under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). The State submittal, which is the subject of this rule, is based on Federal regulations for which an analysis was prepared and certification made that such regulations would not have a significant economic effect on a substantial number of small entities. In making the determination as to whether this rule would have a significant economic impact, the Department relied upon the data and assumptions for the Federal regulations.

Small Business Regulatory Enforcement Fairness Act

This rule is not a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. This rule: (a) Does not have an annual effect on the economy of $100 million; (b) will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; and (c) does not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. This determination is based upon the analysis prepared for the Federal regulations.

Unfunded Mandates

This rule will not impose an unfunded mandate on State, local, or tribal governments or the private sector of $100 million or more in any given year. This determination is based upon the fact that the State submittal, which is the subject of this rule, is based on Federal regulations for which an analysis was prepared and a determination made that the Federal regulations did not impose an unfunded mandate.

List of Subjects in 30 CFR Part 931

Intergovernmental relations, Surface mining, Underground mining.

Dated: December 7, 2007.

Allen D. Klein,

Regional Director, Western Regional Coordinating Center.

[FR Doc. E8–359 Filed 1–10–08; 8:45 am]

BILLING CODE 4310–05–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 224

[Docket No. 071128765–7769–01]

RIN 0648–AW32

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for Black Abalone

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: We, NMFS, have completed a review of the status of black abalone (*Haliotis cracherodii*) under the Endangered Species Act (ESA). After reviewing the best scientific and commercial information available, evaluating threats facing the species, and considering efforts being made to protect black abalone, we have concluded that the species is in danger of extinction throughout all of its range and are proposing to list the species as endangered under the ESA. This proposal is based on information indicating that: the disease known as withering syndrome has spread to areas throughout the range of the species, has been responsible for the local extirpation of populations throughout a large part of the species' range, and threatens remaining black abalone populations; low adult densities below the critical threshold density required for successful fertilization exist throughout a large part of the species' range; and, a number of interacting factors (e.g., suboptimal water temperatures, reduced genetic diversity, and illegal harvest) may further hamper natural recovery of the species. A critical habitat designation is being considered and may be proposed in a subsequent **Federal Register** notice. If the proposed listing is finalized, a recovery plan will be prepared and implemented.

DATES: Comments on this proposal must be received by April 10, 2008. Public hearing (s) will be held promptly if any person so requests by February 25, 2008. Notice of the location (s) and time(s) of any such hearing(s) will be published in the **Federal Register** not less than 15 days before the hearing(s) is(are) held.

ADDRESSES: You may submit comments, identified by [RIN 0648–AW32], by any one of the following methods:

- Electronic Submissions: Submit all electronic public comments via the Federal eRulemaking Portal *http://www.regulations.gov*.
- Facsimile (fax): 562–980–4027, Attn: Melissa Neuman.
- Mail: Submit written comments to Chief, Protected Resources Division, Southwest Region, National Marine Fisheries Service, 501 West Ocean Blvd., Suite 4200, Long Beach, CA 90802–4213.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.regulations.gov* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

We will accept anonymous comments. Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect, or Adobe PDF file formats only.

A draft black abalone status review report and other reference materials regarding this determination can be obtained via the Internet at: http://www.nmfs.noaa.gov. The draft status review report and list of references are also available by submitting a request to the Assistant Regional Administrator, Protected Resources Division, Southwest Region, NMFS, 501 West Ocean Blvd., Suite 4200, Long Beach, CA 90802–4213.

FOR FURTHER INFORMATION CONTACT: Melissa Neuman, NMFS, Southwest Region (562) 980–4115; or Lisa Manning, NMFS, Office of Protected Resources (301) 713–1401.

SUPPLEMENTARY INFORMATION:

Background

Black abalone was added to the National Marine Fisheries Service's (NMFS') Candidate Species list on June 23, 1999 (64 FR 33466) and remained on this list after NMFS redefined the term ''candidate species'' on April 15, 2004 (69 FR 19975). We initiated an informal ESA status review of black abalone on July 15, 2003, and formally announced initiation of a status review on October 17, 2006 (71 FR 61021), at the same time soliciting information from the public. On December 27, 2006, we received a petition from the Center for Biological Diversity (CBD) to list black abalone as either an endangered or threatened species under the ESA and to designate critical habitat for the species concurrently with any listing determination. We published a 90–day finding on April 13, 2007 (72 FR 18616), stating that the CBD petition presented substantial scientific and commercial information indicating that the petitioned actions may be warranted.

In June 2007, we assembled a Status Review Team (SRT) to review the available information, assess the extinction risk and threats facing the species, and produce an ESA status review report for black abalone. The draft status review report (VanBlaricom *et al.*, 2007) (hereafter ''status report'') provides a thorough account of black abalone biology and natural history, and assesses demographic risks, threats and limiting factors, and overall extinction risk. The key background information and findings of the draft status report are summarized below.

Taxonomy and Species Description

Abalone, members of the gastropod genus Haliotis, are marine gastropods that occur throughout most of the world (Cox, 1962). There are approximately 60 species (Geiger, 1999) found in temperate to tropical waters from the intertidal zone (i.e., the area of the foreshore and seabed that is exposed to the air at low tide and submerged at high tide) to depths of over 50 m. All are benthic, occurring on hard substrate, relatively sedentary, and generally herbivorous, feeding on attached or drifting algal material. There are seven species of abalone native to the west coast of North America (Geiger, 1999).

The taxonomic classification of black abalone is as follows: Phylum Mollusca, Class Gastropoda, Subclass Prosobranchia, Order Archaeogastropoda, Superfamily Pluerotomariacea, Family Haliotidae, Genus *Haliotis*, Species *cracherodii*. Leach (1814) gave the first formal description of this shallow-living abalone (upper intertidal zone to subtidal depths of 6 m), describing the shell as smooth, circular, and black to slate blue in color. There are five to nine open respiratory pores that are flush with the shell's surface. Typically, the shell's interior is white (Haaker *et al.*, 1986), with a poorly defined or no muscle scar (Howorth, 1978). Adults attain a maximum shell length of approximately 20 cm (throughout this document we use the maximum diameter of the elliptical shell as the index for individual body size). The muscular foot of the black abalone allows the animal to clamp tightly to rocky surfaces without being dislodged by wave action. Locomotion is accomplished by an undulating motion of the foot. A column of shell muscle attaches the body to the shell. The mantle and black epipodium, a sensory structure and extension of the foot which bears lobed tentacles of the same color (Cox, 1960), circle the foot and extend beyond the shell of a healthy black abalone. The internal organs are arranged around the foot and under the shell.

Historical and Current Distribution

There is some debate regarding the northern extent of the historic range of black abalone. Many have cited the historic range as extending from Coos Bay, Oregon, USA to Cabo San Lucas, Southern Baja California, Mexico (Geiger, 2000). However, the northernmost documented record of black abalone (based on museum specimens) is from Crescent City (Del Norte County, California, USA; Geiger, 2004). Most experts agree that the current range of black abalone extends from Point Arena (Mendocino County, California, USA) south to Northern Baja California, Mexico. Black abalone may exist, but are considered extremely rare, north of San Francisco (Morris *et al.*, 1980) to Crescent City, California, USA and south of Punta Eugenia to Cabo San Lucas, Baja California, Mexico (P. Raimondi, pers. comm.). Within this broad geographic range, black abalone generally inhabit coastal and offshore island intertidal habitats on exposed rocky shores where bedrock provides deep, protective crevice shelter (Leighton, 2005).

Population Structure

Recent studies have evaluated population structure in black abalone (Hamm and Burton, 2000; Chambers *et al.*, 2006; Gruenthal, 2007) using various methods. These studies indicate: (1) minimal gene flow among populations; (2) black abalone populations are composed predominantly of closely related individuals produced by local spawning events; (3) gene flow among island populations is relatively greater than between island and mainland populations; and (4) the overall connectivity among black abalone populations is low and likely reflects limited larval dispersal, and a low degree of exchange among populations.

Habitat

Black abalone occur over a broad latitudinal range, though the range appears to have narrowed somewhat from historic times. This broad range, in addition to their small-scale distribution (high intertidal to 6 m depth), is associated with an evolved capability to withstand extreme variation in environmental conditions such as temperature, salinity, moisture, and wave action.

Black abalone occur on a variety of rock types, including igneous, metamorphic, and sedimentary rocks at a number of locations. Complex surfaces with cracks and crevices in upper and middle intertidal zones may be crucial recruitment habitat and appear to be important for adult survival as well (Leighton, 1959; Leighton and Boolootian, 1963; Douros, 1985, 1987; Miller and Lawrenz-Miller, 1993; VanBlaricom *et al.*, 1993; Haaker *et al.*, 1995). Complex configurations of rock surfaces likely afford protection from predators, direct impacts of breaking waves, wave-born projectiles, and excessive solar heating during daytime low tides.

Movement

Planktonic larval abalone movement is almost certainly determined primarily by patterns of water movement in nearshore habitats near spawning sites. Individual larvae may be able to influence movement to some degree by adjusting vertical position in the water column, but to our knowledge the ability of black abalone larvae to move in this way has not been documented. Movement behavior of post-metamorphic juvenile black abalone is likewise unknown. Leighton (1959) and Leighton and Boolootian (1963) indicate that black abalone larvae may settle and metamorphose in the upper intertidal zone, using crevices and depressions (including those formed by abrasive action of other intertidal mollusks) as habitat. Leighton and Boolootian (1963) suggest that young black abalone move lower in the intertidal zone as they begin to grow, occupying the undersides of large boulders. To our knowledge there is no published information on direct observations of movement behavior of small (<20 mm) juvenile black abalone in the field. Qualitative (Leighton, 2005; VanBlaricom, unpublished observations) and quantitative (Bergen, 1971; Blecha *et al.*, 1992; VanBlaricom and Ashworth, in preparation; Richards, unpublished observations) studies of movement in black abalone suggest that smaller abalone (<65 mm) move more frequently than larger abalone, movement is more frequent during night hours compared to daylight hours, and that larger abalone may remain in the same location for many years.

Diet

Larvae are lecithotrophic (i.e., receive nourishment via an egg yolk) and apparently do not feed while in the plankton. From the time of post-larval metamorphosis to a size of about 20 mm, black abalone are highly cryptic, occurring primarily on the undersides of large boulders or in deep narrow crevices in solid rocky substrata. In such locations the primary food sources are thought to be microbial and possibly diatom films (Leighton, 1959; Leighton and Boolootian, 1963; Bergen, 1971). At roughly 20 mm black abalone move to more open locations, albeit still relatively cryptic, gaining access to both attached macrophytes and to pieces of drift plants cast into the intertidal zone by waves and currents. As black abalone continue to grow, the most commonly observed feeding method is entrapment of drift plant fragments. Webber and Giese (1969), Bergen (1971), Hines and Pearse (1982), and Douros (1987) have confirmed the importance of large kelps in the diet of juvenile and adult black abalone. The primary food species are said to be *Macrocystis pyrifera* and *Egregia menziesii* in southern California (i.e., south of Pt. Conception) habitats, and *Nereocystis leutkeana* in central and northern California habitats.

Reproduction

Black abalone have separate sexes and are ''broadcast'' spawners. Gametes from both parents are shed into the sea, and fertilization is entirely external. Resulting larvae are minute and defenseless, receive no parental care or protection of any kind, and are subject to a broad array of physical and biological sources of mortality. Species with a broadcast-spawning reproductive strategy are subject to strong selection for maximum fecundity of both sexes. Only through production of large numbers of gametes can broadcast spawners overcome high mortality of gametes and larvae and survive across generations. It is not uncommon for broadcast-spawning marine species, a group including many taxa of fish and invertebrates, to produce millions of eggs or sperm per individual per year. Broadcast spawners are also subject to other kinds of selection for certain traits associated with reproduction, including spatial and temporal synchrony in spawning and mechanisms that increase probabilities for union of spawned gametes.

Spawning Density

As intertidal organisms on exposed rocky shores, black abalone typically release gametes into environments of extreme turbulence. As a consequence, eggs and sperm must be released from adults in relatively close spatial and temporal proximity in order to have any chance of union and fertilization before rapid dispersal and loss of opportunity.

A central problem for conservation of black abalone is the dramatic reduction in densities over the past quarter-century in almost the entire geographic range of the species. Reductions in density are so extreme and widespread that considerable attention is now focused on assessment of critical density thresholds for successful reproduction, recruitment, and population sustainability. A review of critical density thresholds, below which recruitment failure occurs, for other marine, broadcast-spawning invertebrates (i.e., sea urchins, sea cucumbers, hard clams, scallops, giant clams, and geoduck clams) has revealed that critical density thresholds exist across a broad taxonomic range. However, despite apparent risks of local extinction when populations decline below critical density thresholds, there are several cases where combinations of circumstances allow populations to recover to densities above the critical thresholds. Thus, for black abalone the key conservation issues are identification of critical density thresholds and an understanding of circumstances, if any, that may allow escape from high risks of local extinction when thresholds are breached.

Babcock and Keesing (1999) estimated critical density thresholds at 0.15–0.20 m–2 for greenlip abalone (*Haliotis laevigata*). Tissot (2007) reviewed recruitment patterns in three long-term data sets for black abalone in California: in each case, recruitment failed when declining population densities fell below 0.75–1.1 m–2. Tissot (2007) noted that densities in most black abalone populations south of Cayucos, California, have fallen below the densities noted. Recent evidence suggests that disease-induced increases in the mortality rate of black abalone continue to move northward along the mainland coast of California (e.g., Raimondi *et al.*, 2002; Miner *et al.*, 2006). Thus, critical density thresholds are thought to have been violated for most of the black abalone populations in California, and because of the spread of the disease known as withering syndrome (as explained below), the number and geographic scope of populations with densities falling below sustainable levels is expected to increase.

Larval Settlement

A sequence of studies and discoveries by Morse and colleagues (Morse *et al.*, 1979; Morse and Morse, 1984; Trapido-Rosenthal and Morse, 1986; Morse, 1990; Morse, 1992), Douros (1985), and Miner *et al.* (2006) suggest that availability of crustose coralline algae in appropriate intertidal habitats may be significant to the success of the larval recruitment process in black abalone; and, that the presence of adult black abalone may facilitate larval settlement and metamorphosis because the activities and presence of the abalone favor the maintenance of substantial substratum cover by crustose coralline algae. Although crustose coralline algae are ubiquitous in rocky benthic habitats along the west coast of North America, a mechanistic understanding of processes that sustain these algal populations has not been established to our knowledge. If the presence of black abalone facilitates the abundance of crustose coralline algae, it follows that the issue of critical density thresholds may take on added importance.

Larval Dispersal and Recruitment

Indirect methods for assessing larval dispersal in abalone (Tegner and Butler, 1985; Prince *et al.*, 1988; Hamm and Burton, 2000; Chambers *et al.*, 2005; Chambers *et al.*, 2006; Gruenthal, 2007) point to consistent results. Given that most abalone larvae are drifting in the water for a period of about 3–10 days before settlement and metamorphosis (e.g., McShane, 1992), abalone in general, including black abalone, have limited capacity for dispersal over distances beyond a few kilometers, and are able to do so only rarely.

Tissot (2007) has estimated empirically that successful recruitment of black abalone requires the presence of local adult populations at densities of 0.75–1.1 m^{-2} or greater, and that the number of known populations of adult black abalone at or above putative threshold densities is diminishing over time in a geographically progressive manner. Tissot (2007) further noted that virtually all monitored black abalone populations continue to decrease in mean density over time. This combination of observations emphasizes the importance of critical density thresholds in the sustainability and conservation of black abalone populations throughout their range. Patterns of aggregation may mitigate effects of decline below a critical density threshold (VanBlaricom, unpublished data). However, only one or two populations in California that have sustained mass mortality due to withering syndrome are known to be increasing in numbers. Thus, even if an ability for black abalone to aggregate exists, it may not be sufficient to facilitate successful recruitment and population sustainability under current environmental conditions.

Growth and Maximum Size

Available data on black abalone growth suggest that young animals reach maximum shell diameters of about 2 cm in their first year, then grow at rates of 1–2 cm per year for the next several years. Growth begins to slow at lengths of about 10 cm, corresponding to an age range of 4–8 yrs. Beyond this point, growth is less predictable, shell erosion may become a significant factor, and size distributions for older animals may vary according to local conditions. Growth and erosion of shells may come into equilibrium in older black abalone, such that growth can be viewed as facultatively determinant.

Maximum recorded shell length for black abalone was listed at 213 mm by Wagner and Abbott (1990). Ault (1985) reported a maximum shell length of black abalone at 215 mm. Leighton (2005) indicated a shell length of 216 mm reported by Owen (unpublished observation). At least two black abalone of approximately 220 mm maximum shell length were known to be alive at San Nicolas Island in January 2007 (VanBlaricom, Neuman, and Witting, unpublished observations), but the cryptic locations of the animals have made measurements awkward and possibly not accurate. Monitoring and measurement of these individuals will continue in association with ongoing population surveys.

Mortality

Mortality rates caused by withering syndrome appear to be sensitive to fluctuations in local sea surface temperatures (Friedman *et al*., 1997; Raimondi *et al*., 2002; Harley and Rogers-Bennett, 2004; Vilchis *et al*., 2005). There is evidence that, in the short term, population-scale mortality rates vary in space and time from near zero to high proportions of local populations. The available evidence suggests that mortality rates driven by withering syndrome are highest during periods following elevations in sea surface temperature (e.g., Raimondi *et al*., 2002). Over the long term, all available evidence indicates substantial increases in mortality rates, and consequent reductions in densities, in populations throughout the range of black abalone that have been afflicted by withering syndrome (e.g., Tissot, 2007). More detail regarding the severe risk that withering syndrome poses to the future survival of the species is presented below (see *Summary of Factors Affecting the Species* and *Population Modeling: Geographic Spread of Disease vs. Disease Resistance*).

Physical oceanographic conditions, predation by octopuses, lobsters, sea stars, fishes, sea otters, and shorebirds, competition with sea urchins, and food limitation may all impose mortality at varying rates depending on black abalone life stage. The draft status report (VanBlaricom *et al*., 2007) provides additional qualitative information regarding the relative importance of these sources of mortality. The importance of anthropogenic mortality (i.e., commercial and recreational harvest, illegal harvest, incidental losses, pollution) is also discussed in the draft status report and in other sections of this proposed rule (see *Summary of Factors Affecting the Species*).

Abundance

There are two types of data that can be examined to provide a better understanding of variation in black abalone abundance over time: fishery-dependent and fishery-independent data. Based on a detailed examination of these two data types, Tissot (2007) evaluated trends in black abalone abundance over the last 3 decades.

Fishery-dependent Information

An intertidal fishery focused on red (*Haliotis rufescens* Swainson, 1822), green (*Haliotis fulgens* Philippi, 1845), and black abalone began in the 1850s in Central California and in the 1880s in Baja California, Mexico (Bonnot, 1930; Lundy, 1997). The fishery peaked at 1,860 mt in 1879 (Cox, 1962). By 1913, the intertidal fishery was closed because of concerns regarding overfishing (Bonnot, 1930). From 1913–1928, commercial and recreational dive fisheries developed, but black abalone were not documented prior to 1940. During the 18th and 19th centuries, two predatory forces on black abalone populations in Southern California had been removed. First, the Native American Chumash and Gabrielino/Tongva cultures of the southern California Islands, who were known to have harvested black abalones in large numbers for food over periods of five to ten millennia, and fur hunters responsible for the elimination of southern sea otter populations south of Point Conception by the time of the U.S. Civil War. There is uncertainty regarding the ecological importance of sea otter predation on black abalone, but the potential for strong interactions is substantial given known effects of sea otter predation on red abalone (for more detailed information on the effects of sea otter predation see *Summary of Factors Affecting the Species* below).

California Department of Fish and Game landings data (1940–1993) indicate that black abalone were intensively exploited only after other more marketable species had been largely depleted. Black abalone landings peaked in 1973 at 868 mt. During the peak decade of black abalone fishing from 1972–1981, Rogers-Bennett *et al.* (2002) estimate that approximately 3.5 million individuals were taken in the commercial fishery, and an additional 6,729 animals were taken in the recreational fishery. By 1993 both fisheries for black abalone were closed due to concerns regarding severe population declines (Haaker *et al*., 1992).

Rogers-Bennett *et al.* (2002) estimated baseline abundance, prior to overfishing and mass mortalities due to withering syndrome (for more detailed information on withering syndrome see *Summary of Factors Affecting the Species* below), for black abalone using landings data from the peak of the commercial and recreational fisheries (1972–1981), assuming that the population was at least as large as the number taken in the fishery, that the fishery ‘‘sampled’’ all size classes, and that no new individuals were added to the population during the 10–year peak of the fishery. With these assumptions, the baseline minimum estimate of abundance for black abalone prior to overexploitation and withering syndrome was 3.54 million animals. This estimate provides a historic perspective on patterns in abundance, defines a relevant baseline abundance against which to compare modern day trends, and helps to assess the species' current status and risks. However, it should be noted that the estimate was calculated using data from a period of time when black abalone reached extraordinary abundance levels on the Channel Islands, possibly in response to the elimination of subsistence harvests by indigenous peoples, limited public access in modern times, and regional-scale extinctions of sea otters.

The abalone fishery in Mexico dates to approximately 1860, but modern commercial harvests did not develop until the 1940s. The fishery is pursued by 22 fishing cooperatives, distributed across 4 management zones on the Pacific coast of the Baja California peninsula. Five cooperatives are present in management zone 1, which is the northernmost of the zones and extends from the U.S.-Mexico border to Punta Malarrimo, Baja California Sur.

Reported commercial fishery data for black abalone during 1990–2003 comes entirely from management zone 1. During this time period, the commercial catch of black abalone in Mexico declined from a high of 28 mt in 1990 to <0.5 mt in 2003, an overall decline of greater than 98 percent (J. Palleiro, unpublished data; Sierra-Rodriguez *et al.*, 2006). These data suggest similar fishery declines to those in California. The decline in Mexico is attributed primarily to large mortality events associated with withering syndrome, rather than to overfishing.

Fishery-independent Information

The earliest fishery-independent black abalone abundance estimates were generated beginning in 1975 at survey stations on the Palos Verdes Peninsula of Los Angeles County, California (Miller and Lawrenz-Miller, 1993). Black abalone densities ranged from 1.0 to 6.8 m^{-2} from 1975–1976, but declined during the remainder of the survey interval to less than 0.3 m^{-2} by 1987. Douros (1987) reported densities as great as 127 m–2 in certain surge channels at Santa Cruz Island in 1983–1984, but typical densities within a study site ranged from 30 to 90 m–2. Other field studies during the 1980s on Santa Cruz Island yielded black abalone densities of 0 to 50 m^{-2} (Haaker *et al.*, 1992). Tissot (1995), also studying black abalone populations on Santa Cruz Island, found averages of 43 to 58 m^{-2} for surf-exposed and protected subpopulations, respectively, in 1987. These densities declined over the next 6 years due to withering syndrome, dropping to less than 1 m^{-2} by 1993. As of this writing, only one site on Santa Cruz Island (Willows Anchorage) has experienced an increase in local density since 1993.

Several studies monitoring black abalone abundance at other Channel Islands found similar declines through the late 1980s and early 1990s. From 1985 to 1989, mean densities for black abalone populations on Anacapa, Santa Rosa, Santa Barbara, and San Miguel islands were obtained annually along permanent transects established by the Channel Islands National Park (Richards and Davis, 1993). Densities ranged from 20 to 50 m^{-2} on early visits, but fell to <10 m^{-2} by 1989 for all islands except for San Miguel due to mass mortalities associated with withering syndrome. By 1996, local densities fell to 1.0 m^{-2} or less on San Miguel Island.

At San Nicolas Island, densities of black abalones averaged >10 m^{-2} at nine monitored sites from 1981 to the early 1990s. Withering syndrome was first seen at San Nicolas Island in spring 1992 (VanBlaricom *et al.*, 1993), and densities declined during the middle 1990s to <1 abalone m^{-2} at all sights except one (VanBlaricom, unpublished data). The highest local density of black abalone recorded among the several studies of island populations in the 1980s was 296 individuals, primarily adults, in a single quadrat of 1 m^2 at San Nicolas Island on November 23, 1988, at site 7 (VanBlaricom, 1993; unpublished data).

In recent years, three fishery-independent surveys for black abalone have been conducted along the mainland coast and offshore islands of Baja California, Mexico. In 2002, a survey for black abalone was done at Bahia Tortugas, just south of Punta Eugenia and located at the north end of management zone 2. Only four individuals were found, ranging in maximum shell diameter from 121 to 152 mm (Sierra Rodriguez *et al.*, 2006). A second survey was conducted in 2004. Black abalone were found at low densities where they occurred, with 98 percent of located animals measuring <120 cm in maximum shell diameter. No animals were found with symptoms of withering syndrome during the 2004 survey. Black abalone were found along the mainland coast of management zone 1, and on Isla Guadalupe and Isla San Jeronimo. The only black abalone found in Baja California Sur were at Bahia Tortugas (Sierra-Rodriguez *et al.*, 2006).

The third study was conducted in 2005 in regions of upwelling on rocky intertidal benches along the northern Baja California coast from Costa Azul to Punta Baja (Raimondi, unpublished data). Twelve sites, suspected to have been affected by withering syndrome, were surveyed for suitable habitat (rocky crevices) in the mid to low intertidal zone, and then timed searches were conducted for black abalone. Black abalone were not densely aggregated at any site surveyed in this study; however, a large proportion of the individuals found were small (<50 mm). This evidence of recent recruitment in northern Baja California is promising given that there is no evidence of successful recruitment to mainland California sites affected by withering syndrome (south of Pt. Piedras Blancas in northern San Luis Obispo County). Raimondi (unpublished data) hypothesized that the discrepancy between the patterns of recruitment in the two regions may be because: (1) healthy populations exist somewhere in Mexico (perhaps on offshore islands), and these are seeding northern areas; or (2) recruitment dynamics are different for withering syndrome-impacted sites in Mexico versus those in California. Fresh shells, in some cases containing flesh, were found at three of the twelve sites, suggesting that withering syndrome may still be impacting areas of Northern Baja California. Large numbers of older shells were identified at a few sites, suggesting that black abalone were abundant in these areas in the past.

Consideration as a ''Species'' Under the ESA

The ESA defines a species as ''any species or subspecies of wildlife or plants, or any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.'' Black abalone is a marine invertebrate and is not a subspecies; therefore, it may not be subdivided into a listable unit below the taxonomic species level.

Status of Black Abalone

Black abalone have experienced major declines in abundance that prompted eventual closure of the commercial and recreational fisheries and resulted in local extinctions and low local densities in the majority of long-term monitoring studies in California. These declines have been particularly severe in the southern California Islands, which were major foci for the commercial fishery from 1970–1993 and where abalone densities were high (>40 m^{-2}) as late as the mid–1980s. Although the geographic range of black abalone extends to northern California, the vast majority of abalone populations have historically occurred south of Monterey, particularly in the Channel Islands (Cox, 1960; Karpov *et al.*, 2000). Thus, black abalone populations have been severely reduced over an area that covers more than half of the species' geographic range, and black abalone from these areas historically comprised greater than 90 percent of the commercial fishery catch and the majority of the adult black abalone populations in California.

Both the commercial fishery trends and long-term monitoring studies indicate that significant declines in black abalone abundance began in southern California in the mid–1980s. The first evidence of decline came from Palos Verdes in the late 1970s and early 1980s and at Laguna Beach in 1985–1986 (Tissot, 1988). However, in the case of Palos Verdes, the decline may have been due to other factors (Miller and Lawrenz-Miller, 1993). By 1986, declining populations and associated observations of withering syndrome had spread to the northern Channel Islands, starting at Anacapa, progressing to Santa Rosa, Santa Cruz, and Santa Barbara islands, and finally reaching San Miguel Island in 1989 (Tissot, 1991; Davis *et al.*, 1992; Tissot, 1995). By the early 1990s, declines were observed on San Nicolas Island (VanBlaricom *et al.*, 1993) and north of Point Conception on the mainland to Government Point, Santa Barbara County (Altstatt *et al.*, 1996). During the 1990s, declines in abundance were noted north of Government Point to Cayucos in San Luis Obispo County (Altstatt *et al.*, 1996; Raimondi *et al.*, 2002). Noted declines were also observed in central Baja California, Mexico, around Bahia Tortugas during El Nino events in the late 1980s and 1990s (Altstatt *et al.*, 1996; Pedro Sierra-Rodriquez, personal communication) and may be linked to declines in the fishery that occurred in the 1990s. Thus, the spread of withering syndrome is strongly associated with declines in abundance and with a pattern of increased northward expansion co-occurring with increasing coastal warming and El Nino events (Tissot, 1995; Altstatt *et al.*, 1996; Raimondi *et al.*, 2002).

To our knowledge there are no data available on black abalone populations north of San Mateo County on the mainland coast of California. As a consequence, we lack information on the remaining stocks of black abalone not influenced by withering syndrome. The two northernmost sites have either not been studied since 1995 (Ano Nuevo; Tissot, 1995) or have only been recently established in large, dispersed areas (Pigeon Point; Raimondi and Miner, pers. comm.). Establishment of long-term monitoring studies in northern California (e.g., in San Francisco County and north of the Golden Gate) would serve an important need in documenting northward progression of withering syndrome and mass mortality in the northern limit of the geographic range of black abalone.

Natural recovery of severely reduced abalone populations can be a very slow process (e.g., Tegner, 1992). This is largely due to the low reproductive efficiency of widely dispersed adult populations coupled with short larval dispersal distances (see *Reproduction* and *Spawning Density* above). Therefore, severely reduced populations, in addition to providing few reproductive adults, also experience reduced effectiveness of fertilization and eventual recruitment of larval abalone.

Moreover, many studies have shown that abalone larvae generally do not disperse widely. For example, Prince *et al.* (1988) and McShane (1992) showed a strong correlation between the abundances of adult and newly recruited abalone at several sites in South Australia, which suggests that larvae are not dispersed very far from their point of origin. Similarly, Tegner (1992) showed that recruitment of juvenile green abalone was rare in Palos Verdes, California, where adult abalone were very uncommon even though abundant adult stocks were found less than 30 km away in the Channel Islands. Thus, although more abundant black abalone populations occur in central and perhaps northern California, decimated stocks in southern California are unlikely to receive significant recruitment from these distant populations (Hamm and Burton, 2000).

Studies indicate that a local adult density ''threshold'' exists and influences local recruitment. Recovery will largely depend on the density of local brood stocks and whether this density is below the critical value necessary for successful recruitment (Tegner, 1992). Based on field experiments, Babcock and Keesing (1999) showed that recruitment failure occurred in greenlip abalone at adult densities of 0.15–0.20 m^{-2}. Based on empirical data from three long-term studies of black abalone in California, recruitment failure occurred below adult densities of 0.75–1.10 m^{-2}. Given that the majority of populations south of Cayucos in central California are below this threshold, many significantly so, it seems unlikely that these populations will be able to recover naturally to their former abundances, at least in the near future. Moreover, given the continued decline of most populations and the continued northward expansion of withering syndrome with warming events (Raimondi *et al.*, 2002), it seems likely that black abalone populations will continue to decline on a large scale.

Assessment of Risk of Extinction

Analysis of Demographic Risk

The demographic risks that black abalone face were assessed by considering four criteria (abundance, growth rate/productivity, spatial structure/connectivity, and genetic and life history diversity) and other key risks (e.g., threats). These criteria provide a strong indication of the level of extinction risk faced by a species. A species at very low levels of abundance and with few populations will be less tolerant to environmental variation, catastrophic events, genetic processes, demographic stochasticity, ecological interactions, and other processes. Productivity or a growth rate that is unstable or declining over a long period of time may reflect a variety of causes, but indicates poor resiliency to future environmental variability or change. For species at low levels of abundance, in particular, declining or highly variable productivity confers a high level of extinction risk. A species with a geographic spatial structure that is not widely distributed across a variety of well-connected habitats will have a diminished capacity for recolonizing locally extirpated populations, and is at increased risk of extinction due to environmental perturbations and catastrophic events. A species that has lost locally adapted genetic and life-history diversity may lack the raw resources necessary to endure short- and long-term environmental changes.

The SRT concluded that black abalone face high levels of risk in each of the four demographic criteria. The SRT unanimously scored the species' abundance as high risk due to critically low population abundance as indicated by local density levels. Severe declines in abundance (greater than 90 percent) have occurred at the majority (76 percent) of long-term monitoring study sites, including all sites in southern California (Tissot, 2007). The high risk to abundance is attributable to population densities below the minimum threshold density necessary for successful fertilization (0.75 – 1.1 m^{-2}). Additionally, this factor contributes significantly to long-term risk of extinction, and, coupled with low spatial connectivity between populations (i.e., making recolonization unlikely) and the ongoing activity and expansion of withering syndrome, is likely to contribute to short-term risk of extinction in the foreseeable future.

The majority of the SRT concluded that there is a very high risk of black abalone extinction due to low growth and productivity. Population growth is negative in all areas south of Cayucos, California, except for two locations in the southern California Islands. Furthermore, all sites south of Cayucos, but for the two isolated island locations, have exhibited recruitment failure because of local densities below the minimum threshold for successful fertilization. This high level of risk due to poor growth rate and productivity, by itself, likely indicates a high risk of extinction in the near future.

The majority of the SRT concluded that black abalone are at high to very high risk because of compromised spatial structure and population connectivity. Dispersion data among local populations indicates that there is poor connectivity among populations. Such limited connectivity reduces the likelihood that disease resistance to withering syndrome, if it exists, will spread to other populations. Furthermore, the poor connectivity among populations makes it unlikely that populations extirpated by disease or catastrophic events will be recolonized in the foreseeable future.

The SRT unanimously concluded that black abalone are at high extinction risk because of low genetic diversity. Genetic diversity in a population is determined by estimating the number of possible alleles that may exist at gene loci. Genetic diversity provides a mechanism for populations to adapt to their changing environment. Thus, the more genetic variation in a population, the better the chance that at least some individuals will have the capability to adapt to a new environment and will be able to pass this capability on to subsequent generations. Loss of genetic diversity in populations may occur because of factors that cause a major reduction in abundance and/or isolate a subset of individuals from the rest of the population. Genetic diversity has likely declined in black abalone populations because of catastrophic losses that the species has experienced throughout a large part of its range. As a result, populations have become small and more isolated, exacerbating the effects of naturally occurring low exchange rates between populations because of limited larval dispersal. Overfishing and disease have contributed to the loss of genetic diversity within black abalone populations, and, as a result, the ability of extant (i.e., currently existing) black abalone populations to exhibit resilience in the face of other threats, such as other diseases, has been compromised. Low genetic diversity, in combination with low spatial connectivity between populations, suggests that even if some genetic resiliency exists locally, it is not likely to spread and establish itself in other extant populations.

Population Modeling: Geographic Spread of Disease vs. Disease Resistance

VanBlaricom *et al.* (2007) calculated the probability of extinction with time using a simple formula that accounts for the main threat that black abalone faces, withering syndrome. The probability of extinction is considered as a function of two parameters (R=the probability that the northward spread of withering syndrome will cease very soon and S=the probability that resistance will emerge very soon on a large spatial scale in the host), using the logic that if withering syndrome alone results in a high enough risk of extinction in a short time (i.e., 30 years-the expected life span of black abalone), then that may suffice to evaluate whether the species is in danger of extinction currently or in the foreseeable future.

Assuming R and S are independent, the overall probability of functional extinction (i.e., the reproductive potential of isolated survivors is zero and no viable populations remain) in 30 years based on the SRT members' best professional judgment was 95.7 percent. The collective view of the SRT is that the risk is at a level where functional extinction without active management has a very high likelihood of occurring. This probability should not be interpreted as a prediction of the demise of the last individual black abalone within 30 years.

Summary of Factors Affecting the Species

According to Section 4 of the ESA, the Secretary of Commerce determines whether a species is threatened or endangered because of any (or a combination) of the following factors: the present or threatened destruction, modification, or curtailment of its habitat or range; overutilization for commercial, recreational, scientific or educational purposes; disease or predation; inadequacy of existing regulatory mechanisms; or other natural or man-made factors affecting its continued existence. We examined these factors for their historic, current, and/or potential impact on black abalone and considered them, along with current species distribution and abundance, to help determine the species' present vulnerability to extinction.

Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Most of the threats that result in substrate destruction, such as coastal development, recreational access, cable repairs, nearshore military operations and benthic community shifts, occur infrequently, have a narrow geographic scope, or have uncertain or indirect effects on black abalone. Some exceptions may exist in the cases of sedimentation and sea level rise in that these threats have the potential to produce more widespread impacts, but the certainty that these factors will affect black abalone is low. For example, sea level rise may result in loss of suitable habitat in a preferred depth range because of increased erosion, turbidity, and siltation, but we currently lack information to determine whether these habitat changes will be important factors for further decline.

Suboptimal water temperatures are likely to have contributed to the decline of black abalone and pose a serious threat to the ability of the species to persist because elevated water temperatures are correlated with accelerated rates of withering syndrome transmission and disease-induced mortality. Water temperatures can become elevated because of anthropogenic sources of thermal effluent and long-and short-term climate change (e.g., global climate change and El Nino - Southern Oscillation). For example, discharge from the Diablo Canyon nuclear power plant in San Luis Obispo County, California and recent El Nino - Southern Oscillation oceanographic events in the Pacific Ocean have produced short-term periods of ocean warming and are associated with increased rates of mortality due to withering syndrome over relatively small spatial scales. Although there is no explicitly documented causal link between the existence of withering syndrome and global climate change, patterns observed over the past 3 decades suggest that progression of ocean warming associated with large-scale climate change may facilitate further and more prolonged vulnerability of black abalone to effects of withering syndrome.

Finally, we view the severity, geographic scope, and level of certainty that black abalone are affected by reduced food quality and quantity as being relatively low compared to other factors. Davis *et al.* (1992) posited that a key consequence of kelp forest ecosystem disruption, due to a variety of reasons such as El Nino events, was reduced food supply for black abalone. Although reductions in kelp abundance occurred in the early 1980s, subsequent studies (e.g., Friedman *et al.*, 1997) have suggested that reduced food supply probably did not trigger the mass mortalities caused by withering syndrome. Kelp abundances had recovered from El Nino effects in southern California by the time withering syndrome was first observed in 1985, and the abundant black abalone populations at San Nicolas Island showed no response in density to the 1982–1984 El Nino disturbances, despite dramatic reductions in kelp abundance near the Island (VanBlaricom, 1993). Thus, this factor has likely not played an important role in the overall decline of the species, and, unless new information surfaces, this factor is not believed to pose a significant threat in the future.

Overutilization for Commercial, Recreational, Scientific or Educational Purposes

Throughout most of the species' range, local densities are below the critical threshold density required for successful spawning and recruitment. This predicament has occurred because of mass mortalities due to withering syndrome (see Disease or Predation below) and overutilization for commercial and recreational purposes (i.e., prior to the fishery closure in 1993). Data from abalone fisheries in California and Baja California, Mexico, indicate a decline in landings of at least 93 percent during the 1990s. These reductions, however, may not be indicative of declines due only to fishing activities because mass mortalities caused by withering syndrome had begun in many locations at approximately the same time. Rogers-Bennett *et al.* (2002) estimate that the California abalone fisheries may have contributed up to 99 percent of the reduction in black abalone abundance in the United States (see Abundance section above). Thus, the estimated take of 3.5 million black abalone during commercial and recreational abalone fishing likely contributed to the decline of local densities. This threat no longer exists in California because the black abalone fisheries were closed in 1993. The limited information we have from Mexico makes it difficult to ascertain the relative importance of fishing to overall species decline.

Disease or Predation

Withering syndrome in black abalone is caused by a *Rickettsia*-like prokaryotic organism, *Candidatus* Xenohaliotis californiensis' (Gardner *et al.*, 1995; Friedman *et al.*, 1997; Friedman *et al.*, 2000; Friedman *et al.*, 2002). *Candidatus* Xenohaliotis californiensis (hereafter ''abalone rickettsia'') occurs in epithelial cells of the gastrointestinal tract. Infected symptomatic animals are unable to transfer digested food materials from the gut lumen into the epithelial cells and beyond, resulting in malnutrition, dramatic loss of tissue mass, and eventual death. Physiological manifestations of withering syndrome include reduced food intake and oxygen consumption, and increased ammonia excretion (Kismohandaka *et al.*, 1993). The same pathogen is known to cause symptoms of withering syndrome in red abalone, and mortality rate is positively associated with water temperature in both red and black abalone (Moore *et al.*, 2000a, b; Vilchis *et al.*, 2005). Andree *et al.* (2000) have developed a rapid DNA-based test for the pathogen that causes withering syndrome, allowing detection of infections prior to onset of clinical symptoms in both black and red abalone. Moore *et al.* (2001) have developed a histological method for rapid quantification of the intensity of infections by the pathogen that causes withering syndrome.

In wild animals symptomatic for withering syndrome, weakness resulting from the disease may cause the individual to lose the typically secure grip on the rocky substratum in response to wave impacts, allowing attack by predators or scavengers before the individual succumbs to the disease itself. Transfer of pathogens from animal to animal is fecal to oral on a local scale, and is therefore likely facilitated by aggregation of abalone in natural habitats. Transmission pathways on large spatial scales are entirely unknown at present. The pathogen for withering syndrome is now reported to be endemic to all the coastal marine waters of central (Friedman and Finley, 2003) and southern California (Moore *et al.*, 2002) south of San Francisco. Information from Isla de Cedros and Islas San Benito, Baja California, Mexico, on pink (Haliotis corrugata Wood, 1828; termed ''yellow'' in Mexico) and green (termed ''blue'' in Mexico) abalone indicated the presence of abalone symptomatic for withering syndrome, and the presence of abalone rickettsia in tissue samples, for both species (Tinajero *et al.*, 2002). Recent data indicate the presence of abalone rickettsia in farmed and wild green ormer (*Haliotis tuberculata*) symptomatic for withering syndrome at a number of locations in the coastal marine waters of western Europe (Balseiro *et al.*, 2006).

Evidence of effects of withering syndrome on black abalone was first noticed along the south shore of Santa Cruz Island in 1985, when a fisherman noticed a large number of dying black abalone and empty shells (Lafferty and Kuris, 1993). The primary symptoms of disease noted at the time included pedal atrophy and a diminished ability to maintain a grip on rocky substrata. Haaker *et al.* (1992) and Richards and Davis (1993) described the first observations of mass mortalities of black abalone in previously monitored populations on the island shores of Channel Islands National Park in 1986, and broadened the list of recognized symptoms to include epipodial and mantle discoloration, and lack of response to tactile stimulation. Haaker *et al.* (1992) were the first authors to apply the term ''withering syndrome'' to the suite of symptoms and consequent mass mortalities observed in the field. Between 1985 and 1992, mass mortalities occurred at San Miguel, Santa Rosa, Anacapa, Santa Barbara, and San Clemente Islands, in all cases with symptoms indicating withering syndrome (Davis *et al.*, 1992; Haaker *et al.*, 1992; Lafferty and Kuris, 1993; Richards and Davis, 1993). Evidence of withering syndrome was first seen at San Nicolas Island in spring 1992 (VanBlaricom *et al.*, 1993) and was followed by widespread mass mortalities at the Island in the middle 1990s (Tissot, 2007). The delayed appearance of withering syndrome at San Nicolas Island, as compared to the other southern California Islands, remains unexplained but may have reflected patterns of dispersal by disease propagules. To our knowledge, no effort has been made to assess effects of withering syndrome at Santa Catalina Island, though the Island historically supported black abalone populations.

The first reported occurrence of significant numbers of black abalone with symptoms of withering syndrome on the California mainland was in San Luis Obispo County in 1988 (Steinbeck *et al.*, 1992). Afflicted animals were found primarily within Diablo Cove, which receives warmed effluent seawater from the cooling system of a nearby nuclear power plant. A mass mortality of black abalone occurred at the site between 1988 and 1989, with mortality rates correlating well to local patterns of sea temperature elevation associated with power plant effluent.

Since the mid–1990s withering syndrome has appeared sequentially in progressively more northward populations of black abalone on the mainland California coast (Altstatt *et al.*, 1996; Raimondi *et al.*, 2002; Miner *et al.*, 2006). The most recent observations available suggest that significant mortalities of black abalone associated with withering syndrome have occurred at least as far north as Pt. Piedras Blancas in northern San Luis Obispo County near San Simeon. Surveys for the microorganism responsible for withering syndrome have found positive results as far north as San Francisco (Finley and Friedman, 2000; Friedman and Finley, 2003).

In the vast majority of cases where long-term monitoring data are available, the appearance of animals symptomatic for withering syndrome in a population lead inevitably to rapid and dramatic declines in population size, most often in excess of 90 percent (Tissot, 2007). The pattern has been documented for black abalone populations throughout the range in California. Reports indicate similar trends for black abalone populations in Mexico. As noted earlier, the exceptions are at San Miguel Island, where rates of decline at some long-term study sites have been atypically slow, and at one location each on Santa Cruz and San Nicolas islands. At Santa Cruz Island, a recruitment event in 2004 at Willows Anchorage produced an increase in local densities that persisted at least until this writing. At San Nicolas Island, black abalone numbers at study site 8 (as described by VanBlaricom, 1993) have increased and experienced recruitment each year since reaching a low point in 2001 due to withering syndrome, except for a small decline between surveys in 2006 and 2007. The pattern at this site can be plausibly interpreted as a possible result of genetically-based disease resistance on a local scale. These observations are exceptions that suggest the potential for resilience and recovery in populations reduced dramatically by withering syndrome. However, Tissot's (2007) litany of negative impacts of withering syndrome in multiple locations across the entire range of the species, coupled with evidence of increasing geographic scope of impact, argues to the contrary. The preponderance of evidence indicates that withering syndrome continues to damage the size and sustainability of black abalone populations on a large scale, with little plausible basis for any predictions of reversal.

Prior to the appearance of withering syndrome there was little evidence of significant diseases in black abalone (Haaker *et al.*, 1992). There is now substantial concern among scientists and marine resource managers about the emergence of virulent diseases in marine organisms on a global scale, in association with ocean warming in recent decades (e.g., Harvell *et al.*, 1999; Harvell *et al.*, 2002). Recent surveys of the literature suggest that the frequency of reporting of new diseases has increased for several major marine taxa, including mollusks (e.g., Ward and Lafferty, 2004). The appearance of withering syndrome is consistent with the reported pattern. As described above, mortality rates associated with withering syndrome often correlate to positive anomalies in sea surface temperature. Nevertheless, there is no explicitly documented causal link between the existence of withering syndrome and global climate change.

We conclude that withering syndrome has been and continues to be the primary threat contributing to the decline of black abalone. The disease has caused mass mortality and near extirpation of populations throughout most of the species' range, and the disease continues to spread to populations in Monterey County and to the north. The rate at which the disease is spreading northward will likely be exacerbated by suboptimal (i.e., warmer) water temperatures that may result due to a variety of factors.

Abalone face non-anthropogenic predatory pressure from a number of consumer species such as gastropods, octopuses, lobsters, sea stars, fishes and sea otters (Ault, 1985; Estes and VanBlaricom, 1985; Shepherd and Breen, 1992). At San Nicolas Island, VanBlaricom (unpublished observations) has observed directed predation on black abalone in rocky intertidal habitats by the ochre star *Pisaster ochraceus* [Brandt, 1835]), the octopus *Octopus bimaculatus* (Verrill, 1883), a large cottid fish, the cabezon (*Scorpaenichthys marmoratus* Girard, 1854), and a shorebird, the black oystercatcher *Haematopus bachmani* Audubon, 1838. In addition, VanBlaricom (unpublished observations) has observed ingestion of small black abalone by three taxa normally viewed as herbivores: the lined shore crab *Pachygrapsus crassipes* (Randall, 1839); the purple sea urchin *Strongylocentrotus purpuratus* (Stimpson, 1857); and the turban snails Tegula spp.

Despite the large number of identified predators on abalone, we are aware of no studies that estimate mortality rates of black abalone in association with the predator species that have been identified. While the effects of sea otter predation on red abalone are well documented, there are few data available to evaluate relationships of sea otters with other species of abalone in California. Given that black abalone overlap in habitat use, size distributions, and ecological attributes with red abalone is limited, the relationship between sea otters and black abalone is uncertain. Sea otters are known to feed on black abalone, but the quantitative ecological strength of the interaction has not been directly investigated and remains poorly known.

Black abalone have been exposed to varying predation pressure through time, and this pressure is likely to continue. However, in the past, black abalone populations were much more robust and able to absorb losses due to predation without compromising viability. Now that the few remaining populations are smaller, more isolated, and still declining throughout the range, predation may pose risk to the future survival of the species. In addition, non-anthropogenic predation could limit the effectiveness of future recovery efforts by interacting with other limiting factors.

Inadequate Regulatory Mechanisms

There is evidence suggesting that aquaculture operations have provided a pathway for the spread of withering syndrome, and, unless the industry is carefully regulated in the future, may continue to do so. Past State and Federal regulations were not adequate to prevent the spread of the disease within and outside the United States through importation of infected animals from one aquaculture facility to another and outplanting of infected animals from aquaculture facilities to the wild. It is through the latter pathway that abalone rickettsia may have been introduced to two healthy populations of black abalone north of San Francisco (Friedman and Finley, 2003), placing those populations at higher risk of extinction.

Recent state regulations to carefully monitor the health of abalone at aquaculture facilities and control the importation/exportation of abalone between facilities will likely reduce the threat that the aquaculture industry poses in the future. Currently, the state monitors aquaculture facilities for introduced organisms and disease on a regular basis. There is also a restriction on out-planting of abalone from facilities which have not met certification standards. If new state regulations to carefully monitor aquaculture facilities are effective, the future threat that they pose to black abalone will be limited. In fact, aquaculture may emerge as being an important, and possibly the only effective recovery tool, for restoring black abalone populations through captive propagation and enhancement efforts.

Purposeful illegal harvest, typically termed poaching, has been a source of mortality for black abalone throughout their range since the establishment of harvesting regulations by the State of California. The chronic virtual absence of black abalone populations from highly accessible intertidal habitats near human population centers in California during the twentieth century can plausibly be viewed as evidence for the importance of poaching as a source of abalone mortality.

Since the closure of the California black abalone fishery in 1993, a number of black abalone poaching cases along the California mainland coast, particularly in the northern portion of the black abalone's geographic range, have been documented by the California Department of Fish and Game (CDFG) from 1993–2003 (Taniguchi, unpublished data). Some of these cases resulted in well-publicized arrests and trials of black abalone poachers. These events often involved removals of tens to hundreds of abalone, across all size categories present in the exploited populations, and without regard to harvest size limits in effect prior to commercial and recreational fishery closures. Enforcement effort has varied over the 10–year time period (1993–2003), increasing in 2000 because of coordinated efforts between CDFG marine and coastal regions and planned overflights along the Central California coast during low tides. CDFG wardens approximate that 80 percent of seized abalone were returned alive to the wild, but these animals were not monitored for long-term survival, and thus, these data are of limited use for calculating poaching-induced mortality estimates. The problem of poaching persists, and there is no evidence that existing regulatory mechanisms have effectively reduced the risks posed by illegal take. Inadequate regulatory mechanisms are likely to have contributed to the decline of black abalone and pose a serious threat to the ability of the species to recover.

Other Natural or Man-made Factors

Environmental pollutants and toxins are likely present in areas where black abalone have occurred and still do occur, but evidence suggesting causal and/or indirect negative effects on black abalone due to exposure to pollutants or toxins is lacking. Before a causal link between the bacteria that causes withering syndrome and mass mortalities of black abalone was established, efforts were made to link mass mortalities to pollutant concentrations (Gardner *et al.*, 1995); however, no link could be identified. There is one instance of abalone mortality associated with a pollution event, described by Martin *et al.* (1977). Toxic levels of copper in the cooling water effluent of the Diablo Canyon nuclear power plant were associated with abalone mortalities in a nearshore cove that received significant effluent flows. Growth and reproduction of black abalone were reported to have been impaired on the Palos Verdes Peninsula (Los Angeles County, California) in the late 1950s and early 1960s, in association with apparent combined effects of a significant El Nino event and poor water quality resulting from large-volume domestic sewage discharge by Los Angeles County (Leighton, 1959; Cox, 1962; Young, 1964; Miller and Lawrenz-Miller, 1993). There is ongoing concern that accidentally spilled oil from offshore drilling platforms or various types of commercial vessels could occur near shore in California and could affect a significant proportion of black abalone habitat; however, at this time we are uncertain how such an event would impact the species' overall status. The overall risk that environmental pollutants and toxins have posed is probably low, given their limited geographic scope and uncertain effects on black abalone; however, a single event in the future, depending on where it occurs, could irreparably damage the few remaining viable populations of black abalone.

SRT Assessment of Overall Extinction Risk

The SRT's analysis of overall risk to black abalone used categories that correspond to definitions in the ESA: in danger of extinction; likely to become endangered in the foreseeable future; or neither. The overall extinction risk assessment reflected informed professional judgment by each SRT member. This assessment was guided by integrating information about demographic risks, a consideration of the interactions among these risks, population projections over the next 30 years (i.e., time span approximating the average black abalone life span and a reasonable horizon for projecting current conditions into the future), as well as threats and other factors affecting black abalone.

The SRT concluded unanimously that black abalone is in danger of extinction throughout all of its range. The spread of withering syndrome poses imminent and significant risk to the species and exacerbates the high levels of demographic risk to which black abalone are subject, including extremely low local densities, low levels of growth and productivity, limited spatial structure and connectivity, and loss of genetic diversity. In addition, the SRT estimated that there is approximately a 96–percent probability that black abalone will suffer functional extinction within the next 30 years.

Consideration of ''Significant Portion of Its Range''

Because we conclude that black abalone is in danger of extinction throughout all of its range, it is not necessary for us to consider the question of whether black abalone is at risk throughout a significant portion of its range.

Efforts Being Made to Protect the Species

Section 4(b)(1)(A) of the ESA requires the Secretary of Commerce to make listing determinations solely on the basis of the best scientific and commercial data available after taking into account efforts being made to protect a species. Therefore, in making a listing determination, we first assess a species' level of extinction risk and identify factors that have led to its decline. We then assess existing efforts being made to protect the species to determine if those measures ameliorate the risks.

In judging the efficacy of existing protective efforts, we rely on the joint NMFS-U.S. Fish and Wildlife Service (FWS) ''Policy for Evaluation of Conservation Efforts When Making Listing Decisions'' (''PECE;'' 68 FR 15100; March 28, 2003). PECE provides direction for the consideration of protective efforts identified in conservation agreements, conservation plans, management plans, or similar documents (developed by Federal agencies, state and local governments, Tribal governments, businesses, organizations, and individuals) that have not yet been implemented, or have been implemented but have not yet demonstrated effectiveness. The policy articulates several criteria for evaluating the certainty of implementation and effectiveness of protective efforts to aid in determining whether a species should be listed as threatened or endangered. Evaluations of the certainty an effort will be implemented include whether: the necessary resources (e.g., funding and staffing) are available; the requisite agreements have been formalized such that the necessary authority and regulatory mechanisms are in place; there is a schedule for completion and evaluation of the stated objectives; and (for voluntary efforts) the necessary incentives are in place to ensure adequate participation. The evaluation of the certainty of an effort's effectiveness is made on the basis of whether the effort or plan: establishes specific conservation objectives; identifies the necessary steps to reduce threats or factors for decline; includes quantifiable performance measures for the monitoring of compliance and effectiveness; incorporates the principles of adaptive management; and is likely to improve the species' viability at the time of the listing determination.

PECE also notes several important caveats. Satisfaction of the above mentioned criteria for implementation and effectiveness establishes a given protective effort as a candidate for consideration, but does not mean that an effort will ultimately change the risk assessment. The policy stresses that just as listing determinations must be based on the viability of the species at the time of review, so they must be based on the state of protective efforts at the time of the listing determination. PECE does not provide explicit guidance on how protective efforts affecting only a portion of a species' range may affect a listing determination, other than to say that such efforts will be evaluated in the context of other efforts being made and the species' overall viability. There are circumstances where threats are so imminent, widespread, and/or complex that it may be impossible for any agreement or plan to include sufficient efforts to result in a determination that listing is not warranted.

Conservation measures that may apply to listed species include conservation measures implemented by tribes, states, foreign nations, local governments, and private organizations. Also, Federal, tribal, state, and foreign nations' recovery actions (16 U.S.C. 1533(f)), Federal consultation requirements (16 U.S.C. 1536), and prohibitions on taking (16 U.S.C. 1538) constitute conservation measures. In addition, recognition through Federal or state listing promotes public awareness and conservation actions by Federal, state, tribal governments, foreign nations, private organizations, and individuals.

As evaluated pursuant to PECE, the protective efforts described below do not as yet, individually or collectively, provide sufficient certainty of implementation and effectiveness to counter the extinction risk assessment conclusion that the species is in danger of extinction throughout its range.

National Marine Fisheries Service-Species of Concern Program

Black abalone was added to NMFS' Candidate Species list on June 23, 1999 (64 FR 33466). The NMFS' Candidate Species List was revised and redefined and the NMFS' Species of Concern List was created on April 15, 2004 (69 FR 19975). Species of Concern are those species about which we have some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA. On October 17, 2006 (71 FR 61021), we formally announced initiation of a black abalone status review and at that time the species became a Candidate Species. Candidate Species are those petitioned species that are actively being considered for listing as endangered or threatened under the ESA, as well as those species for which we have initiated an ESA status review that has been announced in the **Federal Register**. Neither ''Candidate Species'' nor ''Species of Concern'' designations carry any procedural or substantive protections under the ESA, and thus, no federal measures that provide protection for black abalone are currently in place.

National Marine Sanctuaries Program

Three coastal national marine sanctuaries in California contain intertidal habitat suitable for black abalone: Channel Islands National Marine Sanctuary (CINMS), Monterey Bay National Marine Sanctuary (MBNMS), and Gulf of the Farallones National Marine Sanctuary (GFNMS). These sanctuary sites, administered by the National Oceanic and Atmospheric Administration, are protected by federal regulations pursuant to the National Marine Sanctuaries Act of 1972 as amended (16 U.S.C. 1431 *et seq.*). The regulations, which are similar at all three sites, provide protection against some of the threats to black abalone. At all three sanctuaries, the inshore boundary extends to the mean high water line, thus encompassing intertidal habitat.

Direct disturbance to or development of black abalone intertidal habitat is regulated at all three national marine sanctuaries by way of a prohibition on the alteration of, construction upon, drilling into, or dredging of the seabed (including the intertidal zone), with exceptions for anchoring, installing navigation aids, special dredge disposal sites (MBNMS only), harbor-related maintenance, and bottom tending fishing gear in areas not otherwise restricted.

Water quality impacts to black abalone habitat are regulated by strict discharge regulations at all three national marine sanctuaries. Essentially, regulations provide that no discharge or deposit of pollutants is allowed within these sanctuaries, except for effluents required for normal boating operations (e.g., vessel cooling waters, effluents from marine sanitation devices, fish wastes and bait).

Although these national marine sanctuaries do not regulate the take of black abalone, networks of marine reserves and marine conservation areas have been established by the CDFG within the CINMS and along portions of the MBNMS. Within these areas, especially within CINMS where the protected areas have been in place since 2003 and are within the Channel Islands National Park, multi-agency patrols provide elevated levels of enforcement presence and increase protection against poaching of black abalone.

Full texts of the current CINMS, MBNMS and GFNMS regulations discussed above can be found at 15 Code of Federal Regulations (CFR), parts 922.71, 922.132, and 922.91, respectively. However, all of these sanctuary sites are currently undergoing management plan review processes, which include reviews of and updates to the regulations. Although the regulations may be modified, the level of protection provided to black abalone is not expected to decrease from that described above, and possibly may increase should proposed prohibitions be adopted for the release of introduced species, and should stricter regulations be adopted regarding large vessel discharges.

In summary, while the Sanctuary regulations provide protection against some of the threats to black abalone and this level of protection may increase if new management plans are adopted, these regulations are unlikely to stop the progression of withering syndrome in the near future. At best, they may help slow down the rate at which the disease is progressing.

State/Local Programs

The depleted condition of abalone resources prompted the California Fish and Game Commission to eventually close all abalone fisheries south of San Francisco by 1997, beginning with the black abalone fishery in 1993. The southern abalone fishery was closed indefinitely with the passage of the Thompson bill (AB 663) in 1997. This bill created a moratorium on taking, possessing, or landing abalone for commercial or recreational purposes in ocean waters south of San Francisco, including all offshore islands. The Thompson bill also mandated the creation of an Abalone Recovery and Management Plan (ARMP) which was finalized in December 2005. The bill further required the Fish and Game Commission to undertake abalone management in a manner consistent with the ARMP.

The CDFG's ARMP provides a cohesive framework for the recovery of depleted abalone populations in southern California, and for the management of the northern California fishery and future fisheries. All of California's abalone species are included in this plan: red, green, pink, white (*Haliotis sorenseni* Bartsch, 1940), pinto (*H. kamtschatkana* Jonas, 1845, including *H.k. assimilis*), black, and flat abalone (*H. walallensis* Stearns, 1899). The plan also refers to a state aquaculture facility monitoring program that aims to ensure that aquaculture facilities in California will not facilitate transmission of disease and/or invasive/exotic species within or outside the State.

Abalone in California vary in status from populations bordering on extinction (white abalone) to a sustainable population with a margin of harvestable animals that is still being fished (northern California red abalone). Recovery of at-risk abalone species and management of abalone fisheries are separate but continuous and complementary processes in the ARMP. The recovery portion of the plan addresses all abalone species that are subject to the fishing moratorium. The management portion of the plan applies to populations considered sustainable and fishable, such as the current northern California red abalone fishery. The ultimate goal of recovery is to move species from a perilous condition to a sustainable one with a margin of abalone available for fishing. The ultimate goal of management is to maintain sustainable fisheries under a long-term management plan that can be adapted quickly to respond to environmental or population changes.

The ARMP provides a mechanism for helping to slow the progression of disease and invasive/exotic species through better monitoring of aquaculture facilities, however, this effort may only make a relatively small difference to the threat that disease poses given that spread of withering syndrome is due largely to factors other than aquaculture operations. The ARMP also provides a framework for restoring black abalone populations through translocation and captive propagation and enhancement programs; however, detailed plans and methodologies have neither been drafted nor tested and therefore their effectiveness for conserving black abalone remains uncertain.

International Programs

The World Conservation Union (IUCN) publishes a Red List of species that are at high risk of extinction and, when data are sufficient, categorizes species as either Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), or of Least Concern (LC) (IUCN, 2001). In 2003 the IUCN, based on an assessment by Smith *et al.* (2003), placed black abalone on the Red List as Critically Endangered under criterion A4e. Under criterion A4, a species may be classified as Critically Endangered, Endangered, or Vulnerable when its population size, measured over the longer of 10 years or three generations, has declined greater than or equal to 80, 50, or 30 percent respectively, due to an ''observed, estimated, inferred, projected or suspected population reduction (up to a maximum of 100 years) where the time period must include both the past and the future, and where the causes of reduction may not have ceased or may not be understood or may not be reversible, based on direct observation, an index of abundance appropriate to the taxon, a decline in area of occupancy, extent of occurrence and/or quality of habitat, actual or potential levels of exploitation, or the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites'' (IUCN, 2006, p. 10). Inclusion on the IUCN Red List does not necessarily convey any regulatory protection for black abalone.

Proposed Determinations

Section 4(b)(1) of the ESA requires that the listing determination be based solely on the best scientific and commercial data available, after conducting a review of the status of the species and after taking into account those efforts, if any, being made by any state or foreign nation to protect and conserve the species. We have reviewed the petition, the draft status report, and other available published and unpublished information, and have consulted with species experts and other individuals familiar with black abalone. On the basis of the best available scientific and commercial information, we conclude that black abalone is presently in danger of extinction throughout all of its range and should be added to the list of federally endangered species. The major risks that black abalone face include: (1) the spread of a disease called withering syndrome; (2) low adult densities below the critical threshold density required for successful spawning and recruitment; (3) suboptimal water temperatures that have accelerated the spread of withering syndrome; (4) reduced genetic diversity that will render extant populations less capable of dealing with both long- and short-term environmental or anthropogenic challenges; and (5) illegal harvest of black abalone. The principal threat to black abalone is withering syndrome, which has caused mass mortality and near extirpation of populations in the recent past and threatens extant populations. The spread of withering syndrome threatens the species with a very high probability (96 percent) of extinction within the next 30 years. This threat is unlikely to be ameliorated by current conservation efforts.

Service Policies on Endangered and Threatened Fish and Wildlife

On July 1, 1994, NMFS and FWS published a series of policies regarding listings under the ESA, including a policy for peer review of scientific data (59 FR 34270) and a policy to identify, to the maximum extent possible, those activities that would or would not constitute a violation of section 9 of the ESA (59 FR 34272).

Role of Peer Review

The intent of the 1994 peer review policy is to ensure that listings are based on the best scientific and commercial data available. Prior to a final listing, we will solicit the expert opinions of at least three qualified specialists, concurrent with the public comment period. Independent specialists will be selected from the academic and scientific community, Federal and state agencies, and the private sector.

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Bulletin, implemented under the Information Quality Act (Public Law 106–554), is intended to enhance the quality and credibility of the Federal Government's scientific information, and applies to influential or highly influential scientific information disseminated on or after June 16, 2005. To satisfy our requirements under the OMB Bulletin, we are obtaining independent peer review of the draft status review report, which supports this proposal to list black abalone as endangered; all peer reviewer comments will be addressed prior to dissemination of the final report and publication of the final rule.

Identification of Activities That Would Constitute a Violation of Section 9 of the ESA

The intent of the policy requiring us to identify, to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the ESA, is to increase public awareness of the effect of listings on proposed and ongoing activities within the species' range.

Section 9 of the ESA prohibits certain activities (e.g., importation, exportation, take, sale, and delivery) that directly or indirectly affect endangered species. These prohibitions apply to all individuals, organizations, and agencies subject to U.S. jurisdiction. Section 7(a)(2) of the ESA requires Federal agencies to consult with NMFS to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify critical habitat. Under Section 7(a)(4), Federal agencies must confer with us on any of these activities to ensure that any such activity is not likely to jeopardize the continued existence of a species proposed for listing or destroy or adversely modify proposed critical habitat. Examples of Federal actions that may affect black abalone include permits and authorizations relating to coastal development and habitat alteration, oil and gas development, military operations, coastal power plant operations, toxic waste and other pollutant discharges, and aquaculture operations. Sections 10(a)(1)(A) and (B) of the ESA authorize NMFS to grant exceptions to the ESA's Section 9 take prohibitions. Section 10(a)(1)(A) scientific research and enhancement permits may be issued to entities (Federal and non-federal) for scientific purposes or to enhance the propagation or survival of a listed species. Activities potentially requiring a section 10(a)(1)(A) research/enhancement permit if black abalone are listed include scientific research that targets black abalone. Under section 10(a)(1)(B), the Secretary may permit takings otherwise prohibited by section 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity, provided that the requirements of section 10(a)(2) are met.

Critical Habitat

Critical habitat is defined in section 3 of the ESA as: (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination that such areas are essential for the conservation of the species (16 U.S.C. 1532(5)(A)). ''Conservation'' means the use of all methods and procedures needed to bring the species to the point at which listing under the ESA is no longer necessary (16 U.S.C. 1532(3)). Section 4(a)(3)(A) of the ESA requires that, to the maximum extent prudent and determinable, critical habitat be designated concurrently with the listing of a species (16 U.S.C. 1533(a)(3)(A)(i)). Designations of critical habitat must be based on the best scientific data available and must take into consideration the economic, national security, and other relevant impacts of specifying any particular area as critical habitat. Once critical habitat is designated, section 7 of the ESA requires Federal agencies to ensure that they do not fund, authorize or carry out any actions that are likely to destroy or adversely modify that habitat. This requirement is in addition to the section 7 requirement that Federal agencies ensure that their actions do not jeopardize the continued existence of listed species. We are currently considering a proposal to designate critical habitat for black abalone, but at this time a designation is not determinable because: (1) we currently lack information sufficient to perform required analyses of the impacts of the designation; and (2) the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat. Thus, we are seeking public input to assist in gathering and analyzing the best available scientific data and other information to support a critical habitat designation, which will be proposed in a subsequent **Federal Register** notice. We will continue to meet with co-managers and other stakeholders to review this information and the overall designation process.

Joint NMFS/FWS regulations for listing endangered and threatened species and designating critical habitat at section 50 CFR 424.12(b) state that the agency ''shall consider those physical and biological features that are essential to the conservation of a given species and that may require special management considerations or protection'' (hereafter also referred to as ''essential features''). Pursuant to the regulations, such requirements include, but are not limited to the following: (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally; (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. These regulations emphasize that the agency shall focus on essential features within the specific areas considered for designation. These features ''may include, but are not limited to, the following: spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, geological formation, vegetation type, tide, and specific soil types.''

Public Comments Solicited

We have exercised our best professional judgment in developing this proposal to list black abalone. To ensure that the final action resulting from this proposal will be as accurate and effective as possible, we are soliciting comments and suggestions from the public, other governmental agencies, the scientific community, industry, and any other interested parties (See **DATES** and **ADDRESSES**). Specifically, we are interested in information regarding: (1) status of black abalone populations in the northern part of the range (north of Monterey County) and in Baja California, Mexico; (2) current or planned activities within the range of black abalone and their possible impact on the species; and (3) efforts being made to protect black abalone.

We are also requesting quantitative evaluations describing the quality and extent of marine habitats for juvenile and adult black abalone as well as information on areas that may qualify as critical habitat for black abalone in California. Areas that include the physical and biological features essential to the recovery of the species should be identified. We recognize that there are areas within the proposed boundaries of black abalone that historically contained black abalone habitat, but may not be currently occupied by black abalone. For areas potentially qualifying as critical habitat, we are requesting information describing: (1) the activities that affect the area or could be affected by the designation; and (2) the economic costs and benefits of additional requirements or management measures likely to result from the designation. The economic cost to be considered in the critical habitat designation under the ESA is the probable economic impact ''of the [critical habitat] designation upon proposed or ongoing activities'' (50 CFR 424.19). Economic effects attributable to listing include actions resulting from section 7 consultations under the ESA to avoid jeopardy to the species and from the take prohibitions under section 9 of the ESA. Where possible, comments concerning economic impacts should distinguish the costs of listing from the incremental costs that can be directly attributed to the designation of specific areas as critical habitat.

We will review all public comments and any additional information regarding the status of, and critical habitat for, black abalone in developing a final listing determination and a proposed critical habitat designation.

Public Hearings

If requested by the public by February 25, 2008, hearings will be held in several locations within the range of black abalone. If hearings are requested, details regarding locations, dates, and times will be published in a forthcoming **Federal Register** notice.

References

A complete list of all references cited herein is available upon request (see **ADDRESSES** section).

Classification

National Environmental Policy Act

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in Pacific Legal Foundation v. Andrus, 675 F. 2d 825 (6th Cir. 1981), NMFS has concluded that ESA listing actions are not subject to the environmental assessment requirements of the National Environmental Policy Act (NEPA). (See NOAA Administrative Order 216-6.)

Executive Order 12866, Regulatory Flexibility Act and Paperwork Reduction Act

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this proposed rule is exempt from review under Executive Order 12866. This proposed rule does not contain a collection-of-information requirement for the purposes of the Paperwork Reduction Act.

Federalism

In keeping with the intent of the Administration and Congress to provide continuing and meaningful dialogue on issues of mutual state and Federal interest, this proposed rule will be given to the relevant state agencies in each state in which the species is believed to occur, who will be invited to comment. NMFS has conferred with the State of California in the course of assessing the status of black abalone and considered, among other things, Federal, state and local conservation measures. As the process continues, we intend to continue engaging in informal and formal contacts with the States, and other affected local or regional entities, giving careful consideration to all written and oral comments received.

List of Subjects in 50 CFR Part 224

Endangered and threatened species, Exports, Imports, Transportation.

Dated: January 4, 2008.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 224 is proposed to be amended as follows:

PART 224—ENDANGERED MARINE AND ANADROMOUS SPECIES

1. The authority citation of part 224 continues to read as follows:

Authority: 16 U.S.C. 1531–1543 and 16 U.S.C. 1361 *et seq.*

2. In § 224.101, paragraph (d) is revised to read as follows:

§ 224.101 Enumeration of endangered marine and anadromous species.

* * * * *

(d) *Marine invertebrates.* The following table lists the common and scientific names of endangered species, the locations where they are listed, and the citations for the listings and critical habitat designations.

Species[1]		Where Listed	Citation (s) for Listing Determinations	Citations (s) for Critical Habitat Designations
Common name	Scientific name			
Black abalone	*Haliotis cracherodii*.	USA, CA. From Crescent City, California, USA to Cape San Lucas, Baja California, Mexico, including all offshore islands..	[FR CITATION WHEN PUBLISHED AS A FINAL RULE].	N/A.
White abalone	*Haliotis sorenseni*.	USA, CA. From Point Conception, California to Punta Abreojos, Baja California, Mexico including all offshore islands and banks..	NOAA 2001; 66 FR 29054, May, 29, 2001..	Deemed not prudent NOAA 2001; 66 FR 29054, May, 29, 2001..

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