

Population trend data for black abalone populations are important and needed for several reasons. First, the reintroduction of sea otters to SNI since 1987 raises the possibility of conflict between sea otter conservation and abalone populations because abalones are often significant prey for sea otters. Second, the appearance of a novel exotic disease, abalone withering syndrome, at SNI in 1992, has resulted in dramatically increased rates of abalone mortality at the island. Third, California populations of black abalones have been recently designated as a candidate species for listing pursuant to the Endangered Species Act of 1973 (ESA) (as amended). The concern is that the combined effects of sea otter predation and abalone withering syndrome, following several decades during which black abalones may have been over-harvested in commercial and recreational fisheries, may cause reduction of black abalone populations to the point where risk of extinction increases. Long-term abalone population trend data from SNI is needed to determine if drastic population declines continue, and if extinction risk becomes high.

Project Description

Nine permanent research study areas are located in rocky intertidal habitats on SNI in Ventura County, CA. To date, the applicant has made 89 separate field trips to SNI from September 1979 through September 2002, participating in abalone survey work on 472 different days. Quantitative abalone surveys on SNI began in 1981, at which point permanent research sites were chosen based on the presence of dense patches of abalones in order to monitor changes over time in dense abalone aggregations. Research is conducted by counting black abalones in plots of 3.28 ft (metric) along permanent transect lines in rocky intertidal habitats at each of the nine study sites on the island. Study areas include two to six permanent transects, depending on size of the area and the number and size of abalone patches present. Permanent transect lines are demarcated by stainless steel eyebolts that have been embedded in the rock substrata and secured with marine epoxy compound. Data are collected by temporarily attaching a rope, marked at intervals of 3.28 ft (metric), to the eyebolts with snap-shackles. Transect lengths at the nine study sites range from 23 - 131 ft (metric). Ropes are removed when data collection is finished, and only the permanent eyebolts are left at the sites between visits. Survey work is done by two field biologists working on foot;

therefore, monitoring of black abalone populations at SNI can be done only during periods of extreme low tides. The exact date of a visit to any given site is difficult to predict because variation in surf height and sea conditions can influence the safety of field biologists as well as the quality of data collected. In previous years because of optimal availability of low tides, most survey work has been done during the months of January, February, March, July, November, and December. All work is done only during daylight hours because of safety considerations.

Research is expected to extend over a period of 5 years, from 2003 through 2007. Surveys of abalones will be conducted each year during this 5-year period. During each survey year, each of the nine permanent study sites at SNI will be visited twice. Each visit to a given study site lasts for a maximum of 4 hours, after which the site is vacated by researchers.

Variable numbers of sea lions, harbor seals, and elephant seals typically haul out near six of the nine study sites used for abalone research. Breeding activity of these three pinniped species occurs at five of these six sites. Subject marine mammal populations, especially California sea lions and northern elephant seals, at SNI have grown substantially since the beginning of abalone research in 1979, and have occupied an expanded distribution on the island associated with population growth. Thus, sites previously accessible with no risk of marine mammal harassment are now being utilized by marine mammals at levels that will make approach without harassment on future dates very difficult. Pinnipeds likely to be affected by abalone research activity are those that are hauled out on land near study sites. Three sites not previously delineated do not have resident pinniped populations, and can be visited without any risk of marine mammal harassment. However, during the most recent abalone surveys, it has become evident that additional research work cannot be conducted at six other sites without the possibility of Level B incidental harassment of pinniped populations hauled out near the study locations; therefore, an IHA is warranted.

Description of Habitat and Marine Mammals Affected by the Activity

A description of SNI and its associated marine mammals can be found in Dr. VanBlaricom's application, which is available upon request (see ADDRESSES).

Marine Mammal Impacts

Many of the beaches in the Channel Islands provide resting, molting or breeding places for species of pinnipeds including: northern elephant seals, harbor seals, California sea lions, northern fur seals (*Callorhinus ursinus*), and Steller sea lions (*Eumetopias jubatus*). On SNI, three of these species, northern elephant seals, harbor seals, and California sea lions, can be expected to occur on land in the vicinity of abalone research sites either regularly or in large numbers during certain times of the year. In addition, a single adult male Guadalupe fur seal was seen at one abalone research site on two occasions during the summer months in the mid-1980's; however, there have been no sightings of this species on the island since then. Descriptions of the biology and distribution of these species and others in the region can be found in Stewart and Yochem (2000, 1994), Sydeman and Allen (1999), Barlow *et al.* (1993), Lowry *et al.* (1996), Schwartz (1994), Lowry (1999) and several other documents (Barlow *et al.*, 1997; NMFS, 2000; NMFS, 1992; Koski *et al.*, 1998; Gallo-Reynoso, 1994; Stewart *et al.*, 1987). Please refer to those documents and the application for further information on these species. Other information on harbor seals and California sea lions found in Central California waters can be found in Marine Mammal Stock Assessment Reports, which are available online at http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/individual_sars.html.

The applicant requests authorization for incidental takes, by Level B harassment only, of California sea lions, Pacific harbor seals, and northern elephant seals. Individuals from these three species typically haul out near six of the nine study sites, and breeding activity occurs at five of these six sites. Although marine mammals will not be deliberately approached by abalone survey personnel, approach may be unavoidable if pinnipeds are hauled out directly upon the permanent abalone study plots. Incidental harassment may result if hauled animals move to increase their distance from persons involved in abalone surveys. In almost all cases, shoreline habitats near the abalone study sites are gently sloping sandy beaches or horizontal sandstone platforms with unimpeded and non-hazardous access to the water. If disturbed, hauled animals may move toward the water without risk of encountering significant hazards. In these circumstances, the risk of serious