent article in the Orange County Register, the California Department of Fish & Game states that 200,000 abalones are taken illegally each year off California. This poaching, along with warmer water temperatures, disease,

normal predation, pollution, careless divers and the prolific sea urchin competing for similar food are causing their quick disappearance from California waters. Of the five most common species found in California three are considered rare and one is on the verge of extinction. Only the Red Abalone in Northern California seems to be holding it's own. California Fish & Game is adding more coastal wardens to help stop the illegal decimation of one of California's most cherished resources.

Here at Doheny we have three species of abalones on exhibit: one red, one green and two pinks. They dine on a steady diet of giant kelp (*macrocystis*) and feather boa kelp (*egregia*). Our abs have become fairly tame and actually allow us to place the kelp, by hand, under their tough gripping foot. These fascinating mollusks allow us to get on our soapbox from time to time share there plight with our many visitors. This in the hope that through education will come appreciation which in turn will translate into protection.