Common Name: **Black Abalone**
Scientific name: *Haliotis cracherodii*

Area of Concern: California, Baja California
Year First Listed as a "Species of Concern": 1999

Species Description: Black Abalone range from Cabo San Lucas, Baja California Sur, Mexico north to Mendocino County, California, USA, although rare sightings have been reported as far north as Coos Bay, Oregon, USA (California Department of Fish and Game 1986). Black abalone have a smooth shell, either black or slate blue in color with white on the outer, worn away layers. The inside of the shell is pearly white with a black mantle and foot. There are five to nine open flush pores on the left side of the shell and spiral growth lines in the posterior. Tentacles surround the foot and extend out of the shell, which sense food and predators. Black abalone are typically observed securely wedged into crevices, cracks and holes of intertidal rocks during low tide, rendering them quite cryptic. When immersed and during night hours, however, this species has been observed using its muscular foot to move freely over rock surfaces. Black abalone have separate sexes and spawn primarily during the summer months (Hamm and Burton 2000). Black abalones are herbivores, feeding mostly on kelp and drift algae (Leighton 1959).

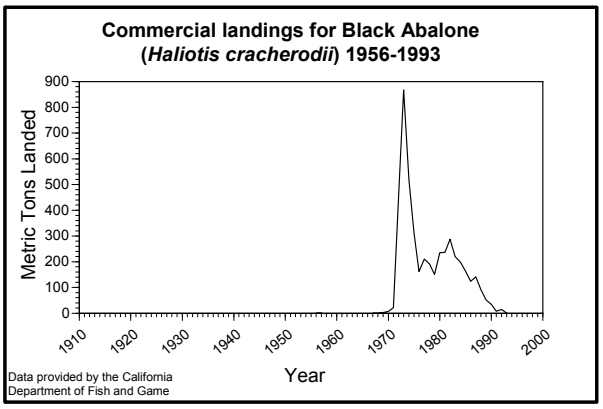
Rationale for "Species of Concern" Listing:

Demographic and Diversity Concerns:

Reduced numbers due to overfishing and disease have subjected black abalone populations to risks (i.e. decrease in population growth rate and possible extinction) associated with the Allee effect (Allee et al. 1949). Recent studies suggest the presence of genetic differentiation among remaining black abalone populations and localized recruitment (Chambers, pers. comm.; Gruenthal, pers. comm.) which, in combination with decreasing population size, raise concerns regarding genetic inbreeding.

Factors for decline

The primary factors leading to the decline of black abalone are overfishing and disease. Black abalone have been important to commercial and recreational fishing in California since the mid-1800's, but it was not until the late 1970's that significant declines in black abalone populations were detected. Landings for black abalone peaked in 1973 at 868 metric tons (Rogers-Bennett et al. 2002). In addition, a disease called withering syndrome struck black abalone populations at the northern Channel Islands in 1985. The disease is caused by a Rickettsia-like prokaryote, and full manifestation of the disease appears to be more prevalent in the southern portion of its range (South of Point Conception, California) where water temperatures are relatively higher. Die-offs also seem to occur in habitats where water temperatures are elevated by thermal discharge of power plants. Other factors responsible for their decline are poaching, habitat destruction, natural predation by a variety of predators including sea stars, the southern sea otter (*Enhyrda lutris*), and striped shore crab (*Pachygrapsus crassipes*) and competition for space with purple (*Strongylocentrotus purpuratus*) and red (*S. franciscanus*) sea urchins.



Existing protections include a proposed system of California Marine Protected Areas, commercial and recreational fishery closures, an Abalone Recovery Management Plan (ARMP), mandated by the California legislature, to be completed by January 1, 2003.

Status Reviews/Research Completed or Underway:
The National Marine Fisheries Service (NOAA Fisheries) is currently conducting a status review for black abalone. The expected date of completion is spring 2005.

Citations

Allee, W.C., A.E. Emerson, O. Park, T. Park, and K.P. Schmidt. 1949. Principles of animal ecology. Saunders, Philadelphia, Pennsylvania, USA.

California Department of Fish and Game. 1986. California Abalone. Marine Resources Leaflet No. 11, Marine Resources Division, Long Beach, California, USA.

Hamm, D.E., and R. S. Burton. Population genetics of black abalone, *Haliotis cracherodii*, along the central California coast. *Journal of Experimental Marine Biology and Ecology*. 254: 235-247.

Leighton, D. L. 1959. Diet and it's relation to growth in the black abalone, Haliotis cracherodii Leach. Master's Thesis, University of California Los Angeles. 61pp.

Rogers-Bennett, L., P. L. Haaker, T.O. Huff, and P.K. Dayton. 2002. Estimating baseline abundances of abalone in California for restoration. California Cooperative Oceanic Fisheries Investigations Reports. 43: 97-111.

For further information on this Species of Concern, or on the Species of Concern Program in general, please contact Ms. Marta Nammack, NOAA Fisheries, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, (301) 713-1401, Marta.Nammack@noaa.gov; or Dr.Melissa Neuman, NOAA Fisheries, Southwest Region, Protected Resources Division,501 W. Ocean Blvd. Suite 4200, Long Beach, California, 90802-4213, (562) 980-4115, Melissa.Neuman@noaa.gov.