



**Current Status:**

**Demographic and Genetic Diversity Concerns:**

Population size has declined in many areas. Commercial landings peaked in the early 1970's and declined precipitously after that (Figure 1). Reduced numbers due primarily to overfishing make the species vulnerable to extirpation due to a phenomenon known as the **Allee effect** (Allee et al. 1949). The Allee effect describes a situation whereby a decrease in population size leads to decreases in reproduction and survival of individuals. In the case of green abalone, this effect is likely due to increasing distance among potentially spawning males and females, leading to reproductive failure, as population density decreases.

**Existing Protections and Conservation Actions:**

Existing protections include a proposed system of California Marine Protected Areas, commercial and recreational fishery closures, and an [Abalone Recovery Management Plan](#) was adopted in 2005. Culturing is being conducted under a joint U.S. Navy/City of San Diego project.

**KEY INFORMATION**

**Areas of Concern**

Pt. Conception, California, to Bahia Magdalena, Baja California.

**Year Identified as "Species of Concern"**  
2004

**Factors for Decline**

- Fishing
- Disease: Withering syndrome
- Illegal harvest
- Predation by seastars, and other species
- Competition from sea urchins
- Climate
- El Niño

**Conservation Designations**

IUCN: Not Evaluated

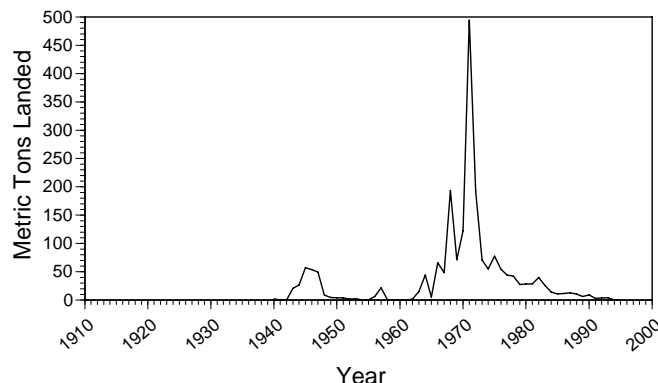


Figure 1. Commercial landings for Green Abalone 1940-2000. Data provided by the California Dept of Fish and Game

**Factors for Decline:**

The green abalone fishery in California was targeted after the collapse of the pink abalone fishery in 1970. Information regarding the status of green abalone in Mexico is scant. Aquaculture programs are being pursued in an attempt to artificially enhance populations. A commercial fishery for green abalone is still in place in Mexico and is managed by local cooperatives.

**Data Deficiencies:**

Population monitoring and genetic population structure information are needed.



# Species of Concern

NOAA National Marine Fisheries Service

### Brief Species Description:

Green abalone ranges from Pt. Conception, California, to Bahia Magdalena, Baja California Sur, Mexico. This species resides in shallow water on open/exposed coast from low intertidal to at least 30 feet (9 m) and perhaps as deep as 60 feet (18 m). They are found in rock crevices, under rocks and other cryptic cavities. The shell is usually brown and marked with many low, flat-topped ribs which run parallel to the 5 to 7 open respiratory pores that are elevated above the shell's surface (Figure 2). The inside of the shell is an iridescent blue and green. The epipodium is a "ruffle" of tissue along the side of the foot. The cephalic (head) and epipodial tentacles are olive green, but the epipodial fringes are a mottled cream and brown, with tubercles scattered on the surface and a frilly edge (California Department of Fish and Game 1986).

Green abalone have separate sexes and broadcast spawn from early summer through early fall. Maturity is reached at 2.4 to 5 inches (61-128 mm) length or 5 to 7 years. Figure 3 shows the typical life cycle stages. Green abalone are herbivores, feeding mostly on drift algae and preferring fleshy red algae. Lifespan is up to 30 years or more.

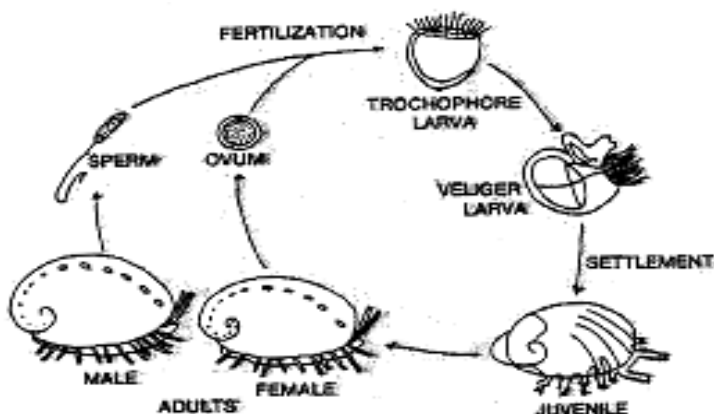


Figure 3. Abalone life cycle.

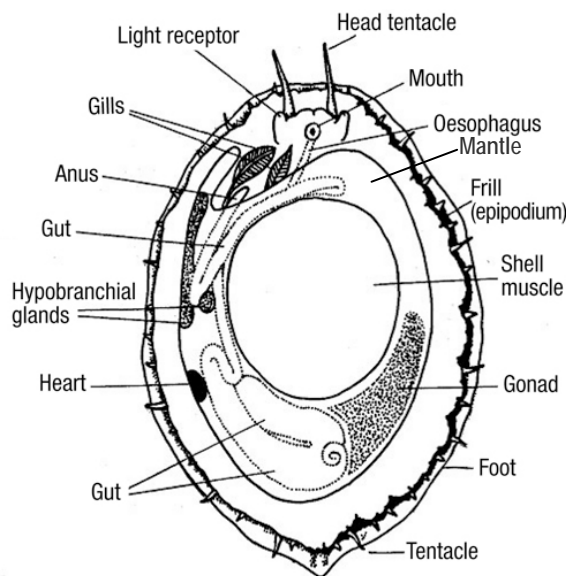


Figure 2. Abalone anatomy.

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<http://www.nmfs.noaa.gov/pr/species/concern>

### References:

Allee, W.C., et al. 1949. Principles of Animal Ecology. Saunders, Philadelphia, PA.

CA Department of Fish and Game. 1986. California Abalone. Leaflet No. 11, Marine Res. Div., Long Beach, CA.

California Department of Fish and Game. 2005. Abalone recovery and management plan. [www.dfg.ca.gov/mrd/arpmp/index.html](http://www.dfg.ca.gov/mrd/arpmp/index.html)