

**Designation of Critical Habitat for
the Endangered Black Abalone**

Final ESA Section 4(b)(2) Report

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Background and Summary

This report contains the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Southwest Region's recommendations for the final designation of critical habitat under section 4 of the Endangered Species Act (ESA) for the endangered black abalone (*Haliotis cracherodii*), which we listed under the ESA on January 14, 2009 (74 FR 1937). The proposed black abalone critical habitat rule was published on September 28, 2010 (75 FR 59900) and subject to public comment. This final ESA section 4(b)(2) report was prepared in support of the final rule and describes the methods used, process followed, and conclusions reached for each step leading to the final critical habitat designation.

As required under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act of 1996), we considered various alternatives to the critical habitat designation for black abalone. The alternative of not designating critical habitat for black abalone would impose no economic, national security, or other relevant impacts, but would not provide any conservation benefit to the species. This alternative was considered and rejected because such an approach would not meet the legal requirements of the ESA and would not provide for the conservation of black abalone. The alternative of designating all of the areas considered for designation (i.e., no areas excluded) was also considered and rejected because, for one area, the economic benefits of exclusion outweighed the benefits of designation, and NMFS did not determine that exclusion of this area would significantly impede conservation of the species or result in extinction of the species. For the alternative of designating all of the areas considered, the total estimated annualized economic impact ranged from \$169,000 to \$4,083,000.¹ This range represents our estimate of the potential economic impacts based on the best available information regarding the Federal activities that may be affected by this critical habitat designation and the potential range of modifications that may be required to protect critical habitat (see "Benefits of exclusion based on economic impacts and final exclusions" for more details).

An alternative to designating critical habitat within all of the areas considered for designation is the designation of critical habitat within a subset of these areas. Under section 4(b)(2) of the ESA, NMFS must consider the economic impacts, impacts to national security, and other relevant impacts of designating any particular area as critical habitat. NMFS has the discretion to exclude an area from designation as critical habitat if the benefits of exclusion (i.e., the impacts that would be avoided if an area were excluded from the designation) outweigh the benefits of designation (i.e., the conservation benefits to black abalone if an area were designated), so long as exclusion of the area will not result in extinction of the species. Exclusion of one or more of the areas considered for designation would reduce the total impacts of designation. The determination of which units and how many to exclude depends on NMFS' ESA section 4(b)(2) analysis, which is conducted for each area and described in detail in this report. Under this preferred alternative, NMFS would exclude one out of the 20 specific areas originally considered

¹ Note that this total does not include the estimated impacts for specific areas 17 (San Nicolas Island) and 20 (San Clemente Island). As discussed later in this report (see "Military areas ineligible for designation"), specific areas 17 and 20 were determined to be ineligible for designation as critical habitat under section 4(a)(3)(B) of the ESA, based on benefits provided to black abalone under the integrated natural resources management plans for San Nicolas Island and for San Clemente Island.

for designation. The total estimated annualized economic impact associated with this preferred alternative ranged from \$158,000 to \$3,886,000. NMFS determined that the exclusion of this one area would not significantly impede the conservation of black abalone, nor will it result in extinction of the species (more detail provided in the section of this report titled “Benefits of exclusion based on economic impacts and final economic exclusions”). NMFS selected this as the preferred alternative because it results in a critical habitat designation that provides for the conservation of black abalone while reducing the economic impacts on potentially affected entities. This alternative also meets the requirements under the ESA and our joint NMFS-U.S. Fish and Wildlife Service (USFWS) regulations concerning critical habitat.

I. Statute and Regulations

We developed our recommendations consistent with statutory requirements and agency regulations, which are summarized below.

Findings and purposes of the Act emphasize habitat conservation

In section 1 of the ESA, “Findings,” (16 U.S.C. 1531(a)(1)) Congress declared that:

Various species of fish, wildlife and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation.

Section 2 of the ESA sets forth the purposes of the Act, beginning with habitat protection:

The purposes of this chapter are to provide a means whereby *the ecosystems upon which endangered species and threatened species depend may be conserved*, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section. [emphasis added]

“Critical Habitat” is specifically defined

Section 3(5)(A) of the ESA (16 U.S.C. 1532 (5)) defines critical habitat in some detail.

(5)(A) The term “critical habitat” for a threatened or endangered species means –

(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 1533 of this title, 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 in accordance with the provisions of section 1533 of this title, upon a determination by the Secretary that such areas are essential for the conservation of the species.

(B) Critical habitat may be established for those species now listed as threatened or endangered species for which no critical habitat has heretofore been established as set forth in subparagraph (A) of this paragraph.

(C) Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species.

“Conservation” is specifically defined

Section 3(3) of the ESA defines conservation (16 U.S.C. 1532(3)):

(3) The terms "conserve", "conserving", and "conservation" mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary.

Certain military lands are precluded from designation

In 2003, Congress amended section 4(a)(3)(B) of the ESA to limit the designation of land controlled by the Department of Defense (National Defense Authorization Act, P.L. No. 108-136):

The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.

Specific information required for making designations

Section 4(a)(3) requires NMFS to make critical habitat designations concurrently with the listing determination, to the maximum extent prudent and determinable:

(3) The Secretary, by regulation promulgated in accordance with subsection (b) of this section and to the maximum extent prudent and determinable –

(A) shall, concurrently with making a determination under paragraph (1) that a species is an endangered species or a threatened species, designate any habitat of such species which is then considered to be critical habitat.

Impacts of designation must be considered and areas may be excluded

Specific areas that fall within the definition of critical habitat are not automatically designated as critical habitat. Section 4(b)(2) of the ESA (16 U.S.C. 1533(b)(1)(A)) requires the Secretary to first consider the impact of designation and permits the Secretary to exclude areas from designation under certain circumstances. Exclusion is not required for any areas:

The Secretary shall designate critical habitat, and make revisions thereto, under subsection (a)(3) of this section on the basis of the best scientific data available and after taking into consideration the economic impact, the impact to national security and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data

available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.

Federal agencies must insure their actions are not likely to destroy or adversely modify critical habitat

Once critical habitat is designated, section 7(a)(2) of the ESA provides that federal agencies must insure any actions they authorize, fund, or carry out are not likely to result in the destruction or adverse modification of designated critical habitat (16 U.S.C. 1536(a)(2)). Section 7 of the ESA also requires federal agencies to insure such actions do not jeopardize the continued existence of the listed species:

Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section. In fulfilling the requirements of this paragraph each agency shall use the best scientific and commercial data available.

Authority to designate critical habitat is delegated to NMFS

The authority to designate critical habitat, including the authority to consider the impacts of designation, the authority to weigh the benefits of exclusion against the benefits of designation, and the authority to exclude particular areas, has been delegated to the Assistant Administrator of NMFS (Department Organization Order 10-15 (5/24/04). NOAA Organization Handbook, Transmittal #34, May 31, 1993).

Joint regulations govern designation

Joint regulations of NMFS and the USFWS elaborate on those physical and biological features essential to conservation, and set criteria for the delineation of critical habitat.

50 CFR § 424.12 Criteria for designating critical habitat.

(b) In determining what areas are critical habitat, the Secretary 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. 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.

When considering the designation of critical habitat, the Secretary shall focus on the principal

biological or physical constituent elements within the defined area that are essential to the conservation of the species. Known primary constituent elements shall be listed with the critical habitat description. Primary constituent elements may include, but are not limited to, the following: roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types.

(c) Each critical habitat will be defined by specific limits using reference points and lines as found on standard topographic maps of the area. Each area will be referenced to the State(s), county(ies), or other local governmental units within which all or part of the critical habitat is located. Unless otherwise indicated within the critical habitat descriptions, the names of the State(s) and county(ies) are provided for information only and do not constitute the boundaries of the area. Ephemeral reference points (e.g., trees, sand bars) shall not be used in defining critical habitat.

(d) When several habitats, each satisfying the requirements for designation as critical habitat, are located in proximity to one another, an inclusive area may be designated as critical habitat.

The regulations confine designation to areas within United States jurisdiction:

(h) Critical habitat shall not be designated within foreign countries or in other areas outside of United States jurisdiction (50 CFR § 424.12).

The regulations define “special management considerations or protection.”

(j) Special management considerations or protection means any methods or procedures useful in protecting physical and biological features of the environment for the conservation of listed species (50 CFR § 424.02).

Approach to designation

Based on this statutory and regulatory direction, our approach to designation included the following steps:

1. Identify specific areas eligible for critical habitat designation
 - Identify areas meeting the definition of critical habitat
 - Identify military areas ineligible for designation
2. Conduct an ESA section 4(b)(2) analysis:
 - Determine the impacts of designation
 - Determine the benefits of designation
 - Determine the benefits of exclusion
 - Determine whether benefits of exclusion of any particular area outweigh benefits of designation and recommend exclusions if appropriate

II. Identify Specific Areas Eligible for Critical Habitat Designation

Identify areas meeting the definition of critical habitat

Areas that meet the definition of critical habitat include specific areas: (1) within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. To identify these specific areas, a critical habitat review team (CHRT) was convened. The CHRT consisted of seven Federal biologists from NMFS, the Monterey Bay National Marine Sanctuary, the National Park Service, Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE; formerly called the Minerals Management Service), the Navy, and the U.S. Geological Survey. The CHRT members are abalone and rocky intertidal and subtidal experts, and most have direct field research experience with black abalone in California. The CHRT's analysis and conclusions regarding which specific areas meet the definition of critical habitat, and may therefore be eligible for designation, are documented in a separate final Biological Report (*NMFS 2011a*).

Geographical area occupied by the species

Pursuant to section 3(5)(A) of the ESA, the first task was to determine “the geographical area occupied by the species at the time of listing.” For the purposes of the ESA listing, the current range of black abalone was defined to extend from Crescent City (Del Norte County, California) to Cape San Lucas, Northern Baja California, Mexico. Because we cannot designate critical habitat in areas outside of the United States, the occupied geographical area under consideration for this designation was limited to Point Arena, California, to the U.S.-California/Mexico border, including all offshore islands. Some literature references state that the historical range extended north to Coos Bay (*Oldroyd 1927, Geiger 2000*), based on observations of black abalone in the bay in the 1930s (*Reimers 1975*). *Reimers (1975)*, however, considered the presence of black abalone in Coos Bay to be questionable and possibly the result of a well-meaning but misguided attempt to introduce black abalone to the Oregon coast. Within California, the northernmost documented record of black abalone (based on museum specimens) is from Crescent City (*Geiger 2004*). Black abalone are considered rare north of San Francisco (*Morris et al. 1980*) and south of Punta Eugenia (*pers. comm. with Pete Raimondi, UCSC, cited in the Black Abalone Status Review Report 2009*). Black abalone typically inhabit coastal and offshore island rocky intertidal habitats but can occur to depths of six meters (*Leighton 2005*).

Physical or biological features essential to conservation

The CHRT determined the physical or biological habitat features essential to the conservation of black abalone based on the species' biology and life history, and the examples of “primary constituent elements” (PCEs) provided by our regulations. The CHRT considered the biology and life history of black abalone, and regulatory direction gleaned from the ESA and the joint USFWS/NMFS regulations, to identify the physical or biological features essential to species conservation. Based on the best available scientific information, the CHRT identified the following PCEs for black abalone (*NMFS 2011a*): Rocky substrates within suitable depths from mean higher high water (MHHW) to six meters depth, food resources, juvenile settlement habitat

(containing crustose coralline algae and crevices or cryptic biogenic structure), suitable water quality, and natural/adequate nearshore circulation patterns to retain or disperse eggs and larvae.

“Specific Areas” within the occupied geographical area

To identify the specific areas within the geographical area occupied by the species, the CHRT first identified rocky habitats along the California coast and offshore islands, using Environmental Sensitivity Index maps developed for the California shoreline (<http://response.restoration.noaa.gov/index.php>, see “Environmental Sensitivity Index (ESI) Maps” under “Featured Software and Data Sets”). The CHRT then used the best available data from long-term monitoring studies, published references, and personal communication with experts to verify the presence of black abalone in each area. Finally, the CHRT verified that each area contained at least one PCE and that the PCE(s) may require special management considerations or protection. More detailed information on the specific areas and their use by black abalone, the PCEs present within each area, and activities that may affect the PCEs such that special management considerations or protection may be required can be found in the final rule and the final Biological Report (NMFS 2011a).

Rocky intertidal reefs along the California coast and offshore islands are discrete and separated by expanses of sandy habitat. Data are available to map and identify general areas of rocky habitat along the California coast and offshore islands. However, we chose to draw a more inclusive area around habitats in close proximity to one another that met the requirements for designation as critical habitat. This allowed for a more manageable evaluation of areas. In addition, to protect the location of remaining black abalone populations, the CHRT did not think it prudent to identify each individual rocky reef as a specific area. Instead, the CHRT delineated 10 segments of the California coast as specific areas, based on features of the habitat and the location of survey sites where black abalone have been observed. To avoid disclosing the location of black abalone survey sites, the CHRT defined the boundaries of these specific areas by selecting the geographic location closest to the black abalone survey sites. The CHRT also delineated 10 offshore islands as specific areas, where black abalone have been observed. Thus, these 20 specific areas encompass rocky reef habitats where black abalone have been observed but also contain habitats (such as sandy beaches) that do not support black abalone. The actual areas that would be designated as critical habitat are the areas that contain the PCEs (e.g., rocky habitats) within each of the specific areas, as well as the marine waters above the benthos. The shoreward boundary would be defined by the MHHW line and the seaward boundary would be defined by the six meter depth contour relative to the mean lower low water (MLLW) line.

The CHRT delineated and considered the following 20 specific areas containing rocky intertidal and subtidal habitat along the California coast and offshore islands (from MHHW to six meters depth relative to MLLW; Figures 1, 2, and 3):

- (1) From Del Mar Landing Ecological Reserve to Bodega Head;
- (2) From Bodega Head to Point Bonita;
- (3) Farallon Islands;
- (4) From the southern point at the mouth of San Francisco Bay to Moss Beach;
- (5) From Moss Beach to just north of Pescadero State Beach;
- (6) Año Nuevo Island;

- (7) From just north of Pescadero State Beach to Natural Bridges State Beach;
- (8) From Pacific Grove to Prewitt Creek;
- (9) From Prewitt Creek to Cayucos;
- (10) From Montaña de Oro State Park to just south of Government Point;
- (11) Palos Verdes Peninsula from the Palos Verdes/Torrance border to Los Angeles Harbor;
- (12) From Corona Del Mar State Beach to Dana Point;
- (13) San Miguel Island;
- (14) Santa Rosa Island;
- (15) Santa Cruz Island;
- (16) Anacapa Island;
- (17) San Nicolas Island;
- (18) Santa Barbara Island;
- (19) Catalina Island; and
- (20) San Clemente Island.

Special management considerations or protection

Agency regulations define "special management considerations or protection" to mean "any methods or procedures useful in protecting physical and biological features of the environment for the conservation of listed species." Based on the best available data, the final Economic Analysis Report (*NMFS 2011b*), and their knowledge of the specific areas, the CHRT identified at least one threat within each specific area that may affect the PCE(s) such that special management considerations or protection may be required, as defined by our regulations. Major categories of habitat-related activities that may affect black abalone habitat include: (1) coastal development (e.g., residential and commercial construction, construction or expansion of stormwater outfalls); (2) in-water construction (e.g., coastal armoring, pier construction, jetty or harbor construction, pile driving); (3) sand replenishment or beach nourishment activities; (4) dredging and disposal of dredged material; (5) agricultural activities (e.g., irrigation, livestock farming, pesticide application); (6) National Pollutant Discharge Elimination System (NPDES)-permitted activities and activities generating non-point source pollution; (7) sediment disposal activities associated with road maintenance, repair, and construction (previously called "side-casting"); (8) oil and chemical spill response activities; (9) mineral and petroleum exploration or extraction activities; (10) power generation operations involving water withdrawal from and discharge to marine coastal waters; (11) construction and operation of alternative energy hydrokinetic projects (tidal or wave energy projects); (12) construction and operation of desalination plants; (13) construction and operation of liquefied natural gas (LNG) projects; (14) vessel grounding incidents and response; (15) non-native species introduction and management (from commercial shipping and aquaculture); (16) kelp harvesting activities; and (17) activities that lead to global climate change (e.g., fossil fuel combustion).

The final Biological Report (*NMFS 2011a*) and final Economic Analysis Report (*NMFS 2011b*) provide a description of the potential effects of each category of activities on the PCEs. For example, activities such as in-water construction, coastal development, dredging and disposal, sediment disposal (associated with road maintenance, repair, and construction), mineral and petroleum exploration and extraction, and sand replenishment may result in increased sedimentation, erosion, turbidity, or scouring in rocky intertidal and subtidal habitats. The construction of proposed energy projects and desalination projects along the coast would result

in increased in-water construction and coastal development. The operation of these energy projects and desalination projects may also increase local water temperatures with the discharge of heated effluent, or introduce elevated levels of certain metals or contaminants into the water. The discharge of contaminants from activities such as NPDES-permitted activities may affect water quality, food resources (by affecting the algal community), and settlement habitat (by affecting the ability of larvae to settle). Introduction of non-native species may also affect food resources and settlement habitat if species alter the natural algal communities. Shifts in water temperatures and sea level related to global climate change may also affect black abalone habitat. For example, coastal water temperatures may increase to levels above the optimal range for black abalone and sea level rise may alter the distribution of rocky reef habitats along the California coast.

Unoccupied areas

Section 3(5)(A)(ii) of the ESA authorizes the designation of “specific areas outside the geographical area occupied at the time [the species] is listed” if these areas are essential for the conservation of the species. Regulations at 50 CFR 424.12(e) emphasize that the agency “shall designate as critical habitat areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species.”

The CHRT identified potential unoccupied areas to consider for designation. These areas represent segments of the California and Oregon coast that contain rocky intertidal habitats that historically supported black abalone and that may support black abalone populations in the future. The CHRT identified the following unoccupied areas:

- (1) From Cape Arago State Park, Oregon, to Del Mar Landing Ecological Reserve, California;
- (2) From just south of Government Point to Point Dume State Beach, California; and
- (3) From Cardiff State Beach in Encinitas, California, to Cabrillo National Monument, California.

In each of these areas, black abalone have not been observed in surveys in the past 5 years. In the area from Cape Arago, Oregon, to the Del Mar Landing Ecological Reserve, California, four museum specimens of black abalone were noted at two survey sites (*Geiger 2004*), one specimen was noted at another site where red abalone are considered common (*Thompson 1920*), and no data on black abalone were available for the other sites. No black abalone were observed during rocky intertidal surveys conducted in the 1970s and 1980s at several sites within this area (*pers. comm. with J. DeMartini, Humboldt State University, on February 11, 2010*). In the area from just south of Government Point to Point Dume State Beach in California, black abalone were reported as rare at one site (*Morin and Harrington 1979*), but have never been observed at the other survey sites. In the area from Cardiff State Beach to Cabrillo National Monument in California, black abalone were noted to be historically present at a few sites (*Zedler 1976 and 1978*) and rare at one site (*State Water Resources Control Board 1979*).

We solicited comments from the public regarding the historical, current, and potential condition of the habitat and of black abalone populations within the unoccupied areas identified above and the importance of these areas to conservation of the species. Although we received one comment supporting the designation of the unoccupied areas, we did not receive additional information to inform our analysis of these areas. Therefore, at this time, the CHRT concluded that the three unoccupied areas *may be essential* for conservation, but that there is currently insufficient data to conclude that any of the areas *are essential* for conservation. In addition, we were unable to conclude at this time that a designation limited to the 20 occupied specific areas considered is inadequate to ensure the conservation of the species. The three presently unoccupied areas were not considered in further analyses. We note, however, that as more information becomes available in the future, we may revise the critical habitat designation.

Military areas ineligible for designation

Recent amendments to the ESA preclude the Secretary from designating military lands as critical habitat if those lands are subject to an Integrated Natural Resource Management Plan (INRMP) under the Sikes Act and the Secretary certifies in writing that the plan benefits the listed species (section 4(a)(3)(B) of the ESA). The INRMPs provide guidelines, goals, and objectives for species management in an effort to recover, improve, or restore natural resources while ensuring continued support of the military mission. Prior to publication of the proposed rule, NMFS contacted the Department of Defense (DOD) and requested information on all INRMPs for DOD facilities that overlap with the specific areas being considered for designation and that might provide benefits to black abalone. In response to this request, the DOD identified four installations owned or controlled by the U.S. Navy for which INRMPs have been prepared and that may occur within the specific areas being considered by NMFS for designation as black abalone critical habitat. These installations include:

- (1) San Clemente Island;
- (2) San Nicolas Island;
- (3) Naval Weapons Station Seal Beach; and
- (4) Naval Base Ventura County (Point Mugu and Port Hueneme).

NMFS determined that the Naval Weapons Station Seal Beach and Naval Base Ventura County installations do not overlap with the specific areas being considered for designation, but that the San Clemente Island and San Nicolas Island installations do occur within the specific areas being considered for designation. Because black abalone were not listed under the ESA when the current INRMPs were developed, the INRMPs do not include specific protections for black abalone, although they do include protections for other rocky intertidal species that may also benefit black abalone. The Navy recently revised and amended the INRMPs for these two installations to include specific management actions and conservation benefits for black abalone, with input from NMFS. As described below, we have determined that the revised San Nicolas Island INRMP and the amended San Clemente Island INRMP provide benefits to black abalone. Therefore, we determine under section 4(a)(3)(B) of the ESA that San Nicolas Island and San Clemente Island are no longer eligible for designation as critical habitat. NMFS will continue to work with the Navy to implement the conservation and management measures for black abalone under the INRMPs.

San Nicolas Island

The San Nicolas Island INRMP was revised and approved in May 2011. Under the revised San Nicolas Island INRMP, the following conservation and management measures will be conducted by the Navy for black abalone:

- (1) Conducting presence/absence surveys and developing annual abalone monitoring protocols where suitable habitat exists. This includes continuing to support the black abalone monitoring surveys conducted by Dr. Glenn VanBlaricom since the 1970s (*VanBlaricom et al. 2009*).
- (2) Supporting establishment of rocky intertidal monitoring sites to provide complementary data sets documenting trends of key rocky intertidal species assemblages.
- (3) Developing and updating educational materials for personnel and visitors to San Nicolas Island to inform them of black abalone issues and their role in helping to preserve the species.
- (4) Continuing to support appropriate closures on the south side of San Nicolas Island to limit access by the public as well as Navy staff and Island personnel. This closure provides protection to the largest known black abalone populations on the island.
- (5) Continuing to review all military activities to ensure compliance with the ESA and avoid or minimize impacts to black abalone. Historical monitoring data sets would be integrated into San Nicolas Island databases to inform management.
- (6) Continuing to participate with Federal and State recovery planning and other efforts to help establish stable black abalone populations.

In their comments on the proposed designation, the Navy also stated that they would continue to employ an adaptive management strategy for black abalone on San Nicolas Island by incorporating management strategies based on information collected through monitoring and research studies as described above. The San Nicolas Island Force Protection personnel will also be educated on abalone protections and will investigate individuals observed collecting fauna in the intertidal zone, to protect black abalone. We concluded that the measures under the revised INRMP provide protection for black abalone populations and habitat on San Nicolas Island. In addition, the ongoing surveys have and will continue to inform conservation and management strategies for the recovery of black abalone on San Nicolas Island. Based on the benefits provided to black abalone under the revised San Nicolas Island INRMP, we have determined under section 4(a)(3)(B) of the ESA that San Nicolas Island is no longer eligible for designation as critical habitat.

San Clemente Island

The Navy is currently revising the INRMP for San Clemente Island and expects to issue the revised INRMP in the next year. To address black abalone conservation needs in the interim, the Navy has adopted an amendment to the existing 2002 INRMP that establishes a management strategy for black abalone at San Clemente Island. The amendment, signed and adopted in June 2011 (*U.S. Navy 2011*), contains several measures to address black abalone protection, management, and conservation. The amendment describes ongoing efforts by the Navy to benefit black abalone, including but not limited to: (1) facilitating access to intertidal areas on San

Clemente Island for scientific studies on black abalone; (2) continued bi-annual rocky intertidal surveys at four established MARINE sites on San Clemente Island; (3) continued enforcement of safety zone closures around San Clemente Island that prohibit or limit access to intertidal regions of the island; and (4) continued participation in programs such as the Southern California Mussel Watch Program and monitoring efforts in compliance with the State Water Resources Control Board Area of Special Biological Significance discharge regulations. Under the amendment, the Navy will also: (1) create a rocky intertidal monitoring database for San Clemente Island, to be updated annually; (2) support and develop the monitoring of relevant environmental variables for black abalone, such as water temperature; and (3) update education and outreach materials to include information on black abalone and no-take restrictions for all abalone species, to prevent illegal harvest of abalone. Finally, the Navy will collaborate with NMFS and black abalone experts to develop a black abalone management plan for San Clemente Island, to include: (1) data from historical black abalone abundance and habitat surveys; (2) a black abalone monitoring program; (3) a plan for regular reporting of information from the Navy to NMFS; and (4) a plan for continued coordination between the Navy and NMFS. We concluded that the amended INRMP provides for the protection of black abalone and its habitat on San Clemente Island. In addition, the ongoing surveys and future management plan will inform black abalone recovery efforts on San Clemente Island and provide a mechanism for NMFS and the Navy to collaborate closely on these efforts. Based on the benefits provided for black abalone under the amendment to the 2002 San Clemente Island INRMP, we determined under section 4(a)(3)(B) of the ESA that San Clemente Island is no longer eligible for designation as critical habitat. NMFS will continue to work with the Navy throughout the INRMP revision process.

III. Conduct a Section 4(b)(2) Analysis

Section 4(b)(2) of the ESA requires us to use the best scientific information available in designating critical habitat. It also requires that before we may designate any “particular” area, we must consider the economic impact, impact on national security, and any other relevant impact. Once impacts are determined, the agency is to weigh the benefits of excluding any particular area (that is, the economic, national security, or other impacts that would be avoided) against the benefits of designating it (that is, the conservation benefits to the species). If the agency concludes that the benefits of exclusion outweigh the benefits of designation, it has discretion to exclude, so long as exclusion will not result in extinction of the species.

Identify “particular” areas

The first step in conducting the ESA section 4(b)(2) analysis is to identify the “particular areas” to be analyzed. The “particular areas” considered for exclusion differed based on the impacts identified. Where we considered economic impacts and weighed the economic benefits of exclusion against the conservation benefits of designation, we used the same biologically-based “specific areas” that the CHRT had identified under section 3(5)(A). Delineating the “particular areas” as the same units as the “specific areas” allowed us to most effectively consider the conservation value of the different areas when balancing the conservation benefits of designation against the economic benefits of designation. We also considered exclusions based on impacts on national security and other relevant impacts. Delineating particular areas based on impacts on

national security or other relevant impacts was based on land ownership or control (e.g., land controlled by the DOD within which national security impacts may exist).

Determine the impacts of the designation

The primary impact of a critical habitat designation stems from the requirement under section 7(a)(2) of the ESA that Federal agencies insure their actions are not likely to result in the destruction or adverse modification of critical habitat. Determining this impact is complicated by the fact that section 7(a)(2) of the ESA contains the overlapping requirement that Federal agencies must also insure their actions are not likely to jeopardize the species' continued existence. The true impact of designation is the extent to which Federal agencies modify their actions to insure their actions are not likely to destroy or adversely modify the critical habitat of the species, beyond any modifications they would make because of the listing and the jeopardy provision. Additional impacts of designation include state and local protections that may be triggered as a result of the designation and educating the public about the importance of each area for species conservation. Thus, the impacts of the designation include conservation impacts for black abalone and its habitat, economic impacts, impacts on national security, and other relevant impacts that may result from the designation and the application of ESA section 7(a)(2).

In determining the impacts of designation, we predicted the incremental change in Federal agency actions as a result of critical habitat designation and the destruction/adverse modification provision, beyond the changes predicted to occur as a result of the listing and the jeopardy provision (see *Arizona Cattle Growers v. Salazar*, 606 F. 3d 1160 (9th Cir. 2010)). We analyzed the impact of this designation based on a comparison of the world with and without black abalone critical habitat. We focused on the potential incremental impacts beyond the impacts that would result from the listing and jeopardy provision, and other baseline protections identified for black abalone habitat. In some instances where it was difficult to exclude potential impacts that may already occur under the baseline, we used our best professional judgment to identify and estimate the incremental impacts of the critical habitat designation.

Once we determined the impacts of the designation, we then determined the benefits of designation and the benefits of exclusion based on the impacts of the designation. The benefits of designation include the protections afforded to black abalone and its habitat by the critical habitat designation and the application of ESA section 7(a)(2). The benefits of exclusion include the economic impacts, impacts on national security, and other relevant impacts (e.g., impacts on Indian lands) of the designation that would be avoided if a particular area were excluded from the critical habitat designation. The following sections describe how we determined the benefits of designation and the benefits of exclusion and how these benefits were weighed to identify particular areas that may be eligible for exclusion from the designation. We also summarize the results of this weighing process and determinations on the areas that may be eligible for exclusion.

Determine the benefits of designation

The primary benefit of the critical habitat designation is the protection afforded under section 7 of the ESA, requiring all Federal agencies to insure their actions are not likely to destroy or adversely modify designated critical habitat. This is in addition to the requirement that all

Federal agencies insure their actions are not likely to jeopardize the continued existence of the species. In addition, the designation may provide education and outreach benefits by informing the public about areas and features important to species conservation. By delineating areas of high conservation value, the designation may help focus and contribute to conservation efforts for black abalone and their habitats.

The designation of critical habitat has been found to benefit the status and recovery of ESA-listed species. Recent reports by the USFWS indicated that species with critical habitat were more likely to have increased and less likely to have declined than species without critical habitat (Taylor *et al.* 2005). In addition, species with critical habitat were also more likely to have a recovery plan and to have these plans implemented, compared to species without critical habitat (Harvey *et al.* 2002; Lundquist *et al.* 2002). These benefits may result from the unique, species-specific protections afforded by critical habitat (e.g., enhanced habitat protection, increased public awareness and education of important habitats) that are more comprehensive than other existing regulations (Hagen and Hodges 2006).

The benefits of designation are not directly comparable to the benefits of exclusion for the purposes of weighing the benefits under section 4(b)(2) of the ESA. Ideally, the benefits of designation and benefits of exclusion should be monetized in order to directly compare and weigh them. With sufficient information, it may be possible to monetize the benefits of designation by first quantifying the benefits expected from an ESA section 7 consultation and translating that into dollars. We are not aware, however, of any available data to monetize the benefits of designation (e.g., estimates of the monetary value of the PCEs within areas designated as critical habitat, or of the monetary value of education and outreach benefits). As an alternative approach, we determined the benefits of designation based on the CHRT's biological analysis of the specific areas. We used the CHRT's conservation value ratings (High, Medium, and Low) to represent the qualitative conservation benefits of designation for each of the specific areas considered for designation. In evaluating the conservation value of each specific area, the CHRT focused on the habitat features present in each area, the habitat functions provided by each area, and the importance of protecting the habitat for the overall conservation of the species. The CHRT considered a number of factors to determine the conservation value of each specific area, including: (a) the present condition of the primary constituent elements or PCEs; (b) the level at which the habitat supports recruitment of early life stages, based on the level of recruitment observed at survey sites within the area; and (c) the level at which the habitat supports long-term survival of juvenile and adult black abalone, based on trends in the abundance and size frequencies of black abalone populations observed at survey sites within the area. These conservation value ratings represent the estimated conservation impact for black abalone and its habitat if the area were designated as critical habitat, and thus were used to represent the benefit of designation. The final Biological Report (NMFS 2011a) provides detailed information on the CHRT's biological analysis and evaluation of each specific area.

Benefits of exclusion based on economic impacts and final exclusions

The economic benefits of exclusion are the economic impacts that would be avoided by excluding particular areas from the designation. To determine these economic impacts, we first asked the CHRT to identify activities within each specific area that may affect black abalone and

its critical habitat. The 17 categories of activities identified by the CHRT are listed in the “Special management considerations or protection” section of this report. We then considered the range of modifications NMFS might seek in these activities to avoid destroying or adversely modifying black abalone critical habitat. Where possible, we focused on changes beyond those that may be required under the jeopardy provision. Because of the limited consultation history, we relied on information from other ESA section 7 consultations and the CHRT’s expertise to determine the types of activities and potential range of changes. For each potential impact, we tried to provide information on whether the impact is more closely associated with destruction/adverse modification or with jeopardy, to distinguish the impacts of applying the jeopardy provision versus the destruction/adverse modification provision.

While the statute and our agency guidance directs us to identify activities that may affect the habitat features important to black abalone conservation within a specific area in order to determine its eligibility for designation, not all of these activities may be affected by the critical habitat designation (i.e., subject to an ESA section 7 consultation) and sustain an economic impact. It is only those activities with a federal nexus that would sustain an economic impact as a result of the designation. Within the set of activities identified by the CHRT, we were only able to estimate economic impacts for a subset because of: (a) the limited consultation history; (b) uncertainty in the types of modification that would be required; (c) uncertainty in the number and locations of activities based on currently available data; and (d) the lack of available cost data. The final Economic Analysis Report (*NMFS 2011b*) analyzes the potential economic impacts to the following categories of activities: (1) coastal development; (2) in-water construction; (3) sand replenishment or beach nourishment activities; (4) agricultural activities (e.g., irrigation); (5) NPDES-permitted activities and activities generating non-point source pollution; (6) sediment disposal activities associated with road maintenance, repair, and construction (“side-casting”); and (7) construction and operation of alternative energy hydrokinetic projects (tidal or wave energy projects). The following activities were discussed qualitatively: dredging and disposal of dredged material; agricultural pesticide application and livestock farming; mineral and petroleum exploration or extraction; construction and operation of LNG projects; construction and operation of desalination plants; vessel grounding incidents and response; non-native species introduction and management; oil and chemical spill response activities; power generation operations involving water withdrawal from and discharge to marine coastal waters; kelp harvesting; and activities that lead to global climate change. The economic impacts of the designation on these activities could not be quantified due to uncertainty regarding whether a federal nexus exists (i.e., for kelp harvesting and activities that lead to global climate change) and uncertainty regarding the potential economic impacts, for the reasons described above.

Because of the limited consultation history for black abalone and uncertainty about specific management actions likely to be required under a consultation, there was a great degree of uncertainty in the estimated economic impacts for some specific areas. Several factors were considered in developing the estimated economic impacts, including the level of economic activity within each area, the level of baseline protection afforded to black abalone by existing regulations for each economic activity within each area, and the estimated economic impact (in dollars) associated with each activity type. The baseline included the protections afforded to black abalone by the listing and jeopardy provision, as well as existing protections under other Federal, state, and local laws and regulations. Estimates of the economic impacts for each

activity type were based on project modifications that might be required during consultation to avoid the destruction or adverse modification of critical habitat. As noted previously, where it was difficult to exclude potential impacts that may already occur under the baseline, we used our best professional judgment to identify and estimate the incremental impacts of the critical habitat designation. The final Economic Analysis Report (*NMFS 2011b*) describes in detail the activities identified that may be affected by the critical habitat designation, the potential range of changes NMFS might seek in those activities, and the estimated economic impacts that might result from those changes.

Revisions to Economic Impacts Analysis

We note that in the proposed rule and draft Economic Analysis Report (*NMFS 2010*), we provided quantitative economic impact estimates for oil and chemical spill response activities and for power generation operations involving water withdrawal from and discharge to marine coastal waters (e.g., coastal power plants with once-through cooling systems). Since the proposed rule, we have obtained additional information that resulted in revising the economic impact analyses for these two categories of activities from a quantitative analysis to a qualitative analysis. As a result, the estimated economic impacts associated with these two categories of activities were removed from the total annualized economic impact estimates, resulting in a decrease in the total estimates. The final critical habitat rule and final Economic Analysis Report (*NMFS 2011b*) provide detailed explanations of these revisions. We provide a brief summary of the changes below.

Oil and chemical spill response activities: In the draft Economic Analysis Report (*NMFS 2010*), we presented a quantitative estimate of the economic impacts based on the following assumptions: (a) the critical habitat designation would likely restrict or modify the type of responses taken in a spill incident; (b) we are able to predict these restrictions or modifications; and (c) these restrictions or modifications would be different from what would already be required if black abalone critical habitat were not designated and thus would result in additional costs, making up 20 percent of the total spill response costs. We also stated that the existence of black abalone critical habitat could increase the number of responses by requiring a response where one was not required before. In evaluating how to incorporate additional data provided by the National Park Service on small boat wreck and associated oil spills in specific area 2, we obtained additional information from NOAA regarding spill response activities and decision-making processes. This information led us to conclude that there is great uncertainty regarding how the designation may affect spill response activities, because of the unpredictability of incidents, the incident-specific nature of response strategies, and the baseline protections provided by strategies already in place for other sensitive resources (including black abalone). The existence of black abalone critical habitat in an area may result in prioritizing black abalone critical habitat areas for shoreline protection, or requiring shoreline and water quality monitoring during and after the spill. However, these response activities would likely already be considered or required due to the presence of black abalone and/or other sensitive resources in the area. In addition, a consultation under section 7 of the ESA can modify a Federal agency's action, but cannot compel an agency to take an action it normally would not take. Thus, the existence of black abalone critical habitat cannot compel a spill response where one was not required before. We concluded that this critical habitat designation may have little effect on spill response

activities. Until more information is available from future spill response activities, it is difficult to determine the incremental impacts of this designation on such activities. Therefore, we revised the analysis to a qualitative discussion of the potential impacts of the designation on spill response activities.

Power plants: The Diablo Canyon Nuclear Power Plant (DCNPP; located in specific area 10) was the only power plant identified within the specific areas that may be affected by the critical habitat designation. In the proposed rule and draft Economic Analysis Report, we presented a low economic impact estimate based on costs to comply with temperature control criteria to minimize the effects of thermal effluent on black abalone critical habitat (e.g., altering operations to reduce water intake and discharge). We also presented a high economic impact estimate based on costs required to retrofit the DCNPP with closed-system wet cooling towers. In the proposed rule, the estimated economic impacts ranged from \$26,500 to approximately \$150 million. We noted that the high cost estimate was likely an overestimate, because there may be less costly and more feasible actions that could be taken to address effects on black abalone. Since the proposed rule, we have obtained additional information from the EPA and the SWRCB that show that: (a) the low cost modifications analyzed in the proposed rule to comply with temperature control criteria (i.e., altering operations to reduce water intake and discharge) are considered infeasible at the DCNPP; (b) the feasibility of the high cost modification of retrofitting the DCNPP with closed-system wet cooling towers is questionable; and (c) regulations under the federal Clean Water Act (CWA) provide a high level of baseline protection for black abalone critical habitat. In particular, Section 316(a) of the CWA would already require that facilities such as the DCNPP address the thermal effects of its discharge on water quality and marine life in coastal waters. Based on the high level of protection provided by existing regulations, additional modifications to the DCNPP are not likely to result from this critical habitat designation. Therefore, we concluded that this critical habitat designation is not likely to have incremental economic impacts on the costs of operating the DCNPP (i.e., the revised estimated economic impact is zero).

Identification and Analysis of Areas Eligible for Exclusion

We had sufficient information to monetize the economic benefits of exclusion, but were not able to monetize the conservation benefits of designation. Thus, to weigh the benefits of designation against the economic benefits of exclusion, we compared the conservation value ratings with economic impact ratings that were based on the mid-annualized economic cost estimates (i.e., the midpoint between the high and low economic cost estimates; see final Economic Analysis Report (NMFS 2011b) for additional details) for each specific area (Table 1 and Figures 1, 2, and 3). To develop the economic impact ratings, we examined the mid-annualized economic impacts across all of the specific areas. We then divided the economic impacts into four economic impact rating categories corresponding to “Low” (\$0 to \$90,000), “Medium” (greater than \$90,000 to \$400,000), “High” (greater than \$400,000 to \$1 million), and “Very High” (greater than \$1 million) economic impact ratings. We note that these thresholds differ from the thresholds applied in the proposed rule (i.e., “Low” = \$0 to \$100,000, “Medium” = greater than \$100,000 to \$500,000, “High” = greater than \$500,000 to \$10 million, and “Very High” = greater than \$10 million). Revisions made to the economic impacts analysis for power plants and oil and chemical spill response activities (as described above and in more detail in the final Economic Analysis

Report (*NMFS 2011b*)) resulted in revised economic impact estimates. The revised mid-annualized economic impact estimates decreased from a total of about \$77 million to about \$2 million. As a result, we revised the thresholds, using the same approach as we used in the proposed rule to establish the thresholds. The four economic impact rating categories were determined by visually inspecting the economic impact values and identifying natural breakpoints in the economic impacts data where the estimated economic impacts showed a large increase. Because the overall range of mid-annualized economic impact estimates per specific area was low (ranging from \$0 to \$508,000), we established the threshold for the “Very High” economic impact rating based on the highest “high” total annualized impact estimate for a specific area (i.e., \$1,004,000 for specific area 7). We then balanced these economic impact ratings (representing the benefits of exclusion) with the conservation value ratings (representing the benefits of designation), applying the following decision rules:

- (1) Areas with a conservation value rating of “High” were eligible for exclusion if the mid-annualized economic impact estimate exceeded \$1 million (i.e., the economic impact rating was “Very High”);
- (2) Areas with a conservation value rating of “Medium” were eligible for exclusion if the mid-annualized economic impact estimate exceeded \$400,000 (i.e., the economic impact rating was at least a “High”); and
- (3) Areas with a conservation value rating of “Low” were eligible for exclusion if the mid-annualized economic impact estimate exceeded \$90,000 (i.e., the economic impact rating was at least a “Medium”).

These dollar thresholds should not be interpreted as estimates of the dollar value of High, Medium, or Low conservation value areas. For critical habitat, the ESA directs us to consider exclusions to avoid high economic impacts, but also requires that the areas designated as critical habitat are sufficient to support the conservation of the species and to avoid extinction. And, under the ESA, the decision to exclude is discretionary. It is within this framework that we developed decision rules with thresholds representing the levels at which we believe the economic benefit of exclusion associated with a specific area should be compared against the conservation benefits of designation. These dollar thresholds and decision rules provided a relatively straightforward process to identify, using the best available data, specific areas warranting consideration for exclusion based on economic impacts.

Based on this analysis, one area was identified preliminarily as eligible for exclusion (Table 1): Specific area 12, from Corona Del Mar State Beach to Dana Point.² For specific area 12, the mid-annualized economic impact estimate reported in the final economic analysis (\$104,000; *NMFS 2011b*) is lower than the estimate reported in the draft economic analysis (\$1,563,500; *NMFS 2010*). In the draft economic analysis (*NMFS 2010*), the majority of the impacts associated with specific area 12 were attributed to a proposed desalination plant in the area. The analysis estimated low economic impacts (i.e., zero or minimal costs) to the desalination plant if, for example, the desalination plant was co-located with a power plant so that the residual brine could be mixed with the power plant’s wastewater (to reduce the salinity levels) prior to disposal.

² Note: In the proposed rule, specific area 10 (Montaña de Oro State Park to just south of Government Point) was also eligible for exclusion based on economic impacts. However, due to the revisions to the economic analysis, the estimated economic impacts for specific area 10 were reduced, and the area is no longer eligible for exclusion.

The analysis estimated high economic impacts to the desalination plant if the plant was required to use alternate methods of brine disposal (i.e., injection wells). During the public comment period, we received information indicating that the proposed desalination plant plans to dispose of its residual brine by mixing it with wastewater to be discharged through an existing outfall at 1.5 miles offshore. The potential effects on black abalone habitat, as well as the potential modifications that may be required to address those effects, are uncertain and were discussed qualitatively rather than quantitatively in the final economic analysis (NMFS 2011b). However, the economic impacts were assumed to be more likely at the low end of the range (closer to zero or minimal costs). Thus, the mid-annualized economic impact estimate for specific area 12 in the final analysis was reduced. However, the economic impact rating remained a “Medium” and the area is still eligible for exclusion.

We presented the area to the CHRT to help us further characterize the benefits of designation by determining whether excluding this area would significantly impede conservation of black abalone. If exclusion of the area would significantly impede conservation, then the benefits of exclusion would likely not outweigh the benefits of designation for that area. The CHRT considered this question in the context of the information they had developed in providing the conservation value ratings. If the CHRT determined that exclusion of the area would significantly impede conservation of black abalone, the conservation benefits of designation were increased one level in the weighing process. This necessitated the creation of a “Very High” conservation value rating category, for areas that had an initial conservation value of “High.”

The CHRT determined, and we concur, that exclusion of specific area 12 (from Corona Del Mar State Beach to Dana Point) would not significantly impede conservation of black abalone (Table 1) and that the economic benefit of exclusion for this area outweighs the conservation benefit of designation. Based on the CHRT’s biological assessment as described below, we also determined that exclusion of specific area 12 will not result in the extinction of black abalone. The CHRT based their determinations on the best available data regarding the present condition of the habitat and black abalone populations in the area. The CHRT gave the area a “Low” conservation value, because the current habitat conditions are of lower quality compared to other areas along the coast. While rocky intertidal habitat of good quality occurs within the area, these habitats are patchy and may be affected by sand scour due to the presence of many sandy beaches. In addition, the rocky habitat within the area consists of narrow benches and fewer crevices compared to other areas and has been degraded by the establishment of sandcastle worm (*Phragmatopoma californica*) colonies. There is also little to no coralline algae to provide adequate larval settlement habitat. Low densities of black abalone were observed at a few sites in the area in the 1970s and 1980s. However, no recruitment has been observed and black abalone have been absent from the area except for one black abalone found in January 2010.³ For these reasons, the CHRT concluded that excluding specific area 12 (from Corona Del Mar State Beach to Dana Point) from the designation would not significantly impede the conservation of black abalone. We also concluded that excluding specific area 12 will not result in the extinction of the species, based on the CHRT’s assessment that the area contains habitat of lower quality for black

³ The Ocean Institute found one abalone in a tide pool in January 2010 and took a photograph of the individual. Most experts who examined the photograph identified the abalone as a black abalone. However, we have been unable to relocate and confirm that the individual is a black abalone.

abalone and the lack of evidence to indicate that this area historically supported high densities of black abalone.

We note that in the proposed rule, specific area 10 (from Montaña de Oro State Park to just south of Government Point) was eligible for exclusion based on a Very High economic impact rating. However, based on revised economic impact estimates for the DCNPP (see “Revisions to Economic Impacts Analysis” above), the total mid-annualized economic impact estimate for this area decreased from about \$75.5 million to about \$456,000. Based on this revised economic impact estimate, specific area 10 (rated as a High conservation value area) is no longer eligible for exclusion based on economic impacts.

In summary, we are excluding specific area 12 (from Corona Del Mar State Beach to Dana Point) from the critical habitat designation. Based on the best scientific and commercial data currently available, we have determined that exclusion of this area will not result in the extinction of the species, because the area contains habitat of low quality for black abalone and historically did not support high densities of black abalone.

Benefits of exclusion based on national security

The benefits of exclusion based on national security are the impacts on national security that would be avoided by excluding particular areas from the designation. Prior to publication of the proposed rule, NMFS contacted representatives of the DOD to request information on potential national security impacts that may result from the designation of particular areas as critical habitat for black abalone. In response to this request, representatives of the DOD identified the following particular areas owned or controlled by the U.S. Navy and requested exclusion of these areas from the designation based on potential national security impacts:

- (1) Naval Auxiliary Landing Field (NALF) San Clemente Island;
- (2) Outlying Landing Field (OLF) San Nicolas Island;
- (3) Naval Support Detachment Monterey;
- (4) Naval Weapons Station Seal Beach; and
- (5) Naval Base Ventura County (Point Mugu and Port Hueneme).

NMFS determined that the Naval Support Detachment Monterey, Naval Weapons Station Seal Beach, and Naval Base Ventura County do not occur within the specific areas being considered for designation, but determined that the NALF San Clemente Island and OLF San Nicolas Island do occur within the specific areas being considered for designation. During the public comment period, the Navy provided comments requesting the exclusion of San Clemente Island from the designation based on national security impacts, as well as a determination that San Clemente Island is ineligible for designation as critical habitat based on benefits provided to black abalone under the amended INRMP. As described under “Military areas ineligible for designation” in Section II of this report, we reviewed the amendment to the 2002 San Clemente Island INRMP and determined that the amended INRMP provides benefits to black abalone and that San Clemente Island is no longer eligible for designation. Thus, the consideration of exclusion of San Clemente Island based on national security impacts is no longer necessary.

In the comment letter, the Navy did not identify any potential national security impacts to

activities at San Nicolas Island and did not request exclusion of this area based on national security impacts. Instead, the Navy requested that San Nicolas Island be found ineligible for designation under section 4(a)(3)(B) of the ESA based on the benefits provided to black abalone under the revised San Nicolas Island INRMP (see “Military areas ineligible for designation” in Section II of this report). Thus, consideration of exclusion of San Nicolas Island based on national security impacts again is no longer necessary.

Benefits of exclusion for Indian lands

The only other relevant impacts of the designation identified were potential impacts on Indian lands. As stated in the proposed rule, we reviewed maps indicating that none of the specific areas under consideration for designation as critical habitat overlap with Indian lands. We solicited information from the public regarding any Indian lands that may overlap with and may warrant exclusion from critical habitat for black abalone, but did not receive any additional information. Therefore, no areas were considered for exclusion based on impacts on Indian lands.

IV. Tables and Figures

Table 1. Comparison of conservation value (CV) ratings (VH = Very High; H=High; M=Medium; L=Low) and economic impact estimates (the low, mid, and high economic estimates are shown) for specific areas occupied by black abalone. Preliminary eligibility for exclusion was determined based on the decision rules described in Section III, “Exclusions based on economic impacts.” For the area eligible for exclusion (highlighted in bold text), the CHRT determined whether exclusion of the area would significantly impede conservation. If so, the CV was increased by one level, resulting in the final CV shown on the table. The final CV was used in the analysis to weigh the benefits of exclusion against the benefits of designation. Impacts are rounded to the nearest \$1,000.

Unit	Specific Area	Initial CV	Low Econ. Estimate	Mid Econ. Estimate	High Econ. Estimate	Eligible for Exclusion	Would exclusion significantly impede conservation	Final CV	Proposed for exclusion?
1	Del Mar Landing Ecological Reserve to Bodega Head	H	\$3,000	\$280,000	\$556,000	NO	N/A	H	NO
2	Bodega Head to Point Bonita	H	\$15,000	\$251,000	\$487,000	NO	N/A	H	NO
3	Farallon Islands	H	\$0	\$222,000	\$444,000	NO	N/A	H	NO
4	Southernmost point at mouth of San Francisco Bay to Moss Beach	M	\$17,000	\$228,000	\$439,000	NO	N/A	M	NO
5	Moss Beach to just north of Pescadero State Beach	M	\$0	\$5,000	\$10,000	NO	N/A	M	NO
6	Año Nuevo Island	H	\$0	\$0	\$0	NO	N/A	H	NO
7	Just north of Pescadero State Beach to Natural Bridges State Beach	H	\$14,000	\$509,000	\$1,004,000	NO	N/A	H	NO
8	Pacific Grove to Prewitt Creek	H	\$9,000	\$319,000	\$629,000	NO	N/A	H	NO
9	Prewitt Creek to Cayucos	H	\$5,000	\$92,000	\$180,000	NO	N/A	H	NO
10	Montaña de Oro to just south of Government Point	H	\$30,000	\$456,000	\$882,000	NO	N/A	H	NO
11	Palos Verdes Peninsula	M	\$42,000	\$113,000	\$183,000	NO	N/A	M	NO
12	Corona Del Mar State Beach to Dana Point	L	\$12,000	\$104,000	\$197,000	YES	NO	L	YES
13	San Miguel Island	H	\$0	\$0	\$0	NO	N/A	H	NO
14	Santa Rosa Island	H	\$0	\$0	\$0	NO	N/A	H	NO
15	Santa Cruz Island	H	\$0	\$0	\$0	NO	N/A	H	NO
16	Anacapa Island	H	\$0	\$18,000	\$37,000	NO	N/A	H	NO
17	San Nicolas Island	H	\$1,000	\$3,000	\$6,000	NO	N/A	H	NO
18	Santa Barbara Island	M	\$0	\$0	\$0	NO	N/A	M	NO
19	Catalina Island	H	\$23,000	\$98,000	\$174,000	NO	N/A	H	NO
20	San Clemente Island	H	\$1,000	\$2,000	\$3,000	NO	N/A	H	NO

Figure 1. Map depicting each specific area delineated on the Northern California coast and the final conservation value ratings (as listed in Table 1).

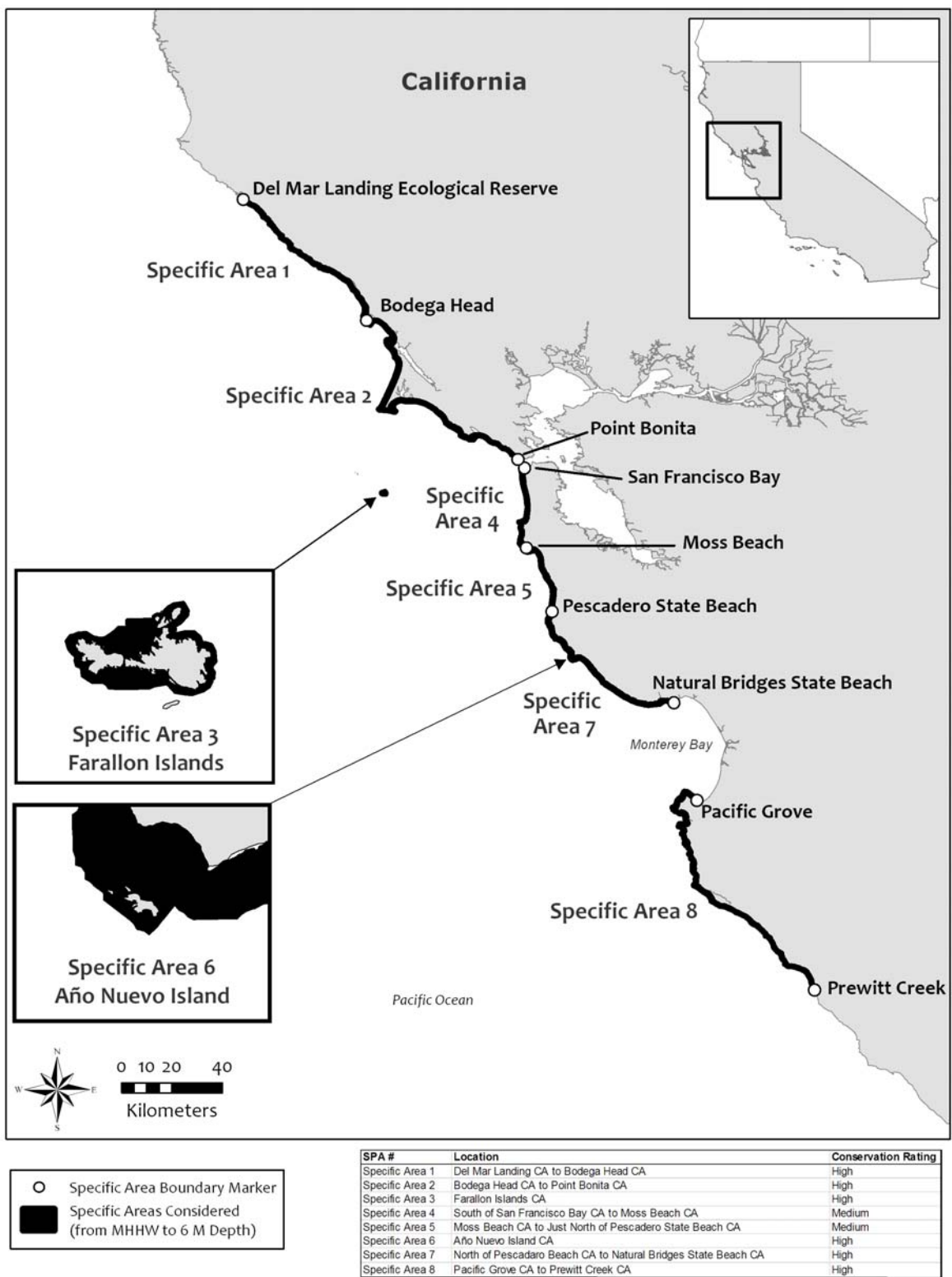


Figure 2. Map depicting each specific area delineated on the Central California coast and the final conservation value ratings (as listed in Table 1).

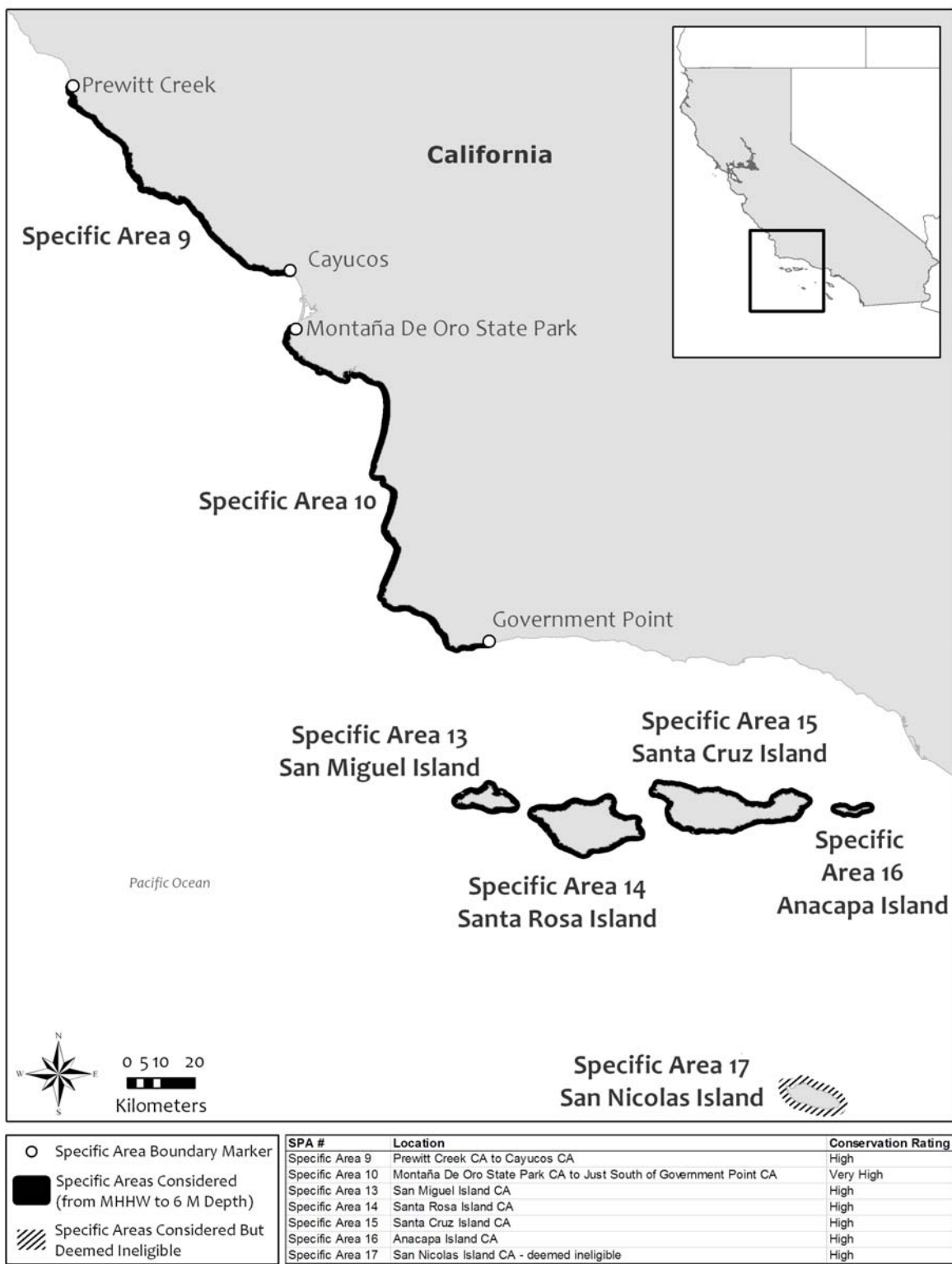
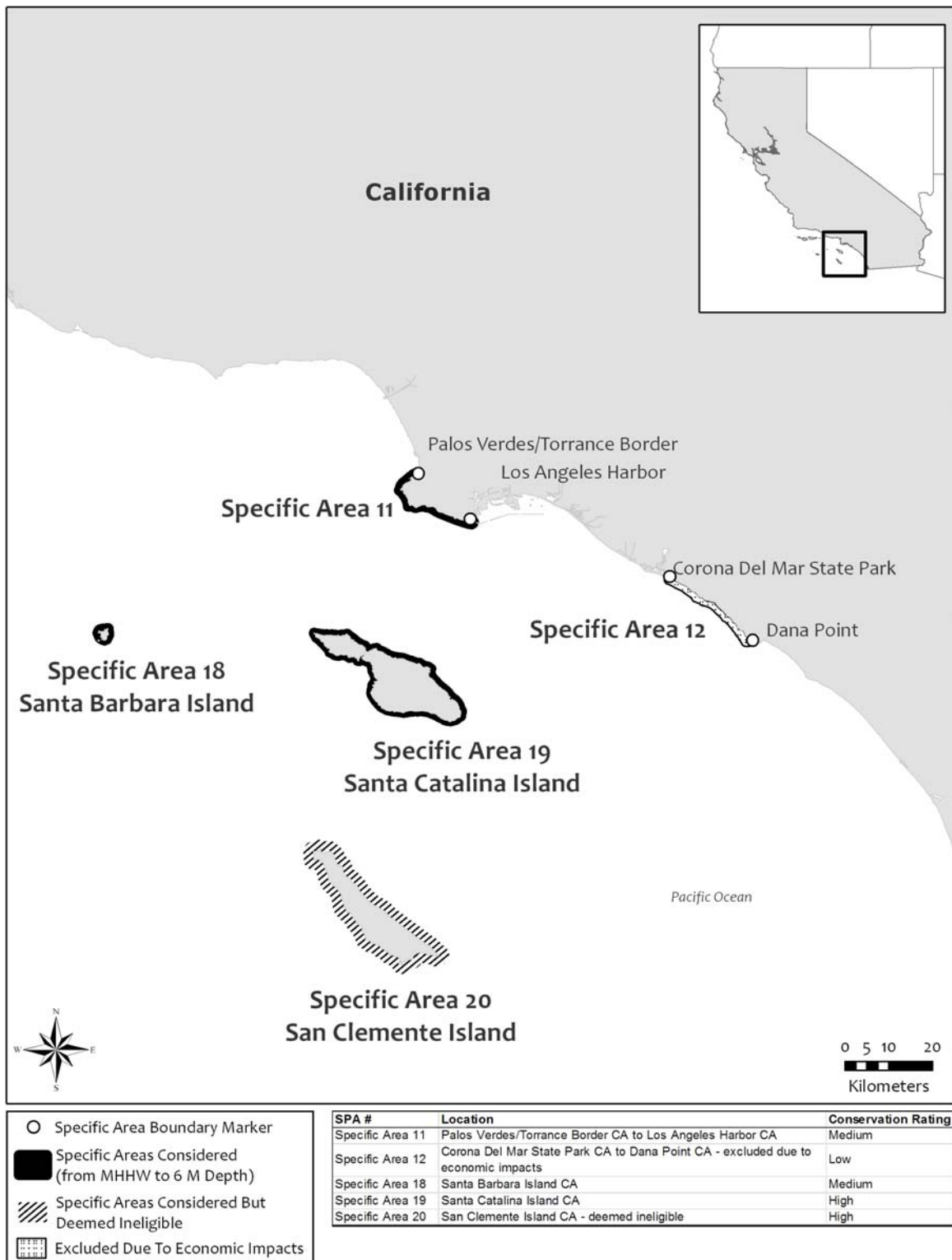


Figure 3. Map depicting each specific area delineated on the Southern California coast and the final conservation value ratings (as listed in Table 1).



V. References

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