

Designation of Critical Habitat for 7 Salmon and Steelhead ESUs in California

Final ESA Section 4(b)2 Report

August 2005

National Marine Fisheries Service
Southwest Region

I. INTRODUCTION

A. Background

This report contains NMFS Southwest Region's recommendations for the final designation of critical habitat under section 4 of the Endangered Species Act (ESA) for 7 salmon and steelhead species in California that are listed as threatened or endangered species. The report describes the methods used, process followed, and conclusions reached for each step leading to the recommendation.

Over the past decade, NMFS has listed 26 distinct population segments, or evolutionarily significant units (ESU), of Pacific salmon and steelhead in Oregon, Washington, Idaho and California. Collectively, these ESUs occupy thousands of miles of streams in watersheds covering more than 250 thousand square miles. In 2000, NMFS designated critical habitat for 19 of the listed ESUs (65 FR 7764, February 16, 2000), including 6 of the ESUs addressed in this report (California Coastal chinook, Central California Coast Steelhead, South-Central California Coast Steelhead, Southern California Steelhead, Central Valley spring-run chinook, and Central Valley Steelhead). These designations were challenged in court on a number of grounds. NMFS entered into a consent decree resolving these claims and pursuant to court order the designations were vacated. Following remand, NMFS received 60-day notice of intent to sue letters from environmental groups, for not having designations in place for these 19 ESUs, as well as the Northern California Steelhead ESU which was listed after February 2000. The agency entered into a consent decree with the environmental groups establishing a schedule for completing new designations in 2003. In June 2004 the consent decree was modified and a new schedule for completing the designations was agreed upon. This new schedule required the agency to publish proposed critical habitat designations for the 7 ESUs in California by November 30, 2004, and final designations by August 15, 2005. Proposed critical habitat designations for these 7 ESUs were published on December 10, 2004 (69 FR 71880). A draft report was prepared by the Southwest Region which addressed the 4(b)2 exclusion process used for the proposed designations (NMFS 2004). This final report addresses the 4(b)2 process used to develop recommended exclusions for the final critical habitat designations for these 7 ESUs.

B. Statutory and Regulatory Requirements

The recommendations contained in this report were formulated consistent with statutory requirements and agency regulations. This section reviews the relevant statutory and regulatory provisions that guided the Region's development of recommendations.

1. 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.

2. "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.

3. "Conservation" is specifically defined

Section 3(3) of the Act also 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.

4. Certain military lands are precluded from designation

In 2003 Congress amended section 4(b)(1) 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.

5. Specific deadlines limit the time and information available 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

The time for designating critical habitat may be extended pursuant to section 4(b)(6)(C), but not by more than 12 months:

(C) A final regulation designating critical habitat of an endangered species or a threatened species shall be published concurrently with the final regulation implementing the determination that such species is endangered or threatened, unless the Secretary deems that -

(i) it is essential to the conservation of such species that the regulation implementing such determination be promptly published; or

(ii) critical habitat of such species is not then determinable, in which case the Secretary, with respect to the proposed regulation to designate such habitat, may extend the one-year period specified in subparagraph (A) by not more than one additional year, but not later than the close of such additional year the Secretary must publish a final regulation, based on such data as may be available at that time, designating, to the maximum extent prudent, such habitat.

6. 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) (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 circumstance. 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 on 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.

7. Federal agencies must ensure their actions do not destroy or adversely modify critical habitat

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

8. 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 those impacts against the benefit of designation, and the authority to exclude particular areas, has been delegated to the Assistant Administrator of the National Marine Fisheries Service. NOAA Organization Handbook, Transmittal #34 (May 31, 1993).

9. Joint regulations govern designation

Aside from restating the statutory definitions and criteria, joint regulations of the Services elaborate on those physical and biological features essential for conservation, and set standards for the delineation of critical habitat.

50 CFR Sec. 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.

Definitions in the regulations elaborate on the meaning of “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.
Sec. 424.02

II. APPROACH TO DESIGNATING CRITICAL HABITAT

A. Statutory Context

At different times in the history of the ESA, Congress has emphasized both the importance of habitat protection to species conservation and the importance of agency restraint in designating areas as “critical” habitat. Congress emphasized the importance of habitat in species conservation in several provisions of the ESA. The findings recognize that extinctions have resulted from economic growth and development. Among the purposes of the Act is providing “a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved.” In determining whether a species is threatened or endangered, the Secretary is to consider the current or threatened destruction of its habitat. Federal agencies are prohibited from destroying or adversely modifying critical habitat. Section 5 of the Act authorizes the Secretary of Interior to acquire land for species conservation and section 10 requires the development of “habitat conservation plans” for the issuance of incidental take permits.

At the same time, the ESA requires a degree of rigor in identifying areas that qualify as critical habitat. The definition of critical habitat specifies separate criteria for designating occupied areas and unoccupied areas. Occupied areas are critical habitat if they contain physical or biological features essential to the species’ conservation, and

those features may require special management considerations or protection. Unoccupied areas may be designated only upon a determination that the area itself is essential to conservation. (The House Merchant Marine Committee expressed its view “that the Secretary should be exceedingly circumspect in the designation of critical habitat outside of the presently occupied area of the species” (H.R. Rep. 95-1625).) Finally, the Services are not to designate all of the geographical area that can be occupied by the species, absent a determination that the entire area is essential to conservation.

In addition to the tension between an emphasis on the importance of habitat and a rigorous definition of critical habitat, the ESA’s provisions for designating critical habitat stand out from the listing provisions of the Act in requiring the Services to consider factors in addition to species conservation. Before they may designate an area as critical habitat, the Services must consider the economic impact, impact to national security, and any other relevant impact of the designation. The Services have the discretion to exclude an area from designation if they determine the benefits of exclusion (that is, avoiding the impact that would result from designation), outweigh the benefits of designation (that is, the benefits to species conservation). The Service’s discretion is limited in that they may not exclude an area from designation if exclusion will result in extinction of the species.

The Services must observe the details of the statutory definition of critical habitat; must use the best available science; must consider the impacts of the designation on economic, national security, and other interests; and may weigh the benefit to species conservation resulting from designation against the benefits of exclusion. All of this must be done within specific statutory timeframes, based upon the best information available during those timeframes, and with public notice and participation. In designating critical habitat for Pacific salmon and steelhead, we sought an approach that adhered to these statutory requirements and ultimately exercised the agency’s discretionary authority within the framework of agency and administration policy.

The approach we adopted in applying sections 3(5)(A) and 4(b)(2) involved these steps:

1. Identify specific areas meeting the definition of critical habitat
2. Conduct a Section 4(b)(2) analysis
 - a. determine the benefit of designation;
 - b. determine the impact of designation;
 - c. determine whether benefits of exclusion outweigh benefits of designation;
 - d. determine whether the cumulative effect of the recommended exclusions will result in extinction of the species.

B. Identify Areas Meeting the Definition of Critical Habitat

1. In General

Areas that meet the definition of critical habitat include: 1) occupied areas that contain physical or biological features essential for conservation, which may require special management considerations or protection, and 2) unoccupied areas if the area itself is essential to conservation. In a separate final report, the Southwest Region has

documented its conclusions regarding which specific areas meet the definition of critical habitat and are therefore eligible for designation (NMFS 2005a). Pursuant to section 3(5)(A), the first task was to determine “the geographical area occupied by the species at the time of listing.” The State of California did not have detailed geographic distribution information on these ESUs to carry out this task, and therefore, the Southwest Region needed to develop this information independently. In support of the proposed critical habitat rulemaking, NMFS biologists from the Southwest Region were organized into teams (critical habitat analysis and review teams or CHARTs) that compiled and organized extensive information regarding the stream reaches occupied by the 7 salmon and steelhead ESUs in California which we believe represents the best available data on species distribution and habitat use. This information was used to produce ESU distribution maps on a freshwater hydrography scale of 1:100,000 using standard Geographic Information System (GIS) software. We also developed latitude-longitude identifiers for the end-points of the occupied stream reaches. We submitted these distribution maps and other information to the California Department of Fish and Game for review and comment so that the information could be re-fined based on co-manager input. Where possible, we also solicited comments and input from Technical Recovery Teams (TRTs) that are developing technical information for our recovery planning efforts for these ESUs. Following publication of the proposed critical habitat designations (69 FR 71880) and the close of the public comment period for the proposed designations, we reconvened CHARTs to review all new information received concerning fish distribution and habitat use, conservation value assessments for watersheds, and proposed exclusions. Where appropriate the CHARTs revised their preliminary findings (NMFS 2004) based on this new information and incorporated it into their final assessments for each ESU (NMFS 2005a).

Based on the biology and life history of each species, we determined the physical or biological habitat features essential for their conservation. We identified these features in an Advance Notice of Proposed Rulemaking (ANPR) (68 FR 55926, Sept. 29, 2003) and asked for public comment. We did not receive comments specifically addressing the physical and biological features. The ESUs addressed in this report share many of the same rivers and estuaries and have similar life history characteristics, and therefore, many of the same principal constituent elements (or PCEs). These PCEs includes sites essential to support one or more life stages of these ESUs (sites for spawning, rearing, and migration), and they in turn contain the physical or biological features essential to the conservation of the ESUs.

Also based on the biology and population structure of these species, and the characteristics of the habitats they occupy, we identified “specific areas” in which these physical or biological features could be found. To delineate specific areas and organize biological and economic data, we used standard watershed units called hydrologic subareas (HSAs) which are defined as part of the CALWATER 2.2 watershed delineation framework developed by the State of California. Within the boundaries of any HSA watershed, there are stream reaches not occupied by the species. Land areas within the watershed boundaries are also generally not “occupied” by the species (though certain areas such as flood plains or side channels may be occupied at some times of some years). We used the HSA watershed boundaries as a basis for aggregating occupied stream reaches, for purposes of delineating “specific” areas.

We used the same HSA watershed aggregation of stream reaches to allow us to analyze the impacts of designating a “particular area,” as required by section 4(b)(2) of the ESA. Section 3(5) defines critical habitat as being “specific areas” while section 4(b)(2) requires the agency to consider certain factors before designating “particular areas.” Depending on the biology of the species, the characteristics of its habitat, and the nature of the impacts of designation, “specific” areas might be different from, or the same as, “particular” areas. For this designation, we used the same delineation for both – the occupied stream reaches within a watershed – and refer to that delineation as a “habitat area.”

The CHARTs examined each HSA within each ESU to determine whether the stream reaches were occupied, and if so, they contained the physical or biological features previously identified as essential for conservation. The teams also determined whether, consistent with the regulatory definition (50 C.F.R. 402.02 (j)), there were “any methods or procedures useful in protecting physical and biological features.” To do so the teams determined whether there were management activities in the area that represented threats to the physical or biological features. Management activities were considered broadly as any human activities with the potential to alter the land or water. Where management activities exist that threaten these features, and changes in such activities would be useful in protecting the identified habitat features, we concluded that the features in that area “may require special management considerations or protection.”

Aside from occupied areas containing essential features that may require special management, the definition of critical habitat includes unoccupied areas if the Services determine that the area itself is essential for conservation. We asked the CHARTs to make an assessment of whether or not there were any unoccupied areas within the historical range of the ESUs that “may” be essential to their conservation. Where information was available to make this determination, the teams indicated those areas not occupied at the time of listing that they believed are essential for conservation. In some cases, the teams did not have information available that would allow them to draw that conclusion. The proposed critical habitat designations for these ESUs (69 FR 71880) identified unoccupied areas that may be essential for conservation and requested public comment. A summary of the CHARTs recommendations concerning unoccupied habitat that may be essential for conservation of these ESUs is contained in the final CHART assessment report (NMFS 2005a). We anticipate that ongoing recovery planning efforts will develop better information about the ESUs need for habitat areas beyond those currently occupied.

2. Military Lands

Recent amendments to the ESA direct the Secretary not to designate military lands as critical habitat if those lands are covered by an Integrated Natural Resource Management Plan (INRMP) under the Sikes Act that the Secretary certifies in writing benefits the listed species (Section 4(a)(3) (National Defense Authorization Act is Public Law. No. 108-136)). To address this new provision, we contacted the Department of Defense and requested information on all INRMPs that might benefit Pacific salmon and steelhead. In response the military services identified 25 installations in California with INRMPs in place or under development. Based on the information provided by the military as well as GIS analysis of fish distribution information compiled by the Southwest Region

CHARTs and land use/ownership information, we determined that 5 military installations with INRMPs overlapped with habitat areas under consideration for critical habitat designation. These included: Camp Pendleton Marine Corps Base, Vandenberg Air Force Base, Camp San Luis Obispo, Camp Roberts, and Mare Island Army Reserve Center. Two additional facilities are adjacent to, but do not overlap with, habitat areas under consideration: Naval Weapons Station, Seal Beach/Concord Detachment, and Point Mugu Naval Air Station. None of the remaining facilities with INRMPs in California were adjacent to or overlapped with habitat under consideration. With the exception of the Vandenberg AFB INRMP, all INRMPs are final. Based on this analysis, we requested copies of these plans from the military for review, and analyzed them to determine whether they provided benefits to the listed ESUs. Our review indicated that each of the INRMPs that overlap with occupied salmonid habitat under consideration for designation address habitat for salmonids and all contain measures that provide benefits to the listed ESUs. Examples of types of benefits include actions that control erosion, protect riparian habitat zones, and reduce contaminants. Based on the available information, we determined that these INRMPs provide benefits to the listed species and proposed that these military installations be excluded from the proposed designation. Camp Pendleton and Vandenberg AFB provided additional information in response to our request for comments on the proposed designations and both provided additional information supporting the benefits provided by their INRMPs, as well as information supporting the national security impacts of critical habitat designation on their activities.

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

1. Identifying “Particular” Areas

Section 3(5) defines critical habitat as “specific areas,” while section 4(b)(2) requires the agency to consider certain factors before designating any “particular area.” Depending on the biology of the species, the characteristics of its habitat, and the nature of the impacts of designation, “specific” areas might be different from, or the same as, “particular” areas. For this designation, we analyzed two types of “particular” areas. Where we considered economic impacts, and weighed the economic benefits of exclusion against the conservation benefits of designation, we used the same watershed-based delineation that we used for “specific” areas (the occupied stream reaches within a watershed). This delineation allowed us to use a cost-effectiveness framework for recommending economic exclusions, described further below. Where we considered impacts on national security, impacts on Indian tribes, and impacts on our program to promote voluntary conservation agreements, however, we instead used a delineation of “particular” areas based on ownership or control of the area. This delineation allowed us to compare and balance the benefits associated with land ownership and management.

Our approach to designation had to account for the fact that the two types of particular areas have overlapping boundaries (that is, ownership may span many watersheds and watersheds may have mixed ownership). The order in which we conducted the 4(b)(2) balancing became important because of this overlap. To ensure that we were not double-counting the benefits of exclusion, we first considered exclusion of particular areas based on land ownership and determined which areas to recommend for exclusion. We then considered economic exclusion of particular areas based on watersheds, with the economic impact for each watershed adjusted based on whether a given type of

ownership had already been recommended for exclusion (if, for example, a watershed contained military areas that were recommended for exclusion, we subtracted the economic impact associated with those areas from the total economic impact score for that watershed.)

2. Analyzing Co-Extensive Impacts

As discussed in the “Background” section, NMFS’ 2000 designation of critical habitat for 19 ESUs of salmon and steelhead was vacated by a court order following a court challenge to the designations (*National Association of Homebuilders v. Evans*, 2002 WL 1205743 No. 00-CV-2799 (D.D.C.)) (*NAHB*). In the 2000 designations, NMFS concluded there would be no impact from the designations, because we were only designating occupied areas. Federal agencies must ensure their actions are not likely to result in the destruction or adverse modification of critical habitat and are not likely to jeopardize the species’ continue existence. In occupied habitat, we had reasoned that any action that adversely modifies critical habitat would also jeopardize the species, thus there would be no impact of designation beyond the impact already imposed by the listing and the accompanying jeopardy requirement.

While the case against us was pending, the Court of Appeals for the Tenth Circuit vacated the U.S. Fish and Wildlife Service’s critical habitat designation for the southwestern willow flycatcher (*New Mexico Cattle Growers Association v. U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001)) (*NMCA*). The Service had determined there would be no economic impact from the designation because the impacts associated with jeopardy determinations and adverse modification determinations were coextensive. The Tenth Circuit found the Service’s approach rendered meaningless Congress’s requirement that economic impacts be considered in the designation process. The Court concluded that, to give “effect to Congressional directive,” the Service must analyze the full impacts of designation, regardless of whether those impacts are co-extensive with other impacts (such as the impact of the jeopardy avoidance requirement). Given the decision in the Tenth Circuit, and the similarity between the Fish and Wildlife Service’s analysis and ours, NMFS sought a voluntary remand of the designations, which the District Court granted.

In granting our motion for a voluntary remand for the salmon and steelhead designations, the district court in *NAHB* noted, “[f]rom this court’s perspective the Tenth Circuit’s opinion is well-reasoned and comports with the express statutory language of Congress, which specifically requires that an analysis of the economic impact of a critical habitat designation be undertaken.” The court observed that “clearly, there is a problem with the current process underlying the critical habitat designation process.” The court left it to the agency’s “wisdom and institutional knowledge” to remedy the problem and noted “[p]resumably, when the agency conducts new rulemaking it will be in accord with procedures it views to be in accordance with the law.”

In re-designating critical habitat for these 7 salmon and steelhead ESUs, we first examined our consultation record for these as well as other ESUs of salmon and steelhead. That record includes consultations on habitat-modifying federal actions both where critical habitat has been designated and where it has not. We could not discern a distinction in the impacts of applying the jeopardy provision versus the adverse

modification provision in occupied habitat. Given our inability to detect a measurable difference between the impacts of applying these two provisions, the only reasonable alternative seemed to be to follow the recommendation of the Tenth Circuit, approved by the *NAHB* court, which was to measure the entire impact of applying the adverse modification provision of section 7, regardless of whether applying the jeopardy provision would result in the identical impact.

Just prior to publication of our proposed designation, the Court of Appeals for the Ninth Circuit invalidated our regulatory definition of “adverse modification” of critical habitat. *Gifford Pinchot Task Force v. FWS*, 378 F. 3d 1059 (9th Cir. 2004) (*Gifford Pinchot*). The Court’s decision did not address the regulatory definition of jeopardy. Shortly following that decision, a District Court in Washington, D.C., issued a decision involving the U.S. Fish and Wildlife Service’s critical habitat designation for the piping plover. *Cape Hatteras Access Preservation Alliance v. Norton*, 344 F. Supp. 2d 1080 (D.D.C. 2004) (*Cape Hatteras*). In that decision the Court disagreed with the *NMCA* and *NAHB* Courts, reasoning that the impact of a regulation should be based on a comparison of the world with and without the action and citing guidance from the Office of Management and Budget in support of that proposition. The *Cape Hatteras* Court concluded that the problem with the Services’ analysis of economic impacts resulted from its treatment of “adverse modification” and “jeopardy” as being functionally equivalent. The Court ordered the Fish and Wildlife Service “to clarify or modify its position [regarding functional equivalence] on remand,” implying that the *Gifford Pinchot* Court’s holding might have an effect on the agency’s historical treatment of the jeopardy and adverse modification requirements as providing coextensive protections.

In the wake of the *Gifford Pinchot* and *Cape Hatteras* decisions, we are re-examining the regulatory definition of adverse modification but have not yet concluded this process. In the absence of a revised regulation we must look to our current record. Accordingly, we re-examined our record and our current section 7 guidance. We concluded that information currently available to the agency does not allow us to discern an existing difference nor accurately predict the difference between actions required to avoid jeopardy and those required to avoid adverse modification of critical habitat, where habitat-modifying actions are concerned. Nevertheless, we concluded that our analysis of coextensive impacts still allows us to conduct a meaningful section 4(b)(2) analysis so long as we balance those coextensive impacts of designation against coextensive benefits of designation, and, in the case of considering economic exclusions, so long as we continue to use a framework that accommodates a comparison of the relative benefits of designation and exclusion.

The *NMCA* Court’s opinion, which we have followed here, addressed only section 4(b)(2)’s requirement that economic impacts be considered (“The statutory language is plain in requiring some kind of consideration of economic impact in the [critical habitat designation] phase”). The Court did not address how “other relevant impacts” were to be considered, nor did it address the benefits of designation. Because section 4(b)(2) requires a balancing of competing considerations, and because our record did not support a distinction between impacts resulting from application of the adverse modification provision versus the jeopardy provision, we have concluded that we must uniformly consider coextensive impacts and coextensive benefits. To do otherwise would distort the balancing test contemplated by section 4(b)(2).

We recognize that, in reality, excluding an area from designation will not likely avoid all of the impacts we considered because the section 7 requirement regarding avoidance of jeopardy still applies. Similarly, much of the section 7 benefit would still apply because the jeopardy requirement still applies. Nevertheless, for exclusions based on economic impacts, the analytical framework we are recommending provides a meaningful comparison of the relative benefits and impacts of critical habitat designation. For exclusions based on national security, impacts to tribes, and impacts to our program to promote voluntary conservation agreements, our balancing takes into account the difficulty of apportioning impact between the two different requirements of section 7 (i.e. avoidance of jeopardy and adverse modification).

3. Analytical Framework for Determining and Weighing Impacts and Benefits

Section 4(b)(2) provides that the Secretary shall consider certain impacts before designating critical habitat: “the Secretary shall designate critical habitat . . . on the basis of the best scientific data available and after taking into consideration the economic impact, impact to national security, and any other relevant impact of specifying any particular area as critical habitat.” In addition, section 4(b)(2) provides that the Secretary may exclude any area from critical habitat upon a determination that “the benefits of such exclusion outweigh the benefits of specifying such area as critical habitat.”

The balancing test in section 4(b)(2) contemplates weighing benefits that are not directly comparable – the benefit to species conservation balanced against the economic benefit, benefit to national security, or other relevant benefit that results if an area is excluded from designation. In addition, there may be situations where exclusion of particular areas has a conservation benefit to the species (for example, excluding private land from designation when the landowner has contractually agreed to voluntary conservation measures may result in a net conservation benefit to a species). Section 4(b)(2) does not specify a method for the weighing process, nor do our regulations. Legislative history suggests that the consideration and weight given to impacts is within the Secretary's discretion and section 4(b)(2) makes clear that the decision to exclude is itself discretionary even when the benefits of exclusion outweigh the benefits of designation.

To ensure consistency in the exercise of our regulatory authority, we first examined congressional and executive direction to discern principles that would apply across various types of impacts - economic, national security, or other impacts. We then examined congressional and executive direction relative to each type of impact we considered. This policy direction is summarized below:

(a) Policy Direction Relevant to Balancing Conservation against other Interests

Agencies are frequently required to balance benefits of regulations against impacts; Executive Order 12866 established this requirement for federal agency regulation and gives general guidance.

Executive Order 12866

Section 1. Statement of Regulatory Philosophy and Principles.

(a) The Regulatory Philosophy.

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

(b) The Principles of Regulation.

...
(5) When an agency determines that a regulation is the best available method of achieving the regulatory objective, it shall design its regulations in the most cost-effective manner to achieve the regulatory objective. In doing so, each agency shall consider incentives for innovation, consistency, predictability, the costs of enforcement and compliance (to the government, regulated entities, and the public), flexibility, distributive impacts, and equity.

Endangered Species Act, Section 2 (16 USC 1531(a)(2))

The purposes of this chapter are to provide a means whereby the ecosystems upon which endangered species and threatened species may be conserved ...

Policy on the Consideration of Hatchery-Origin Fish in Endangered Species Act Listing Determinations for Pacific Salmon and Steelhead (70 FR 3704; June 28, 2005)

NMFS will apply this policy in support of the conservation of naturally-spawning salmon and the ecosystems upon which they depend, consistent with section 2(b) of the ESA.

Letter from NOAA Administrator to Members of Congress – May 14, 2004

At President Bush's direction, recovery of salmon is the major focus for NOAA in the Pacific Northwest (and California), an objective widely shared in the region and the nation. . . . Much work remains to be done to expand the habitat to support future generations of naturally spawning populations.

...
The central tenet of the hatchery policy is the conservation of naturally-spawning salmon and the ecosystems upon which they depend. Policy Direction Relevant to National Security Impacts.

(b) Policy Direction Relevant to National Security Impacts

Statement of President George W. Bush - "Securing the Homeland Strengthening the Nation (2002)

"The threat of terrorism is an inescapable reality of life in the 21st century... The country is now at war, and securing the homeland is a national priority."

(c) Policy Direction Relevant to Impacts to Indian Tribes

Secretarial Order # 3206– American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act, Appendix

Sec. 2. General Policy. (A) Goals. The goals of this Appendix are to provide a basis for administration of the Act in a manner that (1) recognizes common federal-tribal goals of conserving sensitive species (including candidate, proposed, and listed species) and the ecosystems upon which they depend . . .

4) In keeping with the trust responsibility, shall consult with the affected Indian tribe(s) when considering the designation of critical habitat in an area that may impact tribal trust resources, tribally-owned fee lands, or the exercise of tribal rights. Critical habitat shall not be designated in such areas unless it is determined essential to conserve a listed species. In designating critical habitat, the Services shall evaluate and document the extent to which the conservation needs of the listed species can be achieved by limiting the designation to other lands.

(d) Policy Direction Relevant to Impacts to the Program for Voluntary Conservation Agreements

H.R. Rep. No. 835, 97th Congress, 2nd Session 31 (Reprinted in 1982 U.S. Code Congressional and Administrative News s2807, 2831)

Purpose of adding section 10 of the ESA, which provides for HCPs, is to encourage “creative partnerships” between the private sector and local, state and federal agencies for the protection of endangered species and habitat conservation.

From these expressions of agency and executive branch policy, we developed the following recommendations for the agency exercise of section 4(b)(2) discretion:

(1) Regarding exclusions based **impacts to national security**, we recommend an approach that emphasizes the priority of national security while considering the degree of conservation benefit that may be lost if military lands are excluded.

(2) Regarding exclusions based on **impacts to Indian tribes**, we recommend an approach that emphasizes respect for tribal sovereignty and self-governance while considering the degree of conservation benefit that may be lost if Indian lands are excluded.

(3) Regarding exclusions based on **impacts to the program to promote voluntary conservation agreements**, we recommend an approach that recognizes that a net increase in conservation may be achieved through voluntary

landowner agreements, depending on the degree of conservation benefit that may be lost if lands covered by voluntary conservation agreements are excluded.

(4) Regarding exclusions based on **economic impacts**, we recommend an approach that will efficiently reduce economic impacts and address inequities in the distribution of economic impacts, without impeding species conservation.

4. Determine the Benefits of Designating each Particular Area as Critical Habitat

The principal benefit of designating critical habitat is that ESA section 7 requires every federal agency to ensure that any action it authorizes, funds or carries out is not likely to result in the destruction or adverse modification of critical habitat. This complements the Section 7 provision that federal agencies ensure their actions are not likely to jeopardize the continued existence of a listed species. Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area. This may focus and contribute to conservation efforts by clearly delineating areas of high conservation value for certain species.

For the proposed designations, we asked the CHARTs to determine the relative conservation value of each HSA habitat area for each ESU (high, medium or low) based on the results of a standardized scoring system after it had been established which HSA watersheds met the definition of critical habitat. This evaluation provided information necessary to determine the benefit of designating any particular habitat area as critical habitat in a manner that would aid the 4(b)(2) balancing test and was used in the 4(b)2 balancing process we used to identify possible watershed exclusions. The higher the conservation value of an area, the greater the benefit of sections 7's requirements that federal agency action not adversely modify the area.

To develop these conservation value assessments, the CHARTs first scored each occupied habitat area (i.e. HSA) based on five factors related to the quantity and quality of the physical and biological features. They next considered each area in relation to other areas and with respect to the population occupying that area. Based on a consideration of the raw scores for each area, and a consideration of that area's contribution in relation to other areas and in relation to the overall population structure of the ESU, the teams rated each habitat area as having a "high," "medium" or "low" conservation value. The teams did not discount the conservation value of any specific area based on a presumption that the section 7 prohibition against jeopardy would protect the habitat regardless of whether it was designated as critical habitat. Based on public comments received on our proposed designations, the CHARTs reconsidered their preliminary conservation assessments (NMFS 2004b) and revised them as appropriate. The final CHART assessment report (NMFS 2005a) contains the final HSA watershed conservation assessments.

Areas rated "high" were considered likely to contribute the most to conservation of an ESU, while those rated "low" were considered likely to contribute least. A rating of "high" carried with it a judgment that this area contributes significantly to conservation. A rating of "low" does not mean an area has no conservation value (and therefore there

would be no benefit of designation), nor does it mean there would be no impact on conservation of the ESU if the habitat were adversely modified. The benefit of designating a habitat area with a low conservation value will depend on the reasons the area received a “low” rating, on the conservation value of other habitat areas available to the ESU, and on whether nearby habitat areas are designated.

The rating of habitat areas as having high, medium or low conservation value provided information useful to inform our balancing process for the proposed designations since we considered that the higher the conservation value, the higher the likely benefit of designation. However, to address the possibility that this correlation was not necessarily perfect, we revised our approach for assessing the benefits of designating any particular HSA watershed for the final designations. Specifically, we developed a profile for what we termed a “low section 7 leverage” watershed. That is, a watershed where it was unlikely there would be a section 7 consultation, or where section 7 consultations if they did occur, would yield few conservation benefits. For those watersheds that did not meet the “low leverage” profile, we considered their conservation rating to be a fair assessment of the benefit of designation for the purposes of our cost-effectiveness framework. For watersheds meeting the “low leverage” profile, we considered the benefit of designation to be an increment lower than the conservation rating developed by the CHARTs. With this approach, a watershed with a high conservation value rating but “low leverage” was considered to have a medium benefit of designation; a watershed with a medium conservation value rating but “low leverage” was considered to have a low benefit of designation; and a watershed with a low conservation value rating but “low leverage” was considered to have a very low benefit of designation.

As discussed earlier, the scale we chose for the “specific area” referred to in section 3(5)(A) was occupied stream reaches within a CALWATER HSA watershed unit. Throughout this report we refer to CALWATER HSAs as watersheds, and the occupied stream reaches within a watershed as habitat areas. There were some complications with this delineation that required us to adapt the approach for some areas. In particular, a large stream or river might serve as a connectivity corridor to and from many watersheds, yet be imbedded itself in a watershed. In any given watershed through which it passes, the stream may have a few or several tributaries. For connectivity corridors embedded in a watershed, we asked the teams of biologists to rate the conservation value of the watershed based on the tributary habitat. We assigned the connectivity corridor the rating of the highest-rated watershed for which it served as a connectivity corridor. This could result in a connectivity corridor with a high rating embedded in a habitat area with a low or medium rating.

The reason for this treatment of connectivity corridors is the role they play in the salmon and steelhead life cycle. Salmon and steelhead are anadromous – born in fresh water, migrating to salt water to feed and grow, and returning to fresh water to spawn. Without a connectivity corridor to and from the sea, salmon cannot complete their life cycle. It would be illogical to consider a spawning and rearing area as having a particular conservation value and not consider the associated connectivity corridor as having a similar conservation value.

5. Determine the Benefits of Exclusion and Balance them against the Benefits of Designation

The balancing called for in section 4(b)(2) requires us to balance unlike values – conservation balanced against economic interests; conservation balanced against national security, or conservation balanced against trust obligations to Indian tribes. It also contemplates balancing conservation by one method (critical habitat designation and section 7 consultation) against conservation achieved by a different method (such as engaging tribes in range-wide management or engaging landowners in habitat conservation planning on private land). The following sections describe the approach we took to balancing each of these different interests. Table 1 gives an overview of the discussion that follows.

Table 1. Overview of Section 4(b)(2) balancing framework for different types of interests

Particular Area	Benefit of Exclusion	Benefit of Designation	Policy Considerations	Conservation Trade-off
<i>Watershed</i>	Economic	- Based on conservation value of the watershed (as adjusted for “low leverage” areas)	<u>Cost-Effective and Equitable Regulations</u>	Net loss of conservation, but not if the loss will significantly impede conservation of the ESU overall
<i>Military Zone</i>	Maintain military readiness	- Conservation value of the affected watershed(s) is relevant - Types of activities likely to occur there are relevant - Protection provided by INRMPs reduces somewhat the benefit of designation	<u>Priority of National Security</u>	May result in a net loss of conservation, but that is overcome by priority of national security and mitigated by INRMPs
<i>Indian Lands</i>	Respect tribal sovereignty, ensure tribal participation in other conservation forums	- Conservation value of the affected watershed(s) is relevant - Types of activities likely to occur there are relevant	<u>Respect for tribal sovereignty and self-governance</u> <u>Conservation trade-off</u> (lose section 7 on Indian lands in exchange for tribal participation in conservation across all actions and areas)	May result in a net loss of conservation, but that is overcome by priority of tribal sovereignty and mitigated by tribal participation in conservation activities

(a) Balancing benefits of Designation against Impacts to National Security

To determine the impact of designation on national security, we contacted the Department of Defense and provided them with information on those areas we considered as meeting the definition of critical habitat. The DOD responded with information indicating which facilities were within the range of listed ESUs under consideration and for which INRMPs had been developed, as well as some information regarding impacts to national security. In response to comments on the proposed designations, the DOD provided substantial new information regarding impacts to national security and military readiness from the possible designation of critical habitat on Camp Pendleton Marine Corps Base and Vandenberg Air Force Base. Both of these facilities have INRMPs which provide benefits to listed steelhead which qualify them for exclusion on that basis and both facilities also overlap with only a very small percentage of the occupied habitat that qualifies for possible designation. Based on our assessment of the benefits of designation, including the benefits provided by implementation existing INRMPs for both facilities, versus the impacts to national security, we are recommending that both facilities be excluded because the impacts of designation outweigh the benefits of designation. We anticipate continuing to work with DOD to obtain and review additional information on national security impacts associated with other DOD facilities after the final critical habitat designation is published.

(b) Balancing Benefits of Designation against Impacts to Indian Tribes

In developing the proposed and final designation recommendations, we identified Indian lands in California that overlapped with or were adjacent to habitat eligible for designation using GIS analysis. Based on this analysis, we determined that only 7 tribes or rancherias, the largest of which was the Round Valley Indian Tribe in the Eel River basin, had lands overlapping with occupied habitat eligible for designation at the scale of our analysis. The remaining 6 tribal entities were small rancherias with minimal spatial overlap. We subsequently attempted to consult with these tribes and the Bureau of Indian Affairs (BIA) to determine their views regarding the impacts of potential critical habitat designation on their lands. Based on responses from the BIA and the Round Valley Indian Tribes resulting from our consultation efforts and the Round Valley Indian Tribes comments on the proposed designation, we understand that Indian tribes believe the designation of critical habitat on their lands would have a negative impact on tribal sovereignty and tribal self-governance. The longstanding and distinctive relationship between the federal and tribal Governments is defined by treaties, statutes, executive orders, judicial decisions, and agreements, which differentiate tribal governments from the other entities that deal with, or are affected by, the federal government. This relationship has given rise to a special federal trust responsibility involving the legal responsibilities and obligations of the United States toward Indian Tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights. Pursuant to these authorities lands have been retained by Indian Tribes or have been set aside for tribal use. These lands are managed by Indian Tribes in accordance with tribal goals and objectives within the framework of applicable treaties and laws.

California tribes, and the Round Valley Indian Tribes in particular, are regarded as co-managers of the salmon and steelhead resource along with Federal and State co-managers. The Round Valley Indian Tribes have an existing natural resource program that assists NMFS on a regular basis in providing management information relevant to salmon and steelhead protection on their lands. They are also a recipient of Pacific Coast Salmon recovery funds for habitat restoration and management efforts on their lands and work closely with Southwest Region staff on a wide range of other issues of common interest to the agency and the Tribes. The other 6 smaller tribal entities under consideration do not have organized natural resource management programs like the Round Valley Tribes because of their small size. Our consultation with the Round Valley Indian Tribes and the BIA indicates that they view the designation of Indian lands as an unwanted intrusion into tribal self-governance which thus compromises the government-to-government relationship that is essential to achieving our mutual goal of conserving threatened and endangered salmon and steelhead.

We considered the benefits of excluding Indian lands from designation as: 1) the furtherance of established national policies, our federal trust obligations and our deference to the tribes in management of natural resources on their lands; 2) the maintenance of effective long term working relationships to promote the conservation of salmon and steelhead on an ecosystem-wide basis across four states; 3) the allowance for continued meaningful collaboration and cooperation in scientific work to learn more about the conservation needs of the species on an ecosystem-wide basis; and 4) continued respect for tribal sovereignty over management of natural resources on Indian lands through established tribal natural resource programs.

We believe that the current co-manager process addressing activities on an ecosystem-wide basis in California is currently beneficial for the conservation of the 7 listed ESUs under consideration. We also believe that maintenance of our current co-manager relationship consistent with existing policies is an important benefit to continuance of our tribal trust responsibilities and relationship. Because the co-manager process provides for coordinated ongoing focused action through a variety of forums in California we find the benefits greater than the application of Section 7 to federal activities on Indian lands which contain less 0.1 percent of all occupied stream habitat in the 7 ESUs under consideration.

Based on these considerations, we recommend NMFS exercise its discretion under section 4(b)(2) to exclude Indian lands from the proposed critical habitat designation for the 7 ESUs of salmon and steelhead subject to the Southwest Region's management jurisdiction. The Indian lands specifically recommended for exclusion are those defined in the Secretarial Order, including: 1) lands held in trust by the United States for the benefit of any Indian tribe, 2) land held in trust by the United States for any Indian Tribe or individual subject to restrictions by the United States against alienation, 3) fee lands, either within or outside the reservation boundaries, owned by the tribal government; and, 4) fee lands within the reservation boundaries owned by individual Indians.

(c) Balancing Benefits of Designating Particular Watersheds against Economic Benefits

Our assessment of economic impact generated considerable interest from commenters on

the proposed designations. Based on new information and comments received on the proposed rule, the Southwest Region has updated the preliminary economics report used for the proposed designations wherein we document our final conclusions regarding the economic impacts of designating each of the particular areas (HSAs) found to meet the definition of critical habitat (NMFS 2005b). The first step was to identify the baseline conditions – the legal and regulatory constraints on economic activity that are independent of critical habitat designation, for example Clean Water Act requirements. Coextensive impacts of the section 7 jeopardy requirement were not considered part of the baseline. Next, from the consultation record, we identified federal activities that might affect habitat and that might result in a section 7 consultation. We did not consider federal actions, such as the approval of a fishery, that might affect the species directly but not affect its habitat. We identified nine types of activities and the modifications each type of activity was likely to undergo as a result of section 7 consultation. We developed an expected direct cost for each type of action and projected the likely occurrence of each type of project in each watershed, using existing spatial databases (for example., the U.S. Army Corps of Engineers 404(d) permit database). Finally, we aggregated the costs from the various types of actions and estimated an annual impact, taking into account the probability of consultation occurring and the likely rate of occurrence of that project type.

The economic analysis makes certain simplifying assumptions that likely cause costs to be overstated. For example, costs are assigned to all activities within the geographic boundary of the watershed, even though not all federal activities lead to a section 7 consultation. The analysis also makes assumptions about the likely impact of modifications to hydropower projects, when in fact many of the projects included in the analysis may not require modifications. This could not be determined without further analysis, which time did not permit. Nevertheless, the analysis was based on the best information available within the time constraints, and provides a reasonable basis for comparing cost impacts among different areas to inform the designation process.

There were also complications in assigning economic impacts to a single habitat area when in fact the activity in question might have impacts outside that area. For example, a hydroelectric dam will often have downstream effects on flows and temperature that extend beyond the boundary of the habitat area in which the dam is located. Costs of designation could therefore be attributable to any habitat area influenced by dam operations. To simplify the analysis, these costs were assumed to accrue to the designation of the watershed in which the dam or other activity occurred. The economic analysis used two different discount rates to predict future costs (7 and 3 percent). In conducting our 4(b)(2) cost-effectiveness analysis we used the estimates based upon the 7 percent rate.

Ideally the balancing of any benefits, particularly economic benefits, would involve first translating the benefits on both sides of the balance into a common metric. Executive branch guidance from the Office of Management and Budget suggests that benefits should first be monetized – converted into dollars. Benefits that cannot be monetized should be quantified (for example, numbers of fish saved.) Where benefits can neither be monetized nor quantified, agencies are to describe the expected benefits (OMB 2003).

It may be possible to monetize benefits of critical habitat designation for a threatened or endangered species in terms of willingness-to-pay (OMB 2003). However, we are not aware of any available data at the scale of our designation (by watershed, across more than 600 watersheds) that would support such an analysis for salmon and steelhead. The short statutory timeframes, geographic scale of the designations under consideration, and the statute's requirement to use best "available" information suggest such a costly and time-consuming approach is not currently available. In addition, section 4(b)(2) requires analysis of impacts other than economic impacts that are equally difficult to monetize, such as benefits to national security of excluding areas from critical habitat. In the case of salmon and steelhead designations, impacts to Indian tribes or the military are "other relevant" impacts that also may be difficult to monetize.

An alternative approach, approved by OMB, is to conduct a cost-effectiveness analysis. A cost-effectiveness analysis ideally first involves quantifying benefits, for example, percent reduction in extinction risk, percent increase in productivity, or increase in numbers of fish. Given the state of the science, it would be difficult to quantify the benefits reliably. There are models for estimating numbers of salmon that might be produced from a watershed under different sets of environmental conditions (for example, Ecosystem Diagnosis and Treatment). While such models give quantified results, the accuracy of the quantified projections is uncertain because of the lack of data both on the relationships between environmental conditions and numbers of fish, and the actual conditions of habitat in a given area. This leads to a heavy reliance on expert opinion for estimating habitat condition and the expected response of fish to changing environmental conditions in a specific location. Moreover, applying such models at the scale required for salmon and steelhead would take more time than the statute allows.

Although it is difficult to monetize or quantify benefits of critical habitat designation, it is possible to differentiate among habitat areas based on their relative contribution to conservation. For example, habitat areas can be rated as having a high, medium or low conservation value. Like the models discussed above, such a rating is based on best professional judgment. The simpler output (a qualitative ordinal ranking), however, may better reflect the state of the science for the geographic scale considered here than a quantified output, and can be done more easily within the statutory timeframes and with available information. The qualitative ordinal evaluations can then be combined with estimates of the economic costs of critical habitat designation in a framework that essentially adopts that of cost-effectiveness. Individual habitat areas can then be assessed using both their biological evaluation and economic cost, so that areas with high conservation value and lower economic cost have a higher priority for designation and areas with a low conservation value and higher economic cost have a higher priority for exclusion.

In determining whether the economic benefit of excluding a habitat area might outweigh the benefit to the species of designation, we considered the following factors: 1) the policy goal of exercising our discretion to further conservation of listed species; 2) the policy goal of adopting regulations that minimize total economic impacts and disparate economic impacts; 3) the recognition that because we are considering coextensive impacts, the dollar benefits of exclusion are likely overstated, 4) the difficulty of balancing dissimilar values (dollars versus benefits to species conservation); and 5) the limited time frame in which to make decisions. Consideration of these factors led us to a

cost-effectiveness approach in which we gave priority to excluding habitat areas with a relatively lower benefit of designation and a relatively higher economic impact.

The circumstances of most of the listed ESUs seem well suited to a cost-effectiveness approach. Pacific salmon and steelhead are wide-ranging species and occupy numerous habitat areas with thousands of stream miles. Most of these areas contain “physical or biological features” we have identified as “essential to conservation” of the ESUs. Not all these areas, however, are of equal importance to conserving an ESU, as evidenced by the CHARTs rating of different HSA watersheds as having high, medium or low conservation value. In many cases it may therefore be possible to construct different scenarios for achieving conservation of these ESUs. Scenarios might have more or less certainty of achieving conservation, and more or less economic impact.

To give effect to our policy goals, we decided to use a two-step approach. In the first step we identified all areas eligible for exclusion. Eligibility was determined based on a dollar impact. In the second step we asked the CHARTs to consider whether excluding any of the areas eligible for exclusion, either alone or in combination with other eligible areas, would significantly impede conservation. For the first step, we sought criteria that would result in a list of eligible areas with a meaningful cost savings. At the same time we did not want to develop a list that would then require extensive modification as a result of applying biological judgment in the second step. With more time to conduct the analysis it would be possible to have numerous iterations between the biological and economic considerations. Given the time frames of the statute and limited time for iterations, however, we sought criteria that would allow the second step to be reasonably efficient.

We also sought criteria that would account for the fact that recovery planning processes are not yet complete. The timeframes associated with the designation process necessarily lead to decisions regarding designation of critical habitat in advance of the completion of recovery planning. This is a factor for the agency to consider in deciding whether to exclude any areas.

To better determine the most appropriate criteria, we first considered alternative scenarios for the initial exclusion criteria. In the first scenario, which is similar to a “no action” alternative, we did not exclude any areas. This scenario would provide the maximum benefit of designation to the species, and a useful point of comparison for the economic benefit possible from other scenarios. In a second scenario we simply considered as eligible for exclusion all habitat areas with low or medium conservation value ratings. In a third scenario, we developed dollar thresholds for excluding HSA watersheds having a low and medium benefit of designation (which took into consideration the CHARTs conservation value ratings based on biological criteria as well as whether or not a watershed met the “low section 7 leverage” profile) that were likely to result in meaningful economic reductions, but that would not in most cases automatically make all the low- and medium-value habitat areas eligible for exclusion. Based on the rating process used by the biological teams, we judged that exclusion of any of the high benefit watersheds in this third scenario would significantly impede conservation, and therefore, they were not considered eligible for exclusion.

Selection of criteria for the third scenario was complicated by the fact that the

circumstances of each ESU are unique. Some ESUs had a higher proportion of low- and medium- benefit areas than others. Different criteria could therefore be expected to produce different results for different ESUs. In developing criteria for the third scenario, we chose dollar thresholds that we anticipated would lead most directly to a cost-effective scenario, recognizing that the question of whether the economic benefit of excluding any particular area outweighs the benefit of designating that area can only be answered in the context of the overall designation – the conservation impact of excluding any particular area may depend on which other areas are being excluded, and therefore the benefit of designation may depend on what else is being designated.

As criteria for identifying habitat areas eligible for exclusion in scenario 3, we selected “impacts greater than \$70,000” for low conservation value/benefit areas. For medium conservation value/benefit areas, we selected “impacts greater than \$300,000”. The statute directs us to balance dissimilar interests with a limited amount of time (and therefore information). It also emphasizes the discretionary nature of the decision to exclude. Moreover, while our approach follows the *NAHB* Court’s direction to consider coextensive economic impacts, we nevertheless must acknowledge that all of the cost estimates are likely higher than the true cost of a critical habitat designation. Finally, the cost estimates developed by our economic analysis give a generally smooth distribution of costs, with no obvious break point that would lead to a logical division between “high,” “medium,” and “low” costs that might correspond to high, medium and low benefits of designation. Given these factors, a judgment that any particular dollar threshold is objectively “right,” would be neither necessary nor possible. Rather, what economic impact is “high”, and therefore, might outweigh the benefit of designating a medium- or low-benefit habitat area is a matter of discretion and depends on the policy context. The policy context in which we carry out this task led us to select dollar thresholds that would likely lead to a cost-effective designation in a limited amount of time with a relatively simple process.

In developing the final rule, we also considered whether there were some cases in which the biological teams’ ratings of conservation value might need to be adjusted to take into account the likelihood of a consultation and the degree of habitat modification likely as a result of potential federal actions. To address this concern, we identified a profile for a watershed that would have “low leverage” based on the fact that a section 7 consultation in that watershed would be unlikely to occur or, if it did occur, it would yield few conservation benefits. We used this profile to identify potential low leverage watersheds. We then adjusted downward by one level the conservation rating for these low leverage watersheds. The result was that some watersheds previously given a low conservation value now had a “very low” conservation value, some medium value watershed had low conservation value, and so on.

Table 2 illustrates the results of each of the three scenarios described above for each ESU. For all three scenarios, the Low (L), Medium (M) and High (H) refer to watershed conservation value as determined by the CHARTs in their final assessment (NMFS 2005a). In scenario 3, however, each conservation value category (i.e. Low, Medium, and High) contained a mixture of watersheds including those that did not meet the “low section 7 leverage” profile and those that did. As a result, the potential economic impact reduction for each of the three categories was a combination of watersheds in that category that exceeded the cost threshold for that category and watersheds that met the

"low section 7 leverage" profile and exceeded the cost threshold for the next lower conservation category. For example, the economic impact reduction for the Medium category includes both medium rated watersheds that did not meet the "low leverage" criteria, but exceeded the cost criteria for medium rated watersheds, as well as medium rated watershed that met the "low leverage" criteria and exceeded the cost criteria for low rated watersheds. For this reason, in scenario 3 the high value category includes some potential cost reductions for high conservation rated watersheds that met the "low leverage" criteria and were considered for eligible for exclusion because the exceeded the medium category threshold.

Table 2. Comparison of alternative scenarios for excluding certain areas from critical habitat designation under ESA section 4(b)(2). The cumulative potential economic impact of designating habitat areas within watersheds is presented for the low conservation value, medium conservation value, high conservation value, and all habitat areas for each Evolutionarily Significant Unit (ESU). The reduction in potential economic impact is then presented for each of the three scenarios. Economic impacts reflect those for watersheds and connectivity corridors within the spawning and rearing range of a given ESU.

		<u>Potential Reduction in Maximum Economic Impact</u> <i>(reduction in annual economic impact of section 7 consultations)</i>		
Conservation value of HUC5 watersheds	<u>Maximum economic impact</u>	<u>Scenario 1</u>	<u>Scenario 2</u>	<u>Scenario 3</u>
<i>L = low value</i> <i>M = medium value</i> <i>H = high value</i>	<i>Annual economic impact of section 7 consultations</i>	<i>No areas eligible for exclusion</i>	<i>All low-value(L) and medium-value (M) areas eligible for exclusion. For L and M areas with high-value (H) migration/connectivity corridors, only tributaries are eligible for exclusion.</i>	<i>All low-value (L) areas with an economic impact > \$70,000/yr and all medium-value (M) areas with an economic impact of \$300,000/yr are eligible for exclusion</i>
1. California Coastal Chinook ESU				
L	\$2,547,960	\$0	-\$2,547,960	-\$2,515,974
M	\$1,512,778	\$0	-\$1,512,778	-\$1,271,411
H	\$6,932,599	\$0	\$0	-\$ 619,287
Total	\$10,993,337	\$0	-\$4,060,738	-\$4,406,672
2. Northern California O. mykiss ESU				
L	\$855,583	\$0	-\$855,583	-\$809,882
M	\$2,937,085	\$0	-\$2,937,085	-\$2,675,761
H	\$4,980,764	\$0	\$0	\$0
Total	\$8,773,432	\$0	-\$3,792,668	-\$3,485,643

<u>3. Central California Coast O. mykiss ESU</u>				
L	\$3,618,151	\$0	-\$3,618,151	-\$3,603,131
M	\$3,876,057	\$0	-\$3,876,057	-\$3,772,883
H	\$11,083,038	\$0	\$0	-\$2,792,183
Total	\$18,577,246	\$0	-\$7,494,208	-\$10,168,197
<u>4. South-Central California Coast O. mykiss ESU</u>				
L	\$5,409,547	\$0	-\$5,409,547	-\$5,344,638
M	\$3,496,265	\$0	-\$3,496,265	-\$3,326,054
H	\$7,951,553	\$0	\$0	-\$5,136,577
Total	\$16,857,365	\$0	-\$8,905,812	-\$13,807,269
<u>5. Southern California O. mykiss ESU</u>				
L	\$6,355,026	\$0	-\$6,355,026	-\$5,687,137
M	\$3,522,882	\$0	-\$3,522,882	-\$3,231,273
H	\$9,846,136	\$0	\$0	-\$322,647
Total	\$19,724,044	\$0	-\$9,877,908	-\$9,241,057
<u>6. Central Valley Spring run Chinook ESU</u>				
L	\$6,381,422	\$0	-\$6,381,422	-\$6,327,900
M	\$906,775	\$0	-\$906,775	-\$906,775
H	\$21,381,422	\$0	\$0	-\$0
Total	\$29,255,219	\$0	-\$7,288,197	-\$7,234,675
<u>7. Central Valley O. mykiss ESU</u>				
L	\$2,865,945	\$0	-\$2,865,945	-\$2,741,240
M	\$4,945,966	\$0	-\$4,945,966	-\$3,956,701
H	\$30,423,322	\$0	\$0	-\$356,833
Total	\$38,235,233	\$0	-\$7,811,911	-\$7,054,774

Scenario 1 illustrates the total estimated economic impact of applying section 7 requirements to habitat-modifying actions in all of the habitat areas within an ESU. Scenario 2 illustrates the estimated potential reduction in economic impact if all of the low- and medium-value habitat areas are excluded, and Scenario 3 illustrates the estimated potential reduction in economic impact if low- and medium-value/benefit habitat areas above a particular dollar threshold are excluded. The cost reductions shown are only potential reductions. Until the second step of the analysis is completed (i.e. the evaluation by CHARTs to determine if exclusion of a watershed would impede conservation of the ESU), it is not possible to determine the final estimated reduction that scenario would yield. In considering the scenarios, we kept in mind that both the costs and reductions to cost are likely overstated because the jeopardy requirement of section 7 still applies. Nevertheless, examining alternatives gives a useful picture of the relative outcomes of different scenarios.

Scenario 1 would meet the first policy goal of not excluding any area if exclusion would significantly impede conservation. However, it would not serve the second policy goal of minimizing costs. Scenario 2 furthers the goal of reducing economic impacts, but without any sensitivity to the fact that for some habitat areas the cost is relatively small

so the incremental benefit of excluding that area is small (making it problematic to conclude that the benefit of exclusion outweighs the benefit of designation without a more refined analysis of whether a low-value area is a “low-low” or a “high-low”). Scenario 2 is also not sensitive to the fact that for most ESUs, eliminating all low- and medium-value habitat areas is likely to significantly impede conservation. While the second step of the test (application of biological judgment) would address this concern, it would not do so in an efficient way – that is, it would not efficiently lead to the low-cost areas being favored for designation and the high cost areas favored for exclusion. For Scenario 2, it is unlikely that all of the potential reductions would be retained through the second step. The end result also may not be economically efficient unless there are additional iterative steps that allow for consideration of economic impacts as the list of all areas eligible for exclusion is narrowed to a combination of only those that will meet the first policy goal (that is, not significantly impede conservation).

In contrast, Scenario 3 is sensitive to the fact that excluding some low and medium areas will not result in the same cost savings as excluding other low and medium areas. It is also sensitive to the fact that excluding all low and medium areas in all ESUs would not result in an efficient second step of the process. Based on these considerations, we applied the economic criteria described for Scenario 3, through a two-step test, to develop a set of recommended final exclusions.

6. Determine whether the Exclusions will result in Extinction of the ESU

Section 4(b)(2) does not allow the agency to exclude areas if exclusion will result in extinction of the species. For exclusions based on economic considerations, we applied the first policy goal – not to exclude any habitat areas if the exclusion would significantly impede conservation. We have determined for each ESU that the exclusion of the areas we recommend, either individually or collectively, will not significantly impede conservation. Given that conclusion, we also conclude that none of the exclusions we recommend will result in extinction of the species.

III. AREAS RECOMMENDED FOR EXCLUSION – BY ESU

Having developed a two-step process for the 4(b)(2) balancing test, we applied it to each ESU separately. Many of the habitat areas under consideration meet the definition of critical habitat for more than one ESU, that is, they have overlapping critical habitat. For example, the Central Valley Spring Chinook and Central Valley Steelhead ESUs have overlapping distributions in the Sacramento River watershed and Delta. Similarly, California Coast Chinook and Northern California Steelhead ESUs have very similar distributions, and portions of California Coastal Chinook ESU overlap with the Central California Coast Steelhead ESU. Finally, in the Central Valley and in coastal watersheds north of Santa Cruz, there critical habitat currently designated for other listed ESUs (Sacramento River winter-run chinook in the central valley and Central California coast coho, and Southern Oregon/Northern California coho on the north coast) that overlaps with the designations addressed in this final rulemaking.

In areas of overlap, we could have decided that the critical habitat for one ESU would be designated first. Protection for the first ESU would then be part of the baseline for the second or third ESU, so there would be little impact from the subsequent designations.

We decided against this approach for several reasons. The decision of which ESU went first could have a major effect on the incremental impact of the subsequent ESUs, creating an opportunity to manipulate the outcome. In addition, if one ESU were to recover and be de-listed, its critical habitat designation would also be gone, leaving the remaining designations in place. In contrast, an approach that considered the independent effect of each designation would accurately represent the situation if one of the designations were no longer to apply. We were most persuaded to adopt an approach that considers the independent impacts of designation by our overall view of the 4(b)(2) process. So long as we also consider the independent benefit of each designation for each ESU, regardless of designations present for other ESUs, we will still have an accurate picture of the benefits of designation versus the benefits of exclusion.

One result of this decision is that there are some areas that are designated for one ESU but excluded for another, because the differing habitat needs may lead to an area being rated high-value for one ESU but medium- or low-value for another. In recommending exclusions, we did not make a separate effort to match exclusions. Consistent with our approach throughout, we considered the impacts of designation and the benefits of designation for each ESU based on its individual circumstances.

The following sections summarize the recommended final exclusions for each of the 7 ESUs addressed in this final rulemaking.

A. CC Chinook salmon ESU

The CC Chinook salmon ESU was listed as a threatened species in 1999 (64 FR 50394). The ESU includes all naturally spawned populations of chinook salmon from rivers and streams south of the Klamath River to and including the Russian River. Following completion of an updated status review (NMFS 2003a) and review of hatchery populations located within the range of the ESU (NMFS 2003b), NMFS recently determined that the ESU should remain listed as a threatened species, but that seven hatchery populations were part of the ESU (70 FR 37160). Major watersheds occupied by naturally spawning fish in this ESU include Redwood Creek, Mad River, Eel River, several smaller coastal watersheds, and the Russian River. A Technical Recovery Team has been formed and is in the process of identifying the historical and extant population structure of this ESU, as well as viability criteria for independent populations and the ESU as a whole.

There are 45 occupied HSA watersheds within the freshwater and estuarine range of this ESU. There are approximately 1,634 mi of occupied stream miles within these occupied HSA watersheds that meet the definition of critical habitat for this ESU. Eight HSA watersheds received a low rating, 10 received a medium rating, and 27 received a high rating of conservation value to the ESU (NMFS, 2005a). Two estuarine habitat areas (Humboldt Bay and the Eel River Estuary) include approximately 25 mi² of habitat that is used for rearing and migration and also meets the definition of critical habitat. These areas are not CALWATER HSAs, but they were evaluated and received a high conservation value rating. Appendix Map A1 shows the conservation ratings by watershed for this ESU, as well as the watersheds that were considered to have low section 7 leverage.

1. Military and Indian Lands

Approximately 10 mi of occupied stream habitat occurs within or adjacent to the boundaries of six Indian reservations within the ESU including: Big Lagoon Reservation, Blue Lake Rancheria, Round Valley Indian Tribes, Laytonville Rancheria, Manchester - Point Arena Rancheria, and Redwood Valley Rancheria. We have not calculated the potential reduction in estimated economic impact as a result of these Indian land exclusions, but expect it would be small given the small percentage of stream miles these exclusions represent (less than 0.1 percent of all occupied stream miles). We have determined that the benefits of excluding the habitat areas on these Indian lands from designation outweigh the benefits of their designation, and therefore, are recommending their exclusion from the final designation for this ESU. There are no military facilities within the range of this ESU that contain occupied stream habitat eligible for designation.

2. Consideration of Economic Impacts and Recommendations for Exclusions

Based on the preliminary 4(b)2 analysis conducted for the proposed critical habitat designation for this ESU (NMFS 2004c), we proposed to exclude 4 low conservation value habitat areas and one medium value habitat area because the economic benefits of exclusion outweighed the benefits of designation (69 FR 71880). For this ESU, the proposed exclusions constituted approximately 113 occupied stream miles, representing 7 percent of the total stream miles occupied by the ESU. Based on the preliminary economic analysis conducted for the proposed designation (NMFS 2004d), the estimated economic impact was reduced approximately 35 percent from that which would occur if all occupied habitat areas were designated. Combined with the excluded habitat areas on Indian lands, the total stream miles proposed for exclusion represented approximately 7.5 percent of the total stream miles occupied by this ESU. After exclusions the total estimated economic impact of the proposed designation was \$7,586,559.

Appendix Table B1 shows the estimated total economic impacts for each of the occupied HSA habitat areas based on the final economic analysis (NMFS 2005b). The total potential estimated economic impact is \$10,993,337. Of the 8 low value/benefit habitat areas, 5 exceeded the Scenario 3 economic impact criteria, making them eligible for exclusion. Four of these HSA habitat areas were proposed for exclusion (69 FR 71880; NMFS 2004c) and one additional HSA habitat area was identified based on the final economic analysis and 4(b)2 analysis. The CHART determined that these five HSA exclusions would not impede conservation of this ESU. Of the 10 medium-value HSA habitat areas, 3 exceeded the Scenario 3 criteria. One of these habitat areas was proposed for exclusion (69 FR 71880; NMFS 2004c) and two were identified based on the final economic and 4(b)2 analyses. The CHART determined that two of these exclusions would not impede conservation of the ESU, but that exclusion of HSA 111433 would impede conservation of the ESU. Of the 29 high value HSA habitat areas, 1 exceeded the Scenario 3 criteria. The CHART determined that exclusion of this HSA would impede conservation of the ESU.

In summary, we recommend that 5 low or very low value habitat areas and 2 medium or low/medium value habitat areas be excluded from the final critical habitat designation for

this ESU because the economic benefits of exclusion outweigh the benefits of designation. Appendix Map C1 shows those habitat areas being recommended for exclusion from the final designation. They include approximately 158 occupied stream miles which represents approximately 10 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 33 percent of the impact that would occur if all occupied habitat areas were designated. After exclusions, the total estimated economic impact of the final recommended designation is \$7,333,751

We have concluded that exclusion of any of these areas alone, or all of these areas in combination, would not significantly impede conservation of the CC chinook ESU. The habitat areas being recommended for designation as critical habitat include approximately 1,475 stream miles and 25 sq miles of estuarine habitat (primarily Humboldt Bay). The recommended critical habitat designation for the CC chinook ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of this ESU.

B. NC Steelhead ESU

The NC Steelhead ESU was listed as a threatened species in 2000 (65 FR 36074; June 7, 2000). The ESU includes all naturally spawned populations of steelhead in coastal river basins from Redwood Creek south to and including the Gualala River. Major watersheds occupied by naturally spawning fish in this ESU include Redwood Creek, Mad River, Eel River, several smaller coastal watersheds on the coast south to the Gualala River. Steelhead within this ESU include both winter and summer run types, including what is presently considered to be the southernmost population of summer run Steelhead in the Middle Fork Eel River (NMFS 1996). The half-pounder life history type also occurs in the ESU, specifically in the Mad and Eel Rivers. Based on an updated status review (NMFS 2003a) and an assessment of hatchery populations located within the range of the ESU (NMFS 2003b), NMFS proposed that the ESU remain listed as a threatened species and that resident *O. mykiss* co-occurring with anadromous populations below impassible barriers (both natural and man-made) as well as two artificial propagation programs (Yager Creek Hatchery and North Fork Gualala River Hatchery) also be included in the ESU (69 FR 33102; June 14, 2004). NMFS recently invoked a 6-month extension of its final listing determination for this ESU and will make a final determination in December 2005 (70 FR 37219). A Technical Recovery Team has been formed and is in the process of identifying the historical and extant independent population structure of this ESU and associated population viability parameters for each population.

There are 50 occupied HSA watersheds within the freshwater and estuarine range of this ESU. There are approximately 3,148 mi of occupied stream habitat within these occupied HSA watersheds that meet the definition of critical habitat for this ESU. Nine HSA watersheds received a low conservation value rating, 14 received a medium rating, and 27 received a high rating of conservation value to the ESU (NMFS 2005a). Two estuarine habitat areas used for rearing and migration (Humboldt Bay and the Eel River Estuary), but that are not CALWATER HSAs, constitute approximately 25 sq miles of habitat and also meet the definition of critical habitat. These estuarine habitat areas were also evaluated and received a high conservation value rating. These estuarine areas encompass. Appendix Map A2 shows the conservation value ratings by watershed for this ESU, and also identifies those HSA watersheds considered to have low section 7

leverage.

1. Military and Indian Lands

Approximately 21 mi of occupied stream habitat occurs within or adjacent to the boundaries of five Indian reservations within the ESU including: Big Lagoon Reservation, Blue Lake Rancheria, Round Valley Indian Tribes, Laytonville Rancheria, and Manchester - Point Arena Rancheria. We have not calculated the potential reduction in estimated economic impact as a result of these Indian land exclusions, but expect it would be small given the small percentage of stream miles these exclusions represent (less than 0.1 percent of all occupied stream miles). We have determined that the benefits of excluding the habitat areas on these Indian lands from the designation outweigh the benefits of designating them, and therefore, are recommending they be excluded from the final designation for this ESU. There are no military facilities within the range of this ESU that contain occupied stream habitat eligible for designation.

2. Consideration of Economic Impacts and Recommendations for Exclusions

Based on the preliminary 4(b)2 analysis conducted for the proposed critical habitat designation for this ESU (NMFS 2004c), we proposed to exclude 1 low conservation value HSA habitat area and 2 medium value habitat areas because the economic benefits of exclusion outweighed the benefits of designation (69 FR 71880). For this ESU, the proposed exclusions constituted approximately 116 occupied stream miles which represented approximately 4 percent of the total stream miles occupied by the ESU. Based on the preliminary economic analysis conducted for the proposed rule (NMFS 2004d), the estimated economic impact was reduced by approximately 38 percent from the impact that would occur if all habitat areas were designated. After exclusions, the total estimated economic impact of the proposed designation was \$6,688,254.

Appendix Table B2 shows the estimated total economic impacts for each of the occupied HSA habitat areas within the range of this ESU. The total potential estimated economic impact is \$8,773,432. Of the 9 low-value HSA habitat areas, 1 exceeded the Scenario 3 economic impact criteria making it eligible for exclusion. This habitat area was proposed for exclusion (69 FR 71880) and the CHART reaffirmed its exclusion would not impede conservation of the ESU. Of the 14 medium-value HSA habitat areas, five exceeded the Scenario 3 criteria. Of these, two were proposed for exclusion (69 FR 71880) and the CHART reaffirmed their exclusion would not impede conservation of the ESU. In contrast, the CHART concluded that exclusion of the three other medium value HSA habitat areas that exceeded the Scenario 3 criteria would impede conservation of this ESU. No high value habitat areas exceeded the Scenario 3 criteria.

In summary, we recommend that 1 low conservation value habitat area and 2 medium-value habitat area be excluded from the final designation because the economic benefits of exclusion outweigh the benefits of designation. All of these habitat areas were proposed for exclusion in the proposed critical habitat designation for this ESU (69 FR 71880). Appendix Map C2 shows those habitat areas being recommended for exclusion from the final designation for this ESU. They include approximately 120 occupied stream miles, representing approximately 4 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 31 percent of the

impact that would occur if all habitat areas were designated. Combined with the excluded habitat areas on Indian lands, the total stream miles not recommended for final designation represent approximately 4.5 percent of the total stream miles occupied by this ESU. After exclusions, the total estimated economic impact of the final recommended designation is \$6,063,568.

We have concluded that exclusion of any of these areas alone, or of all areas in combination, would not significantly impede conservation of this ESU. The habitat areas being recommended for final critical habitat designation include approximately 3,028 stream miles and 25 sq miles of estuarine habitat. The recommended final critical habitat designation for this ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of this ESU.

C. CCC Steelhead ESU

The CCC Steelhead ESU was listed as a threatened species in 1997 (62 FR 43937; August 18, 1997). The ESU includes all naturally spawned populations of steelhead in coastal river basins from the Russian River southward to and including Aptos Creek, as well as naturally spawned populations of steelhead in drainages of San Francisco and San Pablo Bays eastward to, but excluding, the Sacramento-San Joaquin Delta. Major coastal watersheds occupied by naturally spawning fish in this ESU include the Russian River, Lagunitas Creek, and San Lorenzo River. Important watersheds occupied by naturally spawning fish within the San Francisco Bay/San Pablo Bay area include Coyote Creek, Guadalupe Creek, Petaluma River, and the Napa River. Based on an updated status review (NMFS 2003a) and an assessment of hatchery populations located within the range of the ESU (NMFS 2003b), NMFS proposed that the ESU remain listed as a threatened species (69 FR 33102; June 14, 2004). In addition, NMFS proposed that: (1) resident *O. mykiss* co-occurring with anadromous populations below impassable barriers (both natural and man made), (2) two artificially propagated populations (Don Clausen Fish Hatchery in the Russian River basin and the Kingfisher Flat Hatchery/Scott Creek hatchery in Scott Creek south of San Francisco) and (3) three resident *O. mykiss* sub-populations above Dam 1 on Alameda Creek also be included in this ESU. A final listing determination for this ESU, as well as all other west coast steelhead ESUs, has been delayed until December 2005 because of scientific uncertainties and controversy (70 FR 37219). Because the resident *O. mykiss* populations in upper Alameda Creek are not listed at this time, the watershed units occupied by these fish were not considered occupied and therefore were not considered in the final 4(b)2 analysis for this ESU. A Technical Recovery Team has been formed and is in the process of identifying the historical and extant independent population structure of this ESU, as well as the associated viability criteria for these populations.

There are 46 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Five of these HSAs encompass the San Francisco - San Pablo - Suisun Bay complex which constitutes migratory and rearing habitat for some populations within this ESU. There are approximately 1,832 mi of occupied stream habitat within these occupied HSA watersheds that meet the definition of critical habitat for this ESU. The five Bay complex HSAs comprise approximately 442 mi² of habitat. Fourteen HSA watersheds received a low conservation value rating, 13 received a medium rating, and 19 received a high rating of conservation value to the ESU (NMFS 2005a). Appendix

Map A3 shows the conservation ratings by watershed for this ESU, as well as those watersheds that were considered to have low section 7 leverage.

1. Military and Indian Lands

Approximately 1 mi of occupied stream habitat occurs within or adjacent to the boundaries of two Indian reservations within the ESU (Coyote Valley Reservation and Redwood Valley Rancheria). We have not calculated the potential reduction in estimated economic impact as a result of excluding these Indian lands, but expect it would be very small given the small percentage of stream miles these exclusions represent (less than 0.1 percent of all occupied stream miles). We have determined that the benefits of excluding the habitat areas on these Indian lands from the designation outweigh the benefits of designating them, and therefore, are recommending they be excluded from the final designation for this ESU. One military facility is partially within or adjacent to occupied estuarine habitat that is eligible for designation (Mare Island Army Reserve Center and Naval Weapons Station). We have not calculated the potential reduction in estimated economic impact as a result of excluding this military facility, but expect it would be small given the small amount of occupied estuarine habitat for which there is overlap. We have also determined that the military's management of the Mare Island Army Reserve Center with respect to its INRMP provides benefits to the listed ESU, and therefore, the occupied habitat within or adjacent to this facility does not qualify for designation.

2. Consideration of Economic Impacts and Recommendations for Exclusions

Based on the preliminary 4(b)2 analysis conducted for the proposed critical habitat designation for this ESU (NMFS 2004c), we proposed to exclude 9 low conservation value habitat areas and 3 medium-value habitat areas (one entire watershed and two tributary only watersheds) from designation because the economic benefits of exclusion outweighed the benefits of designation. For this ESU, these proposed exclusions included approximately 326 total stream miles, representing approximately 16 percent of the total stream miles occupied by the ESU, and 56 sq miles of estuarine habitat in the San Francisco Bay complex. Based on the preliminary economic analysis conducted for the proposed rule (NMFS 2004d), the estimated economic impact was reduced by approximately 42 percent from the impact that would occur if all habitat areas were designated. Combined with the excluded habitat areas on Indian lands, the total stream miles not recommended for designation represented approximately 16 percent of the total stream miles occupied by this ESU. After exclusions, the total estimated economic impact of the proposed designation was \$5,452,712.

Appendix Table B3 shows the estimated total economic impacts for each of the occupied HSA habitat areas based on the final economic analysis. The total potential estimated economic impact of designating all eligible areas is \$18,577,246. Of the 14 low-value habitat areas, 10 exceeded the Scenario 3 economic impact criteria, making them eligible for exclusion. Of these, 9 were proposed for exclusion (69 FR 71880) and 1 was identified as a result of the final economic and 4(b)2 analyses. The CHART concluded that exclusion of these 10 habitat areas would not impede conservation of the ESU, although of portion of migratory is being designated in HSA 220540 that provides connectivity to habitat recommended for designation in adjacent HSA 220530. Of the 13 medium-value habitat areas, 9 exceeded the Scenario 3 criteria making them eligible for

exclusion. The CHART concluded that exclusion of 4 of these habitat areas, including 3 that were originally proposed for exclusion and 1 that was identified as a result of the final economic and 4(b)2 analysis would not impede conservation of the ESU. In one of these habitat areas (HSA 111431), however, the CHART concluded that migratory habitat in the mainstem Russian should be retained in the designation to provide migratory connectivity between high value habitat upstream and areas downstream. The CHART, however, determined that exclusion of the 4 remaining medium value habitat areas would impede conservation of the ESU. Of the 19 high value habitat areas, 4 exceeded the Scenario 3 economic criteria (i.e. all HSAs met the low section 7 leverage criteria and therefore were considered for exclusion as if they were medium value habitat areas), making them eligible for designation. The CHART evaluated these habitat areas and concluded that their exclusion would impede conservation of the ESU.

In summary, we recommend that 10 low value habitat areas and 4 medium value habitat areas be excluded from the final designation for this ESU because the economic benefits of exclusion outweigh the benefits of designation. Twelve of these areas were proposed for exclusion in the proposed critical habitat designation for this ESU (69 FR 71880) and 2 were identified as a result of the final economic and 4(b)2 analyses. Appendix Map C3 shows those habitat areas being recommended for exclusion from the final designation for this ESU. They include approximately 367 stream miles of occupied habitat, representing approximately 20 percent of the total stream miles occupied by the ESU and eligible for designation. The reduction in estimated economic impact from these exclusions is approximately 31 percent of the impact that would occur if all habitat areas were designated. After exclusions, the total estimated economic impact of the final recommended designation for this ESU is \$12,917,247.

We have concluded that exclusion of any of these areas alone, or of all areas in combination, would not significantly impede conservation of this ESU. The habitat areas being recommended for designation as critical habitat include approximately 1,465 occupied stream miles and 386 sq miles of estuarine habitat in the San Francisco Bay complex. The recommended critical habitat designation for this ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of this ESU.

D. SCCC Steelhead ESU

The SCCC Steelhead ESU was listed as a threatened species in 1997 (62 FR 43937). The ESU includes all naturally spawned populations of steelhead in coastal river basins from the Pajaro River southward to, but not including, the Santa Maria River. The major watersheds occupied by naturally spawning fish in this ESU include the Pajaro River, Salinas River, Carmel River, and numerous smaller rivers and stream along the Big Sur coast and southward. Most of the rivers in this ESU drain the Santa Lucia Range, the southernmost unit of the California Coast Range and only winter steelhead are found in this ESU. The mouths of many rivers and streams in this ESU are seasonally closed by sand berms that form during periods of low flow in the summer. Based on an updated status review (NMFS 2003a), NMFS proposed that the ESU remain listed as a threatened species and that resident *O. mykiss* co-occurring with anadromous populations below impassible barriers (both natural and man-made) be included in the ESU (69 FR 33102; June 14, 2004). A final listing determination for this ESU that includes resident *O. mykiss*

has been delayed until December 2005 because of scientific uncertainties and controversy (70 FR 37219). A Technical Recovery Team has been formed and is in the process of identifying the historical and extant independent population structure of this ESU and associated population viability criteria.

There are 30 occupied HSA watersheds within the freshwater and estuarine range of this ESU. One of these watershed units is Morro Bay which provides estuarine rearing and migration habitat for this ESU. There are approximately 1,251 mi of occupied stream habitat and 3 sq mi of occupied estuarine habitat (Morro Bay) within these occupied HSA watersheds that meet the definition of critical habitat for this ESU. Six HSA watersheds received a low rating, 11 received a medium rating, and 13 received a high rating of conservation value to the ESU (NMFS 2005a). Appendix Map A4 shows the conservation ratings by watershed for this ESU, as well as those watersheds that were considered to have low section 7 leverage for purposes of this 4(b)2 analysis.

1. Military and Indian Lands

There are two DOD facilities controlled by the military or designated for its use and covered by an INRMP with occupied stream habitat within the range of this ESU: Camp San Luis Obispo and Camp Roberts. Altogether these military lands contain about 22 miles of occupied habitat, or approximately 1.5 percent of the total stream miles occupied in this ESU. We have not calculated the potential reduction in estimated economic impact as a result of these exclusions, but expect it would be small given the small percentage of stream miles these exclusions represent for the ESU as a whole. We have determined that the military's management of these lands under their INRMPs provides benefits to the listed ESU, and therefore, the occupied stream reaches within these military lands do not qualify for designation. There are no Indian lands within the range of this ESU that contain occupied stream habitat.

2. Consideration of Economic Impacts and Recommendations for Exclusions

Based on the preliminary 4(b)2 analysis conducted for the proposed critical habitat designation for this ESU (NMFS 2004c), we did not propose to exclude any habitat areas because the economic benefits of exclusion did not outweigh the benefits of designation. Based on the CHARTs assessment, the exclusion of any of these areas alone, or all of the areas in combination, would significantly impede conservation of this ESU. The habitat areas recommended for designation as critical habitat included approximately 1,240 stream miles. The proposed exclusion of occupied stream habitat on DOD lands represented approximately 1.5 percent of the total stream miles occupied by this ESU, but we could not estimate the reduction in economic impacts associated with these DOD exclusions. Because there were no recommended exclusions as a result of the two-step balancing process for economic impacts, the total estimated economic of the proposed designation was \$10,084,293.

Appendix Table B4 shows the estimated total economic impacts for each of the occupied HSA habitat areas based on the final economic analysis. The total potential estimated economic impact is \$16,857,365. Of the 6 low-value habitat areas, 5 exceeded the Scenario 3 economic impact criteria, making them eligible for exclusion. The CHART determined that the tributary habitat in three of these HSAs (330911, 330930 and

330940) could be excluded, but that the mainstem migratory should be designated to provide migratory connectivity from the ocean to upstream high value habitat areas. The CHART determined that exclusion of the other 2 HSAs exceeding the Scenario 3 criteria would impede conservation of the ESU. Of the 11 medium-value habitat areas, 7 HSA habitat areas exceeded the Scenario 3 criteria making them eligible for exclusion. Based on an evaluation of these watershed areas, the CHART concluded that their exclusion would impede conservation of the ESU and that they should be included in the final designation. Of the 13 high value HSA habitat areas, 2 exceeded the Scenario 3 criteria (i.e. these HSAs met the low section 7 leverage criteria and therefore were considered for exclusion as if they were medium value habitat areas), making them eligible for designation. The CHART evaluated these HSA watersheds and determined that their exclusion would impede conservation of the ESU and that they should be included in the final designation.

In summary, we recommend that only the tributary habitat in 3 low conservation value HSA habitat areas be excluded from the final designation for this ESU. We recommend that the mainstem river habitat in these 3 HSA habitat areas be included in the final designation to provide a migratory corridor that assures connectivity between the ocean and high value habitat areas upstream. No additional habitat areas are recommended for exclusion because the economic benefits of exclusion do not outweigh the benefits of designation. Appendix Map C4 shows those habitat areas being recommended for exclusion from the final designation. Within the areas recommended for exclusion, the tributary habitat (approximately 2 miles) represents less than 0.2 percent of the total occupied stream miles within this ESU. It was not possible to estimate the reduction in economic impacts associated with this tributary habitat exclusion, and therefore, there we assume there are no reductions in economic impact associated with these exclusions. Therefore, the total estimated economic impact of the recommended final designation is \$16,857,365.

We have concluded that exclusion of any of these areas alone, or of all areas in combination, would not significantly impede conservation of this ESU. The habitat areas being recommended for designation as critical habitat include approximately 1,249 occupied stream miles within the range of this ESU. The recommended critical habitat designation for this ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of this ESU.

E. SC Steelhead ESU

The SC Steelhead ESU was listed as an endangered species in 1997 (62 FR 43937; August 18, 1997). In 2002, a status update was completed and the range of the ESU was extended. The SC Steelhead ESU includes all naturally spawned populations of steelhead in coastal river basins from the Santa Maria River in San Luis Obispo County southward to the U.S. - Mexican Border (67 FR 21586). Major coastal watersheds occupied by naturally spawning fish in this ESU include the Santa Maria, Santa Ynez, Ventura, and Santa Clara Rivers. Several smaller streams in Santa Barbara, Ventura and northern Los Angeles County also support naturally steelhead, as do two watersheds (San Juan Creek and San Mateo Creek) in southern Orange County and northern San Diego County. These southernmost occupied habitat areas are disjunct in distribution and are separated from the northernmost populations by approximately 80 miles (128 km).

Based on an updated status review (NMFS 2003a), NMFS proposed that the ESU remain listed as an endangered species (69 FR 33102; June 14, 2004). In addition, NMFS proposed that resident O. mykiss co-occurring with anadromous populations below impassable barriers (both natural and man made) also be included in the ESU. A final listing determination for this ESU that includes resident O. mykiss has been delayed until December 2005 because of scientific uncertainties and controversy (70 FR 37219). A Technical Recovery Team has been formed and is in the process of identifying the historical and extant independent population structure of this ESU and associated population viability criteria.

There are 32 occupied HSA watersheds within the freshwater and estuarine range of this ESU (NMFS 2005a). There are approximately 741 mi of occupied stream and estuarine habitat within these occupied HSA watersheds that meet the definition of critical habitat for this ESU. Five HSA watersheds received a low rating, 6 received a medium rating, and 21 received a high rating of conservation value to the ESU (NMFS 2005a). Appendix Map A5 show the conservation ratings by watershed for this ESU, as well as those watersheds that were considered to have low section 7 leverage for the purposes of this 4(b)2 exclusion analysis.

1. Military and Indian Lands

Two DOD facilities controlled by the military or designated for its use and covered by an INRMP contain occupied stream habitat within the range of this ESU: Camp Pendleton Marine Corps Base and Vandenberg Air Force Base. Together, these DOD facilities contain about 22 miles of occupied habitat, or approximately 3 percent of the total stream miles occupied in this ESU. We have not calculated the potential reduction in estimated economic impact as a result of these exclusions, but expect it would be small given the small percentage of stream miles these exclusions represent for the ESU as a whole. In separate documents we have determined that the military's management of these lands under their INRMPs provides benefits to this ESU. Therefore, the occupied lands on Camp Pendleton and Vandenberg AFB do not qualify for designation because their INRMPs provides benefits to the listed ESU. Based on information provided by the military we have concluded that designation of critical habitat on these facilities will also impede military readiness and thereby impact national security. Accordingly, we have also concluded that the benefits of excluding these areas from a potential designation outweigh the benefits of their inclusion. There are no Indian lands within the range of this ESU that contain occupied stream habitat.

2. Consideration of Economic Impacts and Recommendations for Exclusions

Based on the preliminary 4(b)2 analysis conducted for the proposed critical habitat designation for this ESU (NMFS 2004c), we proposed to exclude 4 low conservation value habitat areas (two entire watersheds and two tributary only watersheds) and 1 medium-value habitat area from designation because the economic benefits of exclusion outweighed the benefits of designation. The proposed exclusions included approximately 33 total occupied stream miles, representing approximately 4 percent of the total stream miles occupied by the ESU. Based on the preliminary economic analysis conducted for the proposed rule (NMFS 2004d), the estimated economic impact was reduced by approximately 39 percent from the impact that would occur if all habitat areas were

designated. Combined with the excluded habitat areas on DOD lands, the total stream miles not recommended for designation represented approximately 6 percent of the total stream miles occupied by this ESU. After exclusions, the total estimated economic impact of the proposed designation was \$12,716,386.

Appendix Table B5 shows the estimated total economic impacts for each of the occupied HSA habitat areas based on the final economic analysis (NMFS 2005b). The total potential estimated economic impact of designating all occupied habitat areas is \$19,423,413. Of the 5 low-value habitat areas, 4 exceeded the Scenario 3 economic impact criteria, making them eligible for exclusion. All 4 of these HSA habitat areas were previously proposed for exclusion (69 FR 71880). In two cases (HSAs 331210 and 331430), the watersheds contain migratory corridor habitat of high conservation value which the CHART concluded was essential for conservation. Exclusion of tributary habitat in these watersheds, however, was determined to not impede the conservation of the ESU. In both instances, the economic benefits of excluding the tributary habitat was estimated. In the case of HSA 331210, the migratory habitat that is essential to conservation is the mainstem Santa Maria River which provides connectivity to the high conservation value Sisquoc River watershed which is upstream. In the case of HSA 331430, the migratory habitat is a portion of the mainstem Santa Ynez River which provide connectivity to steelhead populations in that watershed. The CHART concluded the other two low value habitat areas could be excluded without impeding conservation of the ESU. Of the 6 medium-value habitat areas, 3 exceeded the Scenario 3 criteria making them eligible for exclusion. Of these, the CHART concluded that one HSA could be excluded, but that exclusion of the other 2 HSAs would impede conservation of the ESU. The HSA recommended for exclusion from the final designation was previously proposed for exclusion as well (69 FR 71880). Of the 21 high value HSA habitat areas, only 1 exceeded the Scenario 3 criteria for exclusion (i.e. it met the low section 7 leverage criteria and was treated as a medium value habitat area). The CHART evaluated this watershed and determined that its exclusion would impede conservation of the ESU.

In summary, we recommend that 4 low conservation value habitat areas (two entire watersheds and two tributary only watersheds) and 1 medium-value habitat area be proposed for exclusion because the economic benefits of exclusion outweigh the benefits of designation. Appendix Map C5 shows those habitat areas being recommended for exclusion. They include approximately 33 total occupied stream miles, representing approximately 4.5 percent of the total stream miles occupied by the ESU. Combined with the excluded habitat areas on DOD lands, the total stream miles not recommended for designation represent approximately 7.5 percent of the total stream miles occupied by this ESU. The reduction in estimated economic impact is approximately 40 percent of the impact that would occur if all habitat areas were designated. After exclusions the total estimated economic impact is \$11,586,752.

We have concluded that exclusion of any of these areas alone, or of all areas in combination, would not significantly impede conservation of this ESU. The habitat areas being recommended for designation as critical habitat include approximately 686 stream miles (total miles eligible less miles excluded based on economic and DOD considerations). The recommended critical habitat designation for this ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of this ESU.

F. CV spring-run chinook ESU

The CV spring-run chinook ESU was listed as a threatened species in 1999 (64 FR 50394). The ESU includes all naturally spawned populations of spring-run chinook salmon in the Sacramento River and its tributaries. The agency recently conducted a review to update the ESU's status, taking into account new information and considering the net contribution of artificial propagation efforts in the ESU (NMFS 2003a). A single artificially propagated spring-run chinook stock resides within the historical geographic range of the ESU (Feather River Hatchery spring run chinook program), but was considered substantially diverged from naturally spawning fish elsewhere in the ESU because of introgression with fall run chinook salmon (NMFS 2003b). NMFS proposed that the CV spring run chinook ESU remain listed as a threatened species (69 FR 33102; June 14, 2004), but did not propose to list the single artificial propagation program. A final listing determination for this ESU was recently published (70 FR 37160; June 28, 2005) and the Feather River Hatchery spring run chinook program was included in the listed ESU.

A Technical Recovery Team has been established for the Central Valley recovery planning domain and it has identified historic and extant demographically independent populations of spring chinook (NMFS 2004; NOAA Technical Memorandum NOAA-TM-NMFS-SWFSC-370). The TRT divided the range of the spring-run chinook ESU into four geographic groups. Geographic areas in each group inhabit similar environments based on a principle components analysis of environmental variables. The four geographic groups are the southern Cascades, northern Sierra, southern Sierra, and Coast Range. The TRT identified at least eighteen historically demographically independent populations of spring run chinook distributed among these four geographic areas, plus an additional seven likely dependent populations that may have been strongly influenced by adjacent independent population. Three of the eighteen independent populations are extant (Mill, Deer and Butte Creek populations) and all occur in the Southern Cascade geographic area. Several extant dependent populations have intermittent runs of spring chinook including Big Chico, Antelope, and Beegum Creeks. Recovery planning will likely emphasize the need for having viable populations distributed across the range of the identified geographic areas (Ruckelshaus et al. 2002, McElhany et al. 2003). Recovery planning efforts are currently focused on working with the CalFed and Central Valley Project Improvement Act programs to implement habitat restoration projects and other recovery related efforts in the Central Valley. The CHART team considered the TRT products in rating each watershed and also solicited input from the TRT on the distributional and habitat use information that was compiled as well as the conservation assessment of occupied HSAs.

Based on the final CHART findings, there are 37 occupied HSA watersheds within the freshwater and estuarine range of this ESU. For ease of reference these watersheds have been aggregated into 15 larger subbasin units or CALWATER Hydrologic Units (HUs). These include four HSAs that encompass the San Francisco - San Pablo - Suisun Bay complex which constitutes rearing and migration habitat for this ESU. There are approximately 1,373 mi of occupied stream and 427 mi² of estuarine habitat within these occupied HSA watersheds that meet the definition of critical habitat for this ESU. Seven HSA watersheds received a low rating, 3 received a medium rating, and 27 received a

high rating of conservation value to the ESU (NMFS, 2005a). Appendix Map A6 shows the conservation ratings by watershed for this ESU, as well as which watersheds were considered to have low section 7 leverage.

1. Military and Indian Lands

There are no lands controlled by the military or designated for its use and covered by an INRMP within the freshwater range of Central Valley spring run chinook that contain occupied riverine habitat. Similarly, there are no Indian lands within the range of this ESU that overlap with the known areas of occupancy.

2. Consideration of Economic Impacts and Recommendations for Exclusions

Based on the preliminary 4(b)2 analysis conducted for the proposed critical habitat designation for this ESU (NMFS 2004c), we proposed to exclude 6 low conservation value habitat areas, 2 medium value habitat areas, and part of one high value habitat area because the economic benefits of exclusion outweighed the benefits of designation (69 FR 71880). For this ESU, these proposed exclusions constituted approximately 231 occupied stream miles, as well as portions of San Francisco Bay which are also occupied (approximately 170 sq. mi). These exclusions represented approximately 17 percent of the total stream miles occupied by the ESU. Based on the preliminary economic analysis conducted for the proposed rule (NMFS 2004d), the estimated economic impact was reduced by approximately 29 percent from that which would occur if all occupied habitat areas were designated. After exclusions, the total estimated economic impact of the designation was estimated to be \$16,787,737.

Appendix Table B6 shows the estimated total economic impacts for each of the occupied HSA habitat areas based on the final economic analysis. The total potential estimated economic impact of designation is \$29,223,186. Of the 7 low value/benefit habitat areas, 5 exceeded the economic impact criteria making them eligible for exclusion. These HSA habitat areas were proposed for exclusion (69 FR 71880) and the CHART has reaffirmed that their exclusion will not impede conservation of this ESU. Accordingly, these habitat areas are recommended for exclusion in the final rule. The CHART originally concluded that one additional very low value habitat area (HSA 550731) which did not exceed the impact threshold could be excluded without impeding conservation of the ESU (NMFS 2004c), and thus it was proposed for exclusion (69 FR 71880). However, based on new information received during the public comment process, the CHART has determined that this watershed is unoccupied, and therefore, it was not considered further in the final 4(b)2 analysis (NMFS 2005a).

Of the 3 medium/low-medium value habitat areas, all exceeded the economic impact threshold making them eligible for exclusion. One of these habitat areas (HSA 554300) was previously proposed for exclusion and the CHART reaffirmed that exclusion of this area would not impede conservation of the ESU. The other two habitat areas (HSAs 551720 and 550410) were not originally proposed for exclusion, but exceed the economic impact thresholds based on the Scenario 3 criteria in the final 4(b)2 analysis. The CHART concluded that exclusion of HSA 551720 would not impede conservation of this ESU, and therefore, it is recommended for exclusion in the final rule. In contrast, the CHART concluded that the section 7 leverage was high in HSA 550410 (Stony Creek)

and that the benefit of inclusion was higher than would otherwise be indicated by the low leverage criteria. In addition, the CHART concluded that exclusion of this HSA habitat area would impede conservation of this ESU, thus this HSA is not recommended for exclusion.

One medium value habitat area (HSA 551921) that was excluded in the proposed designation for this ESU was re-assessed by the CHART to have high value based on new information received during the public comment process. As a result of this high value assessment, this habitat area did not meet the exclusion criteria in the final 4(b)2 exclusion analysis, and therefore, is not recommended for exclusion in the final rule. Finally, the CHART reaffirmed that the proposed exclusion of the Sacramento River Deep Water Ship Channel from the high value habitat area HSA 551000 would not impede conservation of this ESU since it is an artificial structure that does not provide any conservation value to the ESU.

In summary, we recommend that 5 low low value/benefit habitat areas, 2 medium value/benefit areas, and a portion of one high value/benefit habitat area be excluded from the final critical habitat designation for this ESU because the economic benefits of exclusion outweigh the benefits of designation. Appendix Map C6 shows those habitat areas being recommended for exclusion. They include approximately 215 occupied stream miles, as well as portions of the San Francisco Bay complex (approximately 173 sq. mi), which represents approximately 16 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 25 percent of the impact that would occur if all occupied habitat areas were designated. After exclusions, the total estimated economic impact of the recommended designation is \$22,066,974.

We have concluded that exclusion of any of these areas alone, or of all areas in combination, would not significantly impede conservation of the Central Valley spring run chinook salmon ESU. The habitat area being recommended for designation as critical habitat comprises approximately 1,158 occupied stream miles and 254 sq mi of occupied estuarine habitat in the San Francisco Bay complex. These habitat areas are well distributed across the geographic area occupied by the ESU and the demographically independent populations that have been identified for this ESU. The recommended critical habitat designation for this ESU will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of this ESU.

G. CV Steelhead ESU

The CV Steelhead ESU was listed as a threatened species in 1998 (63 FR 13347; March 19, 1998). The ESU includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries, but excludes steelhead from San Francisco and San Pablo Bays and their tributaries. Based on an updated status review (NMFS 2003a) and an assessment of hatchery populations located within the range of the ESU (NMFS 2003b), NMFS proposed that the ESU remain listed as a threatened species (69 FR 33102; June 14, 2004) and that: 1) resident *O. mykiss* co-occurring with anadromous populations below impassable barriers (both natural and man made) and 2) two artificially propagated populations (Coleman National Fish Hatchery on Battle Creek and Feather River Hatchery on the Feather River) be included in the ESU. Two artificially propagated steelhead stocks reside within the historical geographic range of

the ESU (Nimbus Fish Hatchery on the American River and Mokelumne River Hatchery on the Mokelumne River), but are not considered part of the ESU because they are derived from out-of-ESU broodstock (69 FR 33102; June 14, 2004). On June 28, 2005, NMFS announced its intent to invoke a 6-month extension for making final listing determinations for all west coast steelhead/ O. mykiss ESUs, including the CV steelhead ESU (70 FR 37219). A Technical Recovery Team has been established for the Central Valley recovery planning domain and is in the process of identifying the historical and extant independent population structure of this ESU, as well as the associated viability criteria for these populations.

Based on the final CHART assessments (NMFS 2005a), there are 67 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Of these sixty-seven HSA watersheds, four constitute the San Francisco - San Pablo - Suisun Bay estuary complex which provides rearing habitat and a migratory corridor for this ESU to the ocean from upstream spawning and rearing areas. There are approximately 2,604 mi of occupied stream and 427 mi² of estuarine habitat within these occupied HSA watersheds that meet the definition of critical habitat for this ESU. Twelve HSA watersheds received a low rating, 18 received a medium rating, and 37 received a high rating of conservation value to the ESU (NMFS, 2005a). Appendix Map A7 shows the conservation ratings by watershed for this ESU, as well as those watersheds that were considered to have low section 7 leverage for the purposes of the 4(b)2 exclusion analysis.

1. Military and Indian Lands

There are no lands controlled by the military or designated for its use and covered by an INRMP within the spawning range of this ESU. Similarly, there are also no Indian reservations within this range.

2. Consideration of Economic Impacts and Recommendations for Exclusions

Based on the preliminary 4(b)2 analysis conducted for the proposed critical habitat designation for this ESU (NMFS 2004c), we proposed to exclude 10 low conservation value habitat areas, 3 medium-value habitat areas (two fully and one partially), and part of one high-value habitat area because the economic benefits of exclusion outweighed the benefits of designation (69 FR 71880). For this ESU, these exclusions constituted approximately 290 occupied stream miles, as well as portions of San Francisco Bay, which represents approximately 11 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact for the proposed designation was approximately 17 percent of the impact that would occur if all habitat areas were designated. After exclusions, the total estimated economic impact of the designation was estimated to be \$24,195,245.

Appendix Table B7 shows the estimated total economic impacts for each of the occupied HSA habitat areas based on the final economic analysis. The total potential estimated economic impact is \$38,235,233. Of the 12 low value/benefit habitat areas, 7 exceeded the Scenario 3 economic impact criteria making them eligible for exclusion. These habitat areas were originally proposed for exclusion (69 FR 71880) and the CHART reaffirmed that their exclusion will not impede conservation of this ESU. One additional

habitat area (HSA 553224) did not exceed the economic impact criteria, but the CHART recommended it be excluded because its exclusion would not impede conservation of the ESU. This habitat area was originally proposed for exclusion (69 FR 71880).

Of the 18 medium value/benefit habitat areas, 11 exceeded the Scenario 3 economic impact criteria, and therefore, are eligible for potential exclusion. Two of these habitat areas (HSA 554300 and 553120) were originally proposed for exclusion in total or partially (69 FR 71880) and the CHART reaffirmed that these exclusions will not impede conservation of this ESU. The partial exclusion in HSA 553120 resulted in the exclusion of Mosher Creek, but the inclusion of portions of the Mokelumne River. Two additional habitat areas (HSAs 550964 and 552435) were not originally proposed for exclusion, but were identified as a result of the final economic and 4(b)2 analyses. The CHART evaluated these watersheds and determined that their exclusion would not impede conservation of the ESU as well. Of the remaining 7 habitat areas that exceeded the Scenario 3 economic impact criteria, the CHART reaffirmed their previous conclusions that 4 habitat area exclusions would impede conservation (NMFS 2004c) and that 3 identified as a result of the final analyses would also impede conservation of the ESU. Finally, the CHART reaffirmed their previous conclusion that the exclusion of one additional medium value habitat area (HSA 551110) that did not exceed the economic impact threshold could be excluded without impeding conservation of the ESU (NMFS 2004c). Of the 37 high value habitat areas, one exceeded the Scenario 3 economic impact criteria; however, the CHART concluded that its exclusion would impede conservation of this ESU. Lastly, the CHART reaffirmed its previous determination (NMFS 2004c) that exclusion of the Deep Water Ship Channel from the high value habitat area HSA 551000 would not impede conservation of this ESU since it is an artificial structure that does not provide any conservation value.

In summary, we recommend that 8 low value/benefit habitat areas, 5 medium value/benefit habitat areas (4 fully and one partially), and part of one high value habitat area be excluded from the final critical habitat designation for this ESU because the economic benefits of exclusion outweigh the benefits of designation. Appendix Map C7 shows those habitat areas being recommended for exclusion. They include approximately 296 occupied stream miles and 254 sq mi of occupied estuarine habitat in the San Francisco Bay complex. The excluded stream miles represent approximately 11 percent of the total stream miles occupied by the ESU. The reduction in estimated economic impact is approximately 11 percent of the impact that would occur if all habitat areas were designated. After exclusions the total estimated economic impact is \$34,389,278.

We have concluded that exclusion of any of these habitat areas along, or in combination, would not significantly impede conservation of this ESU. The habitat area being recommended for designation as critical habitat comprises approximately 2,308 stream miles occupied by this ESU. These habitat areas are well distributed across the geographic area occupied by the ESU. The recommended critical habitat designation will complement recovery planning efforts aimed at conserving the geographic distribution and diversity of the populations in this ESU.

IV. REFERENCES

National Marine Fisheries Service (NMFS). 1996. Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California. NOAA Technical Memorandum NMFS-NWFSC-27. August 1996.

National Marine Fisheries Service (NMFS). 2003a. Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead. West Coast Salmon Biological Review Team Report. July 2003.

National Marine Fisheries Service (NMFS). 2003b. Hatchery Broodstock Summaries and Assessments for Chum, Coho and Chinook Salmon and Steelhead Stocks within ESUs listed under the Endangered Species Act. May 2003.

National Marine Fisheries Service (NMFS). 2004. Population Structure of Threatened and Endangered Chinook Salmon ESUs in California's Central Valley. NOAA Technical Memorandum NMFS-SWFSC-370. April 2004.

National Marine Fisheries Service (NMFS). 2004b. Preliminary Findings of NOAA Fisheries's SWR Critical Habitat Development and Review Teams for seven ESUs of salmon and Steelhead in California. October 2004.

National Marine Fisheries Service (NMFS) 2004c. Draft Economic Analysis of Critical Habitat Designations for seven salmon and Steelhead ESUs in California. October 2004.

Office of Management and Budget (OMB). 2003. Circular A-4. September 17, 2003.

Federal Register Citations:

62 FR 43937 - 1997: Final Listing Determinations for Central California Coast Steelhead, South-Central California Coast Steelhead, and Southern California Steelhead

63 FR 13347 - 1998: Final Listing Determination for Central Valley Steelhead

65 FR 50394 - 1999: Final Listing Determination for California Coastal Chinook and Central Valley spring-run Chinook

65 FR 7764 - 2000: Final Critical Habitat Designation for 19 ESUs of west coast Salmon and Steelhead

65 FR 36074 - 2000: Final Listing Determination for Northern California Steelhead

67 FR 21586 - 2002: Range Extension and Status Review Update for Southern California Steelhead

68 FR 55926 - 2003: Advance Notice of Proposed Rulemaking for Critical Habitat

69 FR 33102 - 2004: Proposed Listing Determinations for 27 ESUs of West Coast Salmon and Steelhead

69 FR 71880 - 2004: Proposed Critical Habitat for 7 ESUs of Salmon and Steelhead in California

70 FR 37160 - 2005: Final Listing Determinations for 16 ESUs of Salmon and Final 4(d) regulations for Threatened Salmonid ESUs

70 FR 37219 - 2005: 6 Month Extension of the Final Listing Determinations for 10 ESUs of west coast O. mykiss

Appendix A

Maps A1-A7: Maps Illustrating CALWATER HSA Watershed Conservation Ratings and Low Section 7 Watersheds for 7 ESUs of Salmon and Steelhead in California

Map A1 - California Coastal Chinook ESU

Map A2 - Northern California Steelhead ESU

Map A3 - Central California Coast Steelhead ESU

Map A4 - South-Central California Coast Steelhead ESU

Map A5 - Southern California Steelhead ESU

Map A6 - Central Valley spring-run Chinook ESU

Map A7 - Central Valley Steelhead ESU