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Endangered and Threatened Species: Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead; Final Rule

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 223 and 224

[Docket No. 051216341–5341–01; I.D. No. 052104F]

RIN 0648–AR93

Endangered and Threatened Species: Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead

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

ACTION: Final rule.

SUMMARY: We, NOAA's National Marine Fisheries Service (NMFS), are issuing final determinations to list 10 Distinct Population Segments (DPSs) of West Coast steelhead (*Oncorhynchus mykiss*) under the Endangered Species Act (ESA) of 1973, as amended. We are listing one steelhead DPS in California as endangered (the Southern California steelhead DPS), and nine steelhead DPSs in California, Oregon, Washington, and Idaho as threatened (the South-Central California Coast, Central California Coast, California Central Valley, Northern California, Lower Columbia River, Upper Willamette River, Middle Columbia River, Upper Columbia River, and Snake River Basin steelhead DPSs). All 10 of these DPSs were previously listed as threatened or endangered species. The Upper Columbia River steelhead DPS, formerly listed as an endangered species, is now being listed as threatened.

DATES: The effective date of this rule is February 6, 2006.

ADDRESSES: NMFS, Protected Resources Division, 1201 NE Lloyd Boulevard, Suite 1100, Portland, Oregon 97232.

FOR FURTHER INFORMATION CONTACT: Craig Wingert, NMFS, Southwest Region, at (562) 980–4021, Dr. Scott Rumsey, NMFS, Northwest Region, Protected Resources Division, at (503) 872–2791, and Marta Nammack, NMFS, Office of Protected Resources, at (301) 713–1401. Reference materials regarding these determinations are available upon request or on the Internet at *http://www.nwr.noaa.gov.*

SUPPLEMENTARY INFORMATION:

Background

Policies for Delineating Species under the ESA

Section 3 of the ESA defines ''species'' as including ''any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.'' The term ''distinct population segment'' is not recognized in the scientific literature. In 1991 we issued a policy for delineating distinct population segments of Pacific salmon (56 FR 58612; November 20, 1991). Under this policy a group of Pacific salmon populations is considered an ''evolutionarily significant unit'' (ESU) if it is substantially reproductively isolated from other conspecific populations, and it represents an important component in the evolutionary legacy of the biological species. Further, an ESU is considered to be a ''distinct population segment'' (and thus a ''species'') under the ESA. In 1996, we and FWS adopted a joint policy for recognizing DPSs under the ESA (DPS Policy; 61 FR 4722; February 7, 1996). The DPS Policy adopts criteria similar to, but somewhat different from, those in the ESU Policy for determining when a group of vertebrates constitutes a DPS: The group must be discrete from other populations, and it must be significant to its taxon. A group of organisms is discrete if it is ''markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, and behavioral factors.'' Significance is measured with respect to the taxon (species or subspecies) as opposed to the full species. Although the ESU Policy did not by its terms apply to steelhead, the DPS Policy states that NMFS will continue to implement the ESU Policy with respect to ''Pacific salmonids'' (which include *O. mykiss*). FWS, however, does not use our ESU policy in any of its ESA listing decisions. In a previous instance of shared jurisdiction over a species (Atlantic salmon), we and FWS used the DPS policy in our determination to list the Gulf of Maine DPS of Atlantic salmon as endangered (65 FR 69459; November 17, 2000). Given our shared jurisdiction over *O. mykiss,* and consistent with our approach for Atlantic salmon, we believe application of the joint DPS policy here is logical, reasonable, and appropriate for identifying DPSs of *O. mykiss.* Moreover, use of the ESU policy—originally intended for Pacific salmon—should not continue to be extended to *O. mykiss,* a type of salmonid with characteristics not typically exhibited by Pacific salmon. NMFS and FWS also intend to continue to evaluate application of the statutory term ''distinct population segment'' in a process outside the context of a species-specific listing.

Previous Federal ESA Actions Related to West Coast Steelhead

In 1996, we completed a comprehensive status review of West Coast steelhead (Busby *et al.*, 1996) that resulted in proposed listing determinations for 10 steelhead ESUs, five as endangered and five as threatened species (61 FR 41541; August 9, 1996). On August 18, 1997, we listed five of the ESUs, two as endangered (the Southern California and Upper Columbia River steelhead ESUs) and three as threatened (the South-Central California Coast, Central California Coast, and Snake River Basin steelhead ESUs) (62 FR 43937). On March 19, 1998, we listed the California Central Valley and Lower Columbia River steelhead ESUs as threatened. On March 25, 1999, we listed as threatened the Upper Willamette River and Middle Columbia River steelhead ESUs (64 FR 14517). We listed the Northern California steelhead ESU as threatened on June 7, 2000 (65 FR 36074). As a result of these listing determinations, there are currently 10 listed steelhead ESUs, two endangered (Southern California and Upper Columbia River) and eight threatened (South-Central California, Central California Coast, California Central Valley, Northern California, Upper Willamette River, Lower Columbia River, Middle Columbia River, and Snake River Basin).

In our August 18, 1997, steelhead listing determinations, we noted uncertainties about the relationship of resident and anadromous *O. mykiss,* yet concluded that the two forms are part of a single ESU where the resident and anadromous *O. mykiss* have the opportunity to interbreed (62 FR 43937, at 43941). FWS, the agency with ESA jurisdiction over resident *O. mykiss,* disagreed that resident fish should be included in the steelhead ESUs and advised that the resident fish not be listed (FWS, 1997; and 62 FR 43937, at 43941). Accordingly, we listed only the anadromous *O. mykiss* (steelhead) at that time (62 FR 43937, at 43951). That decision was followed in each of the subsequent steelhead listings described in the preceding paragraph.

In 2001, the U.S. District Court in Eugene, Oregon, set aside the 1998 threatened listing of the Oregon Coast coho ESU (*Alsea Valley Alliance* v. *Evans,* 161 F. Supp. 2d 1154 (D. Or. 2001)) (Alsea). In the Oregon Coast coho listing (63 FR 42587; August 10, 1998), we did not include 10 hatchery stocks determined to be part of the Oregon Coast coho ESU. The court upheld our

policy of considering an ESU to be a DPS, but ruled that once we had delineated a DPS, the ESA did not allow listing only a subset of that DPS. In response to the *Alsea* decision and several listing and delisting petitions, we announced we would conduct an updated status review of 27 West Coast salmonid ESUs, including the 10 listed steelhead ESUs (67 FR 6215, February 11, 2002; 67 FR 48601, July 25, 2002; 67 FR 79898, December 31, 2002).

On June 14, 2004, we proposed to continue applying our ESU Policy to the delineation of DPSs of *O. mykiss*, and to list the 10 *O. mykiss* ESUs including the resident fish that co-occur with the anadromous form (69 FR 33102). We proposed to list one ESU in California as endangered (Southern California), and nine ESUs in California, Oregon, Washington, and Idaho as threatened (South-Central California, Central California Coast, California Central Valley, Northern California, Upper Willamette River, Lower Columbia River, Middle Columbia River, Snake River Basin, and Upper Columbia). In the proposed rule, we noted that the *Alsea* decision required listing of an entire DPS (ESU), in contrast to our prior steelhead-only listings, and stated the scientific principles and working assumptions that we used to determine whether particular resident groups were part of an *O. mykiss* ESU that included anadromous steelhead (69 FR 33102, at 33113). We proposed that where resident (rainbow trout) and anadromous (steelhead) *O. mykiss* occur in the same stream, they are not ''substantially reproductively isolated'' from one another and are therefore part of the same ESU.

Following an initial public comment period of 90 days, we twice extended the public comment period for an additional 36 and 22 days (69 FR 53031, August 31, 2004; 69 FR 61348, October 18, 2004), respectively. During the comment period, we received numerous comments disagreeing with our proposal to include resident populations in the *O. mykiss* ESUs (in general and for specific resident populations) and criticizing how we considered resident *O. mykiss* in evaluating the risk to the continued existence of the whole ESU.

On June 7, 2005, FWS wrote to NMFS (FWS, 2005), stating its concerns about the factual and legal bases for our proposed listing determinations for 10 *O. mykiss* ESUs, specifying issues of substantial disagreement regarding the relationship between anadromous and resident *O. mykiss*. On June 28, 2005, we published a notice in the **Federal Register** announcing a 6-month extension of the final listing determinations for the subject *O. mykiss* ESUs to resolve the substantial disagreement regarding the sufficiency or accuracy of the available data relevant to the determinations (70 FR 37219). As a result of the comments received, we re-opened the comment period on November 4, 2005, to receive comments on a proposed alternative approach to delineating ''species'' of West Coast *O. mykiss* (70 FR 67130). We proposed to depart from our past practice of applying the ESU Policy to *O. mykiss* stocks, and instead proposed to apply the DPS Policy in determining ''species'' of *O. mykiss* for listing consideration. We noted that within a discrete group of *O. mykiss* populations, the resident and anadromous life forms of *O. mykiss* remain ''markedly separated'' as a consequence of physical, physiological, ecological, and behavioral factors, and may therefore warrant delineation as separate DPSs. We solicited comment on whether our final listing determinations should delineate 10 steelhead-only DPSs, list one DPS in California as endangered (Southern California), and list the remaining nine DPSs in California, Oregon, Washington, and Idaho as threatened (South-Central California, Central California Coast, California Central Valley, Northern California, Upper Willamette River, Lower Columbia River, Middle Columbia River, Snake River Basin, and Upper Columbia). The public comment period on this proposed alternative approach closed on December 5, 2005.

Statutory Framework for ESA Listing Determinations

The ESA defines an endangered species as one that is in danger of extinction throughout all or a significant portion of its range, and a threatened species as one that is likely to become endangered in the foreseeable future throughout all or a significant portion of its range (sections 3(6) and 3(20), respectively). The statute requires us to determine whether any species is endangered or threatened because of any of the following five factors: the present or threatened destruction, modification or curtailment of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; the inadequacy of existing regulatory mechanisms; or other natural or manmade factors affecting its continued existence (Section 4(a)(1)(A)–(E)). We are to make this determination based solely on the best available scientific information after conducting a review of the status of the species and taking into account any efforts being made by states or foreign governments to protect the species. The focus of our evaluation of the five statutory factors is to evaluate whether and to what extent a given factor represents a threat to the future survival of the species. The focus of our consideration of protective efforts is to evaluate whether and to what extent they address the identified threats and so ameliorate a species' risk of extinction. In making our listing determination, we must consider all factors that may affect the future viability of the species, including whether regulatory and conservation programs are inadequate and allow threats to the species to persist or worsen, or whether these programs are likely to mitigate threats to the species and reduce its extinction risk. The steps we follow in implementing this statutory scheme are to: (1) Delineate the species under consideration; (2) review the status of the species; (3) identify threats facing the species; (4) assess whether certain protective efforts mitigate these threats; and (5) predict the species' future persistence.

As noted above, as part of our listing determinations we must consider efforts being made to protect a species, and whether these efforts ameliorate the threats facing the species and reduce risks to its survival. Some protective efforts may be fully implemented, and empirical information may be available demonstrating their level of effectiveness in conserving the species. Other protective efforts are new, not yet implemented, or have not demonstrated effectiveness. We evaluate such unproven efforts using the criteria outlined in the Policy for Evaluating Conservation Efforts (''PECE'' 68 FR 15100; March 28, 2003) to determine their certainties of implementation and effectiveness.

Summary of Comments Received

We solicited public comment on the proposed listing determinations for West Coast *O. mykiss* for a total of 238 days (69 FR 33102, June 14, 2004; 69 FR 53031, August 31, 2004; 69 FR 61348, October 18, 2004; 70 FR 6840, February 9, 2005; 70 FR 37219, June 28, 2005; 70 FR 67130, November 4, 2005). In addition, we held eight public hearings in the Pacific Northwest, and six public hearings in California concerning the June 2004 West Coast salmon and steelhead proposed listing determinations (69 FR 53031, August 31, 2004; 69 FR 54647, September 9, 2004; 69 FR 61348, October 18, 2004). We solicited public comment again for 30 days on our proposed alternative approach to delineating DPSs of *O.*

mykiss (70 FR 67130; November 4, 2005).

A joint NMFS/FWS policy requires us to solicit independent expert review from at least three qualified specialists, concurrent with the public comment period (59 FR 34270; July 1, 1994). We solicited technical review of the scientific information underlying the June 2004 proposed listing determinations, including the proposed determinations for West Coast *O. mykiss*, from over 50 independent experts selected from the academic and scientific community, Native American tribal groups, Federal and state agencies, and the private sector.

In December 2004 the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review (Peer Review Bulletin) establishing minimum peer review standards, a transparent process for public disclosure, and opportunities for public input. The OMB Peer Review Bulletin, implemented under the Information Quality Act (Public Law 106–554), is intended to ensure the quality of agency information, analyses, and regulatory activities and provide for a more transparent peer review process. We consider the scientific information used by the agency in developing the subject listing determinations for West Coast steelhead to be ''influential scientific information'' in the context of the OMB Peer Review Bulletin.

We believe the independent expert review under the joint NMFS/FWS peer review policy, and the comments received from several academic societies and expert advisory panels, collectively satisfy the Peer Review Bulletin's requirements for ''adequate [prior] peer review.'' We solicited technical review of the proposed hatchery listing policy and salmon and steelhead listing determinations from over 50 independent experts selected from the academic and scientific community, Native American tribal groups, Federal and state agencies, and the private sector. The individuals from whom we solicited review of the proposals and the underlying science were selected because of their demonstrated expertise in a variety of disciplines including: artificial propagation; salmonid biology, taxonomy, and ecology; genetic and molecular techniques and analyses; population demography; quantitative methods of assessing extinction risk; fisheries management; local and regional habitat conditions and processes; and conducting scientific analyses in support of ESA listing determinations. The individuals solicited represent a broad spectrum of perspectives and expertise and include those who have been critical of past agency actions in implementing the ESA for West Coast salmon and steelhead, as well as those who have been supportive of these actions. These individuals were not involved in producing the scientific information for our determinations and were not employed by the agency producing the documents. In addition to these solicited reviews, several independent scientific panels and academic societies provided technical review of the hatchery listing policy and proposed listing determinations, and the supporting documentation. Many of the members of these panels were individuals from whom we had solicited review. We thoroughly considered, and, as appropriate, incorporated the review comments into these final listing determinations.

In response to the requests for information and comments on the June 2004 proposed listing determinations, we received over 28,250 comments by fax, standard mail, and e-mail. The majority of the comments received were from interested individuals who submitted form letters or form e-mails and addressed general issues not specific to a particular ESU. Comments were also submitted by state and tribal natural resource agencies, fishing groups, environmental organizations, home builder associations, academic and professional societies, expert advisory panels, farming groups, irrigation groups, and individuals with expertise in Pacific salmonids. The majority of respondents focused on the consideration of hatchery-origin fish in ESA listing determinations, with only a few comments specifically addressing the *O. mykiss* ESUs under review. We also received comments from four of the independent experts from whom we had requested technical review of the scientific information underlying the June 2004 proposed listing determinations. The peer reviewers' comments did not specifically address the proposed determinations for the 10 *O. mykiss* ESUs. We received 14 comments in response to the 6-month extension of the final listing determinations for the 10 *O. mykiss* ESUs. The comments reflected a diversity of opinion and generally focused on whether resident populations should be included as part of *O. mykiss* ESUs, and the consideration of resident *O. mykiss* in assessing the extinction risk of ESUs including both resident and anadromous populations. We received 15 comments concerning our November 2005 proposed alternative approach to delineate and list 10 steelhead-only DPSs of West Coast *O. mykiss*. The majority of the comments were opposed to the proposed alternative approach, though others were supportive. Copies of the full text of comments received are available upon request (see **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT**, above).

Below we address the comments received that directly pertain to the listing determinations for West Coast *O. mykiss*. The reader is referred to our June 2005 final hatchery listing policy (70 FR 37204; June 28, 2005) for a summary and discussion of general issues concerning: the inclusion and listing of hatchery programs as part of salmon and steelhead ESUs; and the consideration of artificial propagation in evaluating the extinction risk of salmon and steelhead ESUs. The reader is referred to our June 2005 final listing determinations for 16 salmon ESUs (70 FR 37160; June 28, 2005) for a summary and discussion of general issues related to: the interpretation and application of the hatchery listing policy in our review of the species' status under review; the consideration of efforts being made to protect the species; and amended protective regulations for threatened salmonids. The following summary of issues raised and our responses are organized into six general categories: (1) General comments on the consideration of resident *O. mykiss* in the determination of ''species;'' (2) general comments on the consideration of resident *O. mykiss* in assessing extinction risk; (3) comments regarding a specific ESU or DPS on the determination of species; (4) comments regarding a specific ESU or DPS on the assessment of extinction risk; (5) comments on the consideration of protective efforts; and (6) comments regarding public notice and opportunities for comment.

General Comments on the Consideration of Resident O. mykiss: Determination of Species

Comment 1: Several commenters felt that we lack sufficient site-specific information to justify our June 2004 proposed inclusion of resident rainbow trout as part of *O. mykiss* ESUs. These commenters felt that our proposal inappropriately extrapolated a few observations universally to all circumstances where resident and anadromous *O. mykiss* have overlapping distributions. Other commenters felt that rainbow trout and steelhead should be considered separate ESUs for biological reasons (differences in behavior, morphology, and ecology); or for policy or legal reasons (such as implementing the purposes of the ESA).

Response: Those commenters who noted the lack of site-specific information are correct—we relied on information about the reproductive exchange of some specific co-occurring rainbow trout and steelhead to conclude generally that where the two life forms co-occur, they are sufficiently reproductively related to satisfy our ESU policy. We continue to conclude that the best available scientific information suggests that co-occurring steelhead and rainbow trout are part of the same ESU, as we defined that concept in our ESU policy. Some of the concerns raised by these commenters have persuaded us to alter our approach to delineating DPSs of *O. mykiss*, and rely on the DPS policy rather than the ESU policy. Because we have decided to alter our approach, we do not address these comments in further detail.

Comment 2: Several commenters felt we failed to provide a rationale for departing from our long-standing practice of applying the ESU policy. The commenters felt that the choice to use the DPS policy appeared to be based on an arbitrary jurisdictional division between NMFS and FWS, rather than new scientific information supporting an alternative approach. The commenters felt that it is not appropriate to base species delineations on arbitrary divisions between government agencies and the apparent desire to preserve jurisdictional authorities. These commenters stressed that such determinations must be made based on the best available scientific information.

Other commenters supported the use of the DPS policy in delineating species of *O. mykiss*. They felt that consistency between NMFS and FWS would improve the public understanding of the listing process. They also felt that the DPS policy provides flexibility, affording a more practical consideration of resident populations, particularly above impassable dams, that do not warrant ESA protections.

Response: In our previous status reviews for West Coast *O. mykiss* we applied our ESU policy and concluded that, where they co-occur and have the opportunity to interbreed, the resident and anadromous life-history forms are part of a single ESU. FWS disagreed that resident *O. mykiss* should be included in the steelhead ESUs and recommended that only the anadromous fish be listed (FWS, 1997). Accordingly, we listed only the steelhead portion of the ESUs. The *Alsea* ruling informed us that this approach to implementing our jurisdiction over *O. mykiss* was invalid; once we have equated an ESU with a DPS, delineated an ESU, and determined that it warrants listing, we must include all components of the DPS (ESU) in the listing. In our June 2004 proposed listing determinations (69 FR 33102; June 14, 2004), we proposed to continue applying our ESU policy in delineating species of *O. mykiss* for listing consideration, consistent with our previous practice. Informed by the *Alsea* ruling, we proposed to list entire *O. mykiss* ESUs, including both the anadromous and resident components. FWS disagreed with our DPS delineations under the ESU policy, and questioned whether the proposed delineations are consistent with the DPS policy (FWS, 2005).

The preamble to the joint DPS policy acknowledged that ''the NMFS [ESU] policy is a detailed extension of this joint policy. Consequently, NMFS will continue to exercise its policy with respect to Pacific salmonids'' (61 FR 4722; February 7, 1996). FWS, however, does not use our ESU policy in any of its ESA listing decisions. In a previous instance of shared jurisdiction over a species (Atlantic salmon), we and FWS used the DPS policy in our determination to list the Gulf of Maine DPS of Atlantic salmon as endangered (65 FR 69459; November 17, 2000). Given our shared jurisdiction over *O. mykiss*, and consistent with our approach for Atlantic salmon, we believe application of the joint DPS policy here is logical, reasonable, and appropriate for identifying DPSs of *O. mykiss*. Moreover, use of the ESU policy—originally intended for Pacific salmon—should not continue to be extended to *O. mykiss*, a type of salmonid with characteristics not typically exhibited by Pacific salmon.

Comment 3: Two commenters argued that we are required to rely on the taxonomic distinctions established by the scientific community in making our species delineations. Commenters quoted NMFS' ESA implementing regulations stating that we ''shall rely on standard taxonomic distinctions and the biological expertise of the Department and the scientific community regarding the relevant taxonomic group'' (50 CFR 424.11(a)). The commenters noted that it is well established in the scientific literature that the resident and anadromous life forms of *O. mykiss* are members of the same taxonomic species, and where they co-occur they are genetically indistinguishable and represent a life-history polymorphism within a single interbreeding population. Several commenters also noted that a group of independent scientific experts (Hey *et al.*, 2005) recently empaneled by NMFS concluded: ''For * * * populations in which anadromous and resident fish appear to be exchanging genes and in which some parents produce progeny exhibiting both life history paths, the two life-history alternatives appear as a form of polymorphism. In these cases there is little justification for putting the resident and anadromous life-history types into different conservation units.''

Response: The fact that anadromous steelhead and resident rainbow trout are both part of the biological species taxonomists recognize as *O. mykiss* does not end the inquiry. The statute clearly contemplates listing subunits of species, by defining species to include ''subspecies * * * and any distinct population segment of any species * * *'' The ESA does not define the term ''distinct population segment,'' but it is clearly a subset of a taxonomic species. Nor does the ESA refer to conservation units. While we agree with the Hey *et al.* panel's conclusion that co-occurring resident and anadromous *O. mykiss* are part of a larger conservation unit (which we would consider an ESU), that also is not the end of the inquiry. The joint DPS policy takes a somewhat different approach from the ESU policy to identifying conservation units, which may result, in some cases, in the identification of different conservation units. There are also other potential approaches to delineating a DPS for purposes of the ESA (see Waples, 2005, in press). For reasons described in response to Comment 2, we are applying the DPS policy (see also the response to Comment 4 for additional discussion).

Comment 4: Some commenters felt that applying the DPS policy to *O. mykiss* should lead to the same result as the ESU policy, with the co-occurring rainbow trout and steelhead being considered part of the same DPS. The commenters felt that our application of the DPS policy overemphasizes inconsistent and qualitative phenotypic characteristics, and ignores scientific information regarding reproductive exchange and genetic similarity. These commenters cited several empirical studies documenting that resident and anadromous *O. mykiss* are similar genetically when they co-occur with no physical barriers to migration or interbreeding, and that individuals can occasionally produce progeny of the alternate life-history form. The commenters felt that the DPS policy clearly contemplates considering reproductive isolation as part of evaluating discreteness. The commenters noted that the DPS policy states as part of the discreteness criterion that quantitative measures of

genetic discontinuity may provide evidence of discreteness.

The commenters also stressed that the ESA's definition of ''species'' focuses solely on reproductive exchange. (section 3(16) of the ESA defines the term species as including any ''distinct population segment of any species of vertebrate fish or wildlife which *interbreeds when mature*''; emphasis added). The commenters argued that the additional considerations provided in the DPS policy (including marked separation as a consequence of physical, physiological, ecological, and behavioral factors) are supplemental to the primary consideration of reproductive isolation required under the ESA.

Response: The ESA requirement that a group of organisms must interbreed when mature to qualify as a DPS is a necessary but not exclusive condition. Under the definition, although all organisms that belong to a DPS must interbreed when mature (at least on some time scale), not all organisms that share some reproductive exchange with members of the DPS must be included in the DPS. The DPS policy outlines other relevant considerations for determining whether a particular group should be delineated as a DPS (*i.e.*, ''marked separation'' as a consequence of physical, physiological, ecological or behavioral factors).

Although the DPS and ESU policies are consistent, they will not necessarily result in the same delineation of DPSs under the ESA. The statutory term ''distinct population segment'' is not used in the scientific literature and does not have a commonly understood meaning. NMFS' ESU policy and the joint DPS policy apply somewhat different criteria, with the result that their application may lead to different outcomes in some cases. The ESU policy relies on ''substantial reproductive isolation'' to delineate a group of organisms, and emphasizes the consideration of genetic and other relevant information in evaluating the level of reproductive exchange among potential ESU components. The DPS policy does not rely on reproductive isolation to determine ''discreteness,'' but on the marked separation of population groups as a consequence of biological factors.

Despite the apparent reproductive exchange between resident and anadromous *O. mykiss*, the two life forms remain markedly separated physically, physiologically, ecologically, and behaviorally. Steelhead differ from resident rainbow trout physically in adult size and fecundity, physiologically by undergoing smoltification, ecologically in their preferred prey and principal predators, and behaviorally in their migratory strategy. Where the two life forms co-occur, adult steelhead typically range in size from 40–72 cm in length and 2–5 kg body mass, while adult rainbow trout typically range in size from 25–46 cm in length and 0.5–2 kg body mass (Shapovalov and Taft, 1954; Wydoski and Whitney, 1979; Jones, 1984). Steelhead females produce approximately 2,500 to 10,000 eggs, and rainbow trout fecundity ranges from 700 to 4,000 eggs per female (Shapovalov and Taft, 1954; Buckley, 1967; Moyle, 1976; McGregor, 1986; Pauley *et al.*, 1986), with steelhead eggs being approximately twice the diameter of rainbow trout eggs or larger (Scott and Crossman, 1973; Wang, 1986; Tyler *et al.*, 1996). Steelhead undergo a complex physiological change that enables them to make the transition from freshwater to saltwater (smoltification), while rainbow trout reside in freshwater throughout their entire life cycle. While juvenile and adult steelhead prey on euphausiid crustaceans, squid, herring, and other small fishes available in the marine environment, the diet of adult rainbow trout is primarily aquatic and terrestrial insects and their larvae, mollusks, amphipod crustaceans, fish eggs, and minnows (LeBrasseur, 1966; Scott and Crossman, 1973; Wydoski and Whitney, 1979). These differences in diet are a function of migratory behavior and the prey communities available to resident and anadromous *O. mykiss* in their respective environments. Finally, steelhead migrate several to hundreds of miles from their natal streams to the ocean, and spend up to 3 years in the ocean migrating thousands of miles before returning to freshwater to spawn (Busby *et al.*, 1996). Some fluvial populations of rainbow trout may exhibit seasonal migrations of tens of kilometers outside of their natal watersheds, but rainbow trout generally remain associated with their natal drainages (Meka *et al.*, 1999). Given the marked separation between the anadromous and resident life-history forms in physical, physiological, ecological, and behavioral factors, we conclude that the anadromous steelhead populations are discrete from the resident rainbow trout populations within the ranges of the DPSs under consideration.

Comment 5: Several commenters were critical of the evidence we provided that co-occurring resident and anadromous *O. mykiss* are markedly separate (''discrete''). Commenters felt that we exaggerated and oversimplified the differences between anadromous and resident *O. mykiss,* and that much of the evidence presented in support of their ''marked separation'' is not illustrative of traits unique to a given life-history form. The commenters felt that the majority of the phenotypic differences cited are inconsistent, overlap considerably between the two life forms, and are predominantly caused by environmental factors.

Several commenters were critical of the physical factors we cited as evidence of marked separation between the two life forms. The commenters documented overlap in the size and fecundity ranges of resident and anadromous *O. mykiss* in the same watersheds, and concluded that our assertion that steelhead are generally larger and more fecund than rainbow trout does not hold true. The commenters felt that fish size and fecundity are largely a function of food supply, rather than being a trait inherent to anadromy. The commenters cited examples where, provided sufficient food resources, rainbow trout achieve similar sizes and fecundity as steelhead.

Commenters were critical of the ecological factors we cited. The commenters felt that it is inappropriate to distinguish between the two forms on the basis of diet, as it is a function of prey availability in different environments rather than reflecting intrinsic differences in prey preference. They noted that when steelhead and rainbow trout are in the same freshwater environment, individuals of similar size and life-history stage have similar prey preferences.

Commenters were critical of the behavioral factors we cited. The commenters argued that the two life forms are not ''markedly separated'' in terms of migratory behavior. The commenters cited several scientific studies documenting migratory behavior in non-anadromous *O. mykiss* including: movement within a river system (potadromy); movement from lakes into rivers for spawning (limnodromy); and movement to the estuary/lagoon for growth and maturation (partial anadromy). Although commenters generally acknowledge that only the anadromous form migrates to the open ocean, they contended that this does not represent a truly discrete difference. The commenters described the life history of the *O. mykiss* species as a continuum of migratory behaviors, with anadromous and resident fish representing points on this continuum.

Commenters were also critical of the physiological factors we cited. Commenters argued that resident and

anadromous fish are not discrete physiologically throughout the majority of their life cycle, and smoltification is not entirely unique to anadromy. Commenters noted that some resident individuals may exhibit anadromy later in their life cycle, and other non-anadromous fish exhibit partial anadromy by migrating into estuaries for growth and maturation. Commenters also noted that some resident fish are capable of exhibiting anadromy later in their life cycle, as well as producing anadromous progeny that undergo smoltification.

Response: The fact that there is an overlap between co-occurring steelhead and rainbow trout in the physical, ecological, behavioral and physiological factors does not prevent them from satisfying the discreteness criterion under the DPS policy. While the commenters are correct that *O. mykiss* display a continuum of traits in these categories, at the end of that continuum steelhead are markedly separate in their extreme marine migration (leading to, or resulting from, marked separation in the other factors). As we stated in adopting the DPS policy, ''the standard adopted [for discreteness] does not require absolute separation of a DPS from other members of its species, because this can rarely be demonstrated in nature for any population of organisms. * * * [T]he standard adopted allows for some limited interchange among population segments considered to be discrete, so that loss of an interstitial population could well have consequences for gene flow and demographic stability of a species as a whole'' (61 FR 4722, at 4724; February 7, 1996).

Similarly, the ESU policy does not require absolute reproductive isolation, only sufficient isolation to allow evolutionarily important differences to accumulate (56 FR 58612, at 58618; November 20, 1991). In delineating ESUs, we have recognized that straying leads to some reproductive exchange among ESUs (particularly among populations at the geographic margins between ESUs), that biological entities do not divide along clear lines, and that professional judgment is required in drawing a line at the geographic edge of an ESU. Even among well-recognized taxonomic groupings, such as subspecies, there may be overlapping characteristics, and some reproductive exchange.

In developing the DPS policy we answered concerns that discreteness was an inappropriate criterion for delineating DPSs: ''With regard to the discreteness standard, the Services believe that logic demands a distinct population recognized under the Act be circumscribed in some way that distinguishes it from other representatives of its species. The standard established for discreteness is simply an attempt to allow an entity given DPS status under the Act to be adequately defined and described'' (61 FR 4721, at 4724; February 7, 1996). In the case of steelhead, there is a group of organisms that can be clearly distinguished by a variety of characteristics, particularly its marine migration.

With respect to the comment that resident and anadromous *O. mykiss* are genetically indistinguishable, we explained in adopting the DPS policy why we did not adopt genetic distinctness as the test of discreteness: ''The Services understand the Act to support interrelated goals of conserving genetic resources and maintaining natural systems and biodiversity over a representative portion of their historic occurrence. The draft policy was intended to recognize both these intentions, but without focusing on either to the exclusion of the other. Thus, evidence of genetic distinctness or of the presence of genetically determined traits may be important in recognizing some DPS's, but the draft policy was not intended to always specifically require this kind of evidence in order for a DPS to be recognized'' (61 FR 4721, at 4723; February 7, 1996).

Comment 6: Several commenters noted that in the June 2004 proposed listing determinations, resident populations included in *O. mykiss* ESUs were determined to have minor contributions to the viability of the ESUs. (In the proposed listing determinations we concluded that, despite the reduced risk to abundance for certain *O. mykiss* ESUs due to speculatively abundant rainbow trout populations, the collective contribution of the resident life-history form to the viability of an ESU as a whole is unknown and may not substantially reduce an ESU's risk of extinction (NMFS, 2004a; 69 FR 33102, June 14, 2004)). The commenters questioned why resident *O. mykiss* populations should be included in an ESU given that they have little, if any, contribution to the viability of the ESU.

Response: Although we have concluded that resident *O. mykiss* should not be included as part of the delineated steelhead DPSs (see response to Comment 4), we disagree with the commenters' basic argument that DPS delineations should depend upon the extent to which a potential component population contributes to the viability of the DPS. A population's contribution to DPS viability meets neither the reproductive isolation test of the ESU policy, nor the marked separation test of the DPS policy. Using such a test would lead to illogical results given the metapopulation structure of salmon and steelhead, where some components of an ESU or a DPS will (on average) contribute more to its viability, while other components will contribute less. The persistence of components with comparatively weaker contributions to viability may even depend upon their connectivity with other more productive components of the delineated species. These weaker components may nevertheless contribute in other important ways such as by increasing spatial distribution and reducing risks due to catastrophic events, or by exhibiting important traits to diversity of the species and conserving its ability to adapt to future environmental conditions.

Comment 7: One commenter asserted that we cannot apply the ESU policy in determining that resident and anadromous populations of *O. mykiss* are part of the same ESU, because NMFS does not have the legal jurisdiction under the ESA to list resident *O. mykiss* populations. The commenter noted that pursuant to the 1974 Memorandum of Understanding (MOU) regarding ESA jurisdictional responsibilities between FWS and NMFS, FWS has exercised ESA jurisdiction over resident *O. mykiss*, while NMFS has exercised jurisdiction over the anadromous life form.

Response: The commenter correctly highlights the issue of shared NMFS–FWS jurisdiction for *O. mykiss* ESUs including both resident and anadromous populations. In its 1997 letter responding to NMFS' proposal to include rainbow trout in *O. mykiss* ESUs, FWS objected to the NMFS' proposal and concluded rainbow trout and steelhead should not be considered part of the same DPS. In its June 7, 2005, letter recommending that the final listing determinations for the 10 *O. mykiss* ESUs under review be extended, FWS requested that we ensure that our delineation of *O. mykiss* ESUs complies with the DPS Policy. We agree, in this case, that it is appropriate that we depart from our past practice of applying the ESU Policy to *O. mykiss* stocks, and instead apply the joint DPS Policy in determining ''species'' where we share jurisdiction with FWS. This is consistent with our application of the DPS policy to delineate species of Atlantic salmon (*Salmo salar*) (65 FR 69459; November 17, 2000).

Comment 8: Commenters felt that our proposed approach was inconsistent

with previous NMFS and FWS DPS determinations for non-salmonid fish species, which focused on migration rates between populations, evidence of reproductive exchange, and genetic differences (e.g., NMFS–FWS Gulf of Maine DPS for Atlantic salmon, 65 FR 69459, November 17, 2000; NMFS' recent DPS determination for the Cherry Point stock of Pacific Herring, 70 FR 33116, June 7, 2005). The Department of Interior (DOI) similarly expressed concern that the proposed approach may be inconsistent with its previous applications of the DPS policy for fish species under its jurisdiction (e.g., bull trout, *Salvelinus confluentus,* and coastal cutthroat trout *O. clarki clarki*). DOI offered a comparison with its 1999 listing determination for the Coastal-Puget Sound bull trout DPS (50 FR 58910) in which the resident, migratory, anadromous, amphidromous, fluvial, and adfluvial life-history forms, despite exhibiting distinct life-history strategies, were not found to be discrete because they interbreed. DOI noted that NMFS' previous determinations concluded that the two life forms interbreed, and where they co-occur are genetically more similar than they are to the same life form in another basin. DOI and other commenters felt that regardless of any ''marked separation'' in phenotypic traits, the documented reproductive exchange and genetic similarity between anadromous and resident fish requires that they be included as parts of the same DPS.

Response: The reference to our DPS determination for the Cherry Point stock of Pacific herring is inapposite, as we found that stock was discrete, but not significant. None of the commenters suggested that steelhead are insignificant to the *O. mykiss* species. Additionally, we disagree with the commenters that our finding regarding the discreteness criterion was based on evidence of reproductive exchange and genetic similarity rather than marked separation in biological factors. We determined that the Cherry Point herring stock was discrete despite evidence of migration and reproductive exchange with other herring stocks. We determined that the Cherry Point stock is markedly separated from other Pacific herring populations as a consequence of physical, physiological, ecological, or behavioral factors due to: (1) Its locally unique late spawn timing; (2) the locally unusual location of its spawning habitat on an exposed section of coastline; (3) its consistently large size-at-age and continued growth after maturation relative to other local herring stocks; and (4) its differential accumulation of toxic compounds relative to other local herring stocks, indicative of different rearing or migratory conditions for Cherry Point herring (70 FR 33116; June 7, 2005).

With respect to the Atlantic salmon, bull trout, and coastal cutthroat trout determinations, we acknowledge that their expression of a range of life histories may raise some of the same issues we confronted in delineating an anadromous-only DPS of *O. mkyiss.* We conclude, however, that there are important differences between *O. mykiss* and these species that warrant different treatment. In addition to expressing anadromy (the life-history pattern in which fish spend a large portion of their life cycle in the ocean and return to freshwater to breed), bull trout and coastal cutthroat trout express amphidromy (migration between fresh and salt water that is for feeding and overwintering, as well as breeding). While the anadromous and resident forms of *O. mykiss* differ clearly in ocean-migratory behavior and associated biological factors (see response to Comment 4), ocean-going migratory behavior and associated physical, physiological, and ecological factors are comparatively more variable among the life-history forms and life stages of bull trout and coastal cutthroat trout given their expression of amphidromy.

Comment 9: One commenter questioned whether the alternative approach of delineating and listing steelhead-only DPSs was permissible, given that the *Alsea* ruling held that the ESA does not allow listing a subset of a DPS. The commenter observed that in the past we had equated an ESU with the statutory ''distinct population segment,'' and we included resident and anadromous *O. mykiss* within the same ESU. The commenter argued that our past practice of applying the ESU policy had established what constitutes a DPS of *O. mykiss*, and that our proposal to not include resident populations in the listings for steelhead-only DPSs would violate the ESA.

Response: The commenter is correct that in our past listing determinations we made the policy choice to equate an ESU with the statutory term ''distinct population segment.'' The commenter is not correct, however, in asserting that an ESU (as that concept may be understood by conservation biologists) must necessarily be equated with the statutory term ''distinct population segment.'' We conclude that in the case of *O. mykiss*, an ESU may contain more than one DPS, because the different life history components display marked separation sufficient to justify delineating them separately for protection under the ESA.

While both the ESU and DPS policies represent permissible interpretations of the statutory term, we have decided that the best approach for *O. mykiss* is to apply the joint DPS policy (see the response to Comment 2). We have concluded that the proposed steelhead-only DPSs meet the criteria defined under our joint DPS policy (as outlined in the response to Comment 4) and are consistent with the ESA.

Comment 10: Two commenters were critical of our consideration of hatchery stocks in delineating steelhead DPSs. The commenters questioned whether our review of hatchery programs under the ESU policy (NMFS, 2003, 2004b, 2004c) directly informs considerations of ''discreteness'' and ''significance'' under the DPS policy. The commenters felt that we failed to explain how including hatchery stocks as part of the delineated species comports with our proposed application of the DPS policy. The commenters felt that under the proposed approach of determining discreteness based on marked separation in phenotypic traits, it seems reasonable that hatchery stocks would be considered discrete regardless of the life history and genetic similarities documented in our hatchery reviews.

Response: We disagree with the suggestion that application of the DPS rather than the ESU policy should lead to the universal conclusion that hatchery fish are not part of the same DPS as naturally spawning fish. We recognize that hatchery stocks, under some circumstances, may exhibit differences in physical, behavioral, and ecological traits; however, conservation hatchery stocks under certain circumstances may exhibit few appreciable differences from the local natural population(s). We think it is inappropriate to make universal conclusions about all hatchery stocks, but think their ''discreteness'' relative to local natural populations needs to be evaluated on a case-by-case basis.

In the Final Species Determinations section below, we discuss more fully how our June 2004 proposed ESU delineations inform our DPS delineations, in terms of geographic boundaries and in terms of which hatchery populations are part of the DPS. We acknowledge that our review of hatchery programs (NMFS, 2003, 2004b, 2004c) was conducted in the context of the ESU policy; however, we disagree that our findings and the information we evaluated do not inform our considerations of discreteness under the DPS policy. In evaluating the ''reproductive isolation'' of individual

hatchery stocks in the context of the ESU policy, we lacked program-specific genetic data. As reasonable indicators of reproductive isolation and genetic similarity we relied on information including hatchery broodstock origin, hatchery management practices (e.g., the timing and location of release), and hatchery stock life-history characteristics (e.g., spawn timing, the size and age at maturity) relative to the local natural populations. We conclude that this information directly informs evaluations of marked separation as a consequence of physical, physiological, ecological, or behavioral factors.

Comment 11: Several commenters were critical of the proposed DPS delineations, asserting that they fail to provide a clearly distinguishable species delineation for the purposes of effectively and efficiently enforcing the ESA. The commenters were concerned that steelhead-only DPSs would generate confusion and have undesirable regulatory implications. Commenters noted that it is difficult if not impossible to distinguish between the two life forms throughout much of their life cycle when they co-occur. The commenters cited our June 2004 proposed rule in which we state that ''no suite of morphological or genetic characteristics has been found that consistently distinguishes between the two life-history forms'' (69 FR 33102, at 33113; June 14, 2004). Given the difficulty in distinguishing the two forms, commenters felt that we would either treat all juvenile resident *O. mykiss* as if they are listed, or we would deny needed protections for listed steelhead during the critical early life-history stages when they are indistinguishable from resident fish. Commenters felt that it will be impossible for us to quantify take of listed steelhead versus non-listed rainbow trout, and questioned how we could analyze the impact of actions on listed steelhead without considering the potential production of steelhead progeny by resident fish. Some commenters felt that the lack of a clearly enforceable standard further argues that resident and anadromous *O. mykiss* are not ''markedly separated.''

Response: As we acknowledged in our steelhead listings prior to the *Alsea* ruling, juvenile steelhead can be difficult to distinguish from resident rainbow trout. This does not dictate, however, that they should be included in the same DPS. The ESA authorizes prohibiting the take of an unlisted species if its appearance closely resembles that of a listed species (Section 4(e)). This is the tool that the ESA provides to deal with such situations where an unlisted species is difficult to distinguish from a listed one. In lieu of ''similarity of appearance'' protective regulations concerning resident trout that co-occur with listed steelhead stocks, the commenter is correct that we have presumed that all juvenile *O. mykiss* in streams where listed steelhead occur are listed juvenile steelhead. In a decade of implementing steelhead-only listings, we have confronted this issue successfully, working closely with state managers of rainbow trout fisheries to ensure their management of rainbow trout does not jeopardize steelhead. Continuing a listing of steelhead-only DPSs should not change that successful regulatory landscape.

Comments Regarding a Specific ESU or DPS: Determination of Species

Northern California and Central California Coast Steelhead

Comment 12: Several commenters expressed support for the proposed clarification of the Northern California and Central California Coast steelhead DPS boundaries. We received no comments opposed to the proposed changes.

Response: We have included these DPS boundary clarifications in the final species determinations (see Final Species Determinations section, below).

Comment 13: Several commenters disagreed with our proposal to include above-barrier resident *O. mykiss* populations from upper Alameda Creek in the Central California Coast *O. mykiss* ESU. Other commenters felt that resident *O. mykiss* populations in the Livermore-Amador Valley also should not be included in the ESU. The commenters were critical of the genetic data and analysis upon which we based our proposal, and felt that genetic similarity alone was insufficient to support the inclusion of these above-dam resident populations in the ESU.

Response: Under our final approach of delineating steelhead-only DPSs of *O. mykiss*, the resident populations, including those in Upper Alameda Creek and the Livermore-Amador Valley, are not considered part of the listed DPSs.

California Central Valley Steelhead

Comment 14: The California Department of Fish and Game (CDFG) disagreed with the defined spatial structure of the Central Valley *O. mykiss* ESU. It argued that the ESU should be split into two parts: one part north of the Sacramento-San Joaquin River Delta, and a second part that includes the Delta and the San Joaquin Basin. CDFG based its alternative ESU structure in large part on habitat conditions in the Delta, which it contends serve to reproductively isolate fish from the Sacramento and San Joaquin basins.

Comments submitted during the 6-month extension by the California-Nevada Chapter of the American Fisheries Society (AFS) disagreed with CDFG's recommended species determination. AFS scientists argued that the purported physical barrier to reproduction between the two basins (low dissolved oxygen levels in the lower San Joaquin River) is indicative of the severely degraded habitat conditions in the San Joaquin river system, but represents an ephemeral distributional barrier and not a substantial reproductive barrier. AFS scientists cited a recent genetic study that found no genetic differentiation between populations in the two basins, and concluded that there is no scientific basis for recognizing a distinction between the two river systems.

Response: We disagree with CDFG and believe we have correctly defined the spatial extent of the California Central Valley steelhead DPS. Previous genetic analyses indicate that Central Valley steelhead are distinct from coastal populations (see Busby *et al.*, 1996). More recent genetic data (Nielsen *et al.*, 2003) suggest that significant genetic population structure remains for steelhead populations in the Central Valley, but that very little of the genetic variation can be attributed to differences between populations in the Sacramento and San Joaquin river drainages. Ecologically, the Central Valley is substantially different from ecoregions inhabited by coastal *O. mykiss* populations, and ecological conditions in the Central Valley are generally similar between the Sacramento and San Joaquin river basins. Low dissolved oxygen conditions in the Stockton Deep Water Ship Channel and along other reaches of the lower San Joaquin River are problematic, and may serve to limit anadromous fish migration under certain conditions and times. However, we do not believe this ephemeral barrier results in reproductive isolation between populations of *O. mykiss* in the Sacramento and San Joaquin river basins, as evidenced by the available genetic information. In our view, the available genetic and ecological information indicates that steelhead populations in the Sacramento and San Joaquin river basins are not discrete and collectively are significant to the *O. mykiss* species, and therefore constitute a single DPS.

Snake River Basin Steelhead

Comment 15: Several commenters in Idaho disagreed with including the population of rainbow trout above Dworshak Dam on the North Fork Clearwater River (Idaho) in the Snake River Basin *O. mykiss* ESU. The commenters felt that resident *O. mykiss* above Dworshak Dam likely represent a composite of past hatchery stocking programs, hybridization with cutthroat trout, and native *O. mykiss*, and as such there is insufficient information to justify including the entire population of resident *O. mykiss* above Dworshak Dam in the Snake River Basin *O. mykiss* ESU.

Response: As noted in the response to Comment 13, resident populations, including above Dworshak Dam, are not part of the listed DPS.

General Comments on the Consideration of Resident O. mykiss: Assessment of Extinction Risk

Comment 16: Several commenters noted that we did not address the ESU membership of, or consider the potential risks and benefits to the viability of an ESU from, rainbow trout hatchery programs in the proposed listing determinations for *O. mykiss* ESUs. The commenters asserted that the vast majority of rainbow trout hatchery programs propagate domesticated, non-native, and in some instances genetically modified rainbow trout. The commenters felt that in some *O. mykiss* ESUs, such as the Snake River Basin and Upper Columbia River *O. mykiss* ESUs, the negative impacts of hatchery rainbow trout on native *O. mykiss* populations may be profound.

Response: We agree with the commenters that resident trout hatchery programs were not inventoried and assessed as part of the proposed listing determinations. In response, we conducted an inventory and assessment of hatchery programs that release rainbow trout in areas where steelhead or co-occurring native rainbow trout might be affected (NMFS, 2004b, 2005a). We have found that few hatchery rainbow trout stocks are released in the spawning and rearing areas for the *O. mykiss* ESUs under review. State and tribal managers have adopted wild salmonid policies that have largely eliminated releases of hatchery-produced rainbow trout in waters important to wild steelhead. Since the ESA listings of steelhead in 1997–2000, the vast majority of hatchery rainbow trout releases to support recreational fisheries are restricted to isolated ponds and lakes. Of the hatchery rainbow trout that are released, none are stocks that would be considered part of the *O. mykiss* ESUs reviewed. In the few instances where domesticated or genetically modified rainbow trout stocks are released into anadromous waters to support recreational fisheries, they likely do not have substantial adverse impacts on the local *O. mykiss* populations. The released stocks exhibit poor survival, are subject to high harvest rates in the recreational fisheries, and exhibit spawn timing isolating them reproductively from the local natural populations. In some instances, sterile ''triploid'' rainbow trout are released into anadromous waters, thereby eliminating the possibility for reproductive or genetic exchange with wild fish.

Comment 17: Some commenters contended that the District Court in *Alsea* ruled that once an ESU is defined, risk determinations should not discriminate among its components. The commenters described the risk of extinction as the chance that there will be no living representative of the species, and that such a consideration must not be biased toward a specific behavioral or life-history component. A few commenters felt that populations of rainbow trout have persisted in isolation over long periods of time, demonstrating that resident representatives of an *O. mykiss* ESU would persist in the foreseeable future, even if the anadromous life-history form was extirpated.

Response: We disagree that the *Alsea* ruling requires a particular approach to assessing extinction risk. The court ruled that if it is determined that a DPS warrants listing, all members of the defined species must be included in the listing. The court did not rule on how the agency should determine whether the species is in danger of extinction or likely to become so in the foreseeable future. Because we are listing steelhead-only DPSs, we do not address the contention that rainbow trout might continue to survive in isolation even if the anadromous life history were extirpated.

Comment 18: Several commenters disagreed with our conclusion that the Biological Review Team's (BRT's) extinction risk assessments directly inform risk evaluations for steelhead-only DPSs, and recommended that the BRT re-evaluate the extinction risk of the steelhead DPSs without considering resident *O. mykiss*. The commenters noted that some of the population data evaluated by the BRT included both life forms, particularly for the Southern California, South-Central California Coast, and Central California Coast ESUs. One commenter noted that for several ESUs the BRT concluded that the presence of speculatively abundant resident populations buffered the risk of extinction somewhat. The commenter felt that the BRT's extinction risk assessments likely underestimate the risk for a steelhead-only DPS, and that some of the proposed threatened determinations for *O. mykiss* ESUs may warrant revision as endangered for the delineated steelhead-only DPSs.

Response: As explained more fully in the response to Comment 19, the risk of extinction faced by the steelhead component of *O. mykiss* may be affected by the health and potential contributions of the resident component. We conclude that the BRT's risk assessments directly inform our determinations for steelhead-only DPSs for all ESUs, including the California ESUs cited by the commenters.

Comment 19: Several commenters felt that the extinction risk assessments for steelhead-only DPSs must consider the resident form. The commenters felt that the available scientific information demonstrates that the two life-history forms have inseparable demographic risks given that they interbreed and produce progeny of the alternate life form. Commenters asserted that the viability of steelhead populations in the foreseeable future depends on the continued presence of the resident form to buffer against periods of unfavorable ocean conditions and ephemeral blockages to fish passage. Commenters cited a recent report (Independent Science Advisory Board (ISAB), 2005–2) which concluded that ''the presence of both resident and anadromous life-history forms is critical for conserving the diversity of steelhead/rainbow trout populations.'' The commenters concluded that both life-history forms are essential to the individual and collective viability of resident and anadromous populations.

A few commenters contended that the presence of abundant co-occurring rainbow trout confers resilience to steelhead DPSs such that listing may not be warranted. These commenters felt that the ability of the resident life-history form to produce anadromous offspring makes it likely that the anadromous life-history form would be reestablished if extirpated. These commenters cited the recent report of NMFS' Recovery Science Review Panel (RSRP, 2004) which discussed the preliminary results of a study indicating that 17 percent of anadromous adults had resident mothers, as well as other studies indicating that isolated resident populations produce anadromous progeny that successfully smolt and

return to spawn (*e.g.*, Thrower *et al.*, 2004).

The majority of commenters expressed skepticism that resident populations can maintain or re-establish declining or extirpated steelhead populations. These commenters cited recent expert advisory panel reports concluding that although the resident form is an important life-history strategy in some circumstances, the likelihood of long-term persistence is substantially compromised by the loss of anadromy. The commenters concluded that the best available information demonstrates precipitous declines and high levels of extinction risk for West Coast steelhead populations. One commenter cited a study (Nehlsen *et al.*, 1991) identifying 23 steelhead populations that have been extirpated and 75 steelhead populations that are at risk of extirpation. The commenter concluded that these observations contradict assertions that co-occurring rainbow trout can sustain or reestablish anadromous populations and ensure the viability over the long term.

Response: Because we have delineated steelhead-only DPSs, we do not directly address contentions about persistence of an entire *O. mykiss* ESU. We acknowledge, however, that in the context of steelhead-only DPS delineations, these comments correctly point out that we must consider whether and to what extent the presence of co-occurring rainbow trout affects the extinction risk of the steelhead DPSs under consideration. We conclude that available information for most of the *O. mykiss* under review does not support a conclusion that the resident populations are abundant. Even for those few ESUs that may have relatively abundant co-occurring rainbow trout, we conclude that while the resident form may mitigate somewhat the risks to the co-occurring steelhead, they do not change our conclusion about the risk of extinction of the DPSs under consideration. We base this conclusion on the work of the BRT and on information provided by peer reviewers and commenters during the comment period. The bulk of this information and analysis specifically addressed the question of the viability of the larger ESU, but the analysis was largely focused on the steelhead-only component. That analysis directly informs our conclusions about the effect of co-occurring rainbow trout on the extinction risk of the steelhead DPSs.

The best available scientific information does not demonstrate that an extirpated anadromous population can be re-established by a resident population. There is only one published report of anadromy developing from a resident population (Pascual *et al.*, 2001), and it is unclear whether this putative founding population was composed purely of resident genotypes (Behnke, 2002; Pascual *et al.*, 2002; Rossi *et al.*, 2004). Evolutionary theory and empirical evidence suggest that the ability of residents to contribute to anadromy quickly diminishes if the fitness of their anadromous progeny is low (NMFS, 2004a; Thrower *et al.*, 2004a, 2004b; RSRP, 2005). NMFS'' RSRP concluded that in cases where an anadromous run is extinct or not self-sustaining, there is no scientific justification for the claim that the long-term viability of an *O. mykiss* ESU or steelhead DPS could be maintained by the resident life-history form alone, or that a viable anadromous population could feasibly be reestablished from a pure resident population (RSRP, 2004). Moreover, for most of the *O. mykiss* under review, the available information does not suggest that the resident form is abundant (NMFS, 2004a).

For a variety of reasons the BRT concluded that the collective contribution of the resident life-history form to the persistence of a larger *O. mykiss* ESU is unknown and may not substantially reduce the overall extinction risks to the ESU in-total (NMFS, 2003b; 2004a). The two *O. mykiss* life-histories represent an adaptive ''bet-hedging'' strategy for sustaining reproductive potential despite high variability in physical and ecological conditions. Although the resident form can enable the larger *O. mykiss* ESU to endure short-term physical, environmental, and ecological barriers to anadromous migration, there is no evidence that resident fish can perform this function over the long term if the anadromous form is extirpated. It is also unclear to what extent resident populations depend on infusions from anadromous fish for their long-term persistence. The BRT's conclusion is supported by recent reports by the ISAB and NMFS' RSRP which recently concluded that anadromous *O. mykiss* contribute ''substantially and irreplaceably to any measure of *O. mykiss* productivity and viability'' (RSRP, 2004), and that ''the presence of both resident and anadromous life-history forms is critical for conserving the diversity of steelhead/rainbow trout populations and, therefore, the overall viability of ESUs'' (ISAB, 2005–2). The RSRP and ISAB underscored that ''resident populations by themselves should not be relied upon to maintain long-term viability of an [*O. mykiss*] ESU'' (RSRP, 2004), and that the ''likelihood of long-term persistence would be substantially compromised by the loss of anadromy in *O. mykiss* ESUs'' (ISAB, 2005–2).

Comment 20: Some commenters noted that physical, ecological, environmental, and habitat conditions have been greatly modified by human activities over the past 100 years and contended that due to these changes, areas that historically supported anadromous *O. mykiss* populations currently favor populations of rainbow trout. These commenters felt that observed declines in anadromous *O. mykiss* populations reflect an adaptive shift in the relative proportion of the resident and anadromous life-history forms. The commenters argued that rainbow trout populations have expanded to successfully occupy the niche vacated by anadromous populations, and that *O. mykiss* ESUs do not warrant ESA listing due to this demonstrated adaptive resiliency of the species.

Response: As noted in the response to Comment 19, contentions about persistence of an entire *O. mykiss* ESU are not directly relevant given that we have delineated steelhead-only DPSs. However, the presence of co-occurring rainbow trout is relevant to the extent that the resident life-form affects the extinction risk of the steelhead DPSs under consideration. The commenters do not provide data in support of their contention that the reduced abundance of steelhead represents an adaptive shift by the species to altered environmental conditions. An increase in the proportion of resident fish in certain *O. mykiss* populations could be the result of an adaptive life-history shift in response to changing environmental conditions (as suggested by the commenters), or the apparent increase in the prevalence of rainbow trout could simply be the result of declines in the abundance, productivity, and distribution of the anadromous form without a compensatory response in resident populations. The data necessary to evaluate the current status and trends of resident populations are generally lacking, and even more so are the historical data necessary to evaluate trends in the relative abundance and distribution of the two life-history forms. Even if an adaptive shift has occurred, as suggested by the commenters, there is insufficient information to support the contention that *O. mykiss* populations dependent upon the productivity of the resident life-history form are viable over the long term (see response to Comment 19, above). Regardless, many of the factors that have caused declines in

anadromous *O. mykiss* populations (such as the loss/degradation of riparian habitat, degradation of water quality, loss/degradation of in-stream habitat structure and complexity, etc.) likely have had similarly adverse effects on co-occurring resident populations. As noted above in the response to Comment 19, the loss of the anadromous life-history form may increase the extinction risk of an *O. mykiss* ESU due to increased risks from catastrophic events, decreased reproductive potential, diminished spatial distribution, diminished connectivity among discrete habitat patches, and decreased diversity in adaptive traits.

Comments Regarding a Specific ESU or DPS: Assessment of Extinction Risk

California Central Valley Steelhead

Comment 21: In addition to disagreeing with the defined spatial structure of the Central Valley *O. mykiss* ESU, CDFG opposed our proposal to maintain ESA protections for this ESU. CDFG provided new information on the abundance of resident and hatchery *O. mykiss* in the Central Valley and argued that because of the combined high abundance, high productivity, broad spatial distribution, and genetic diversity of these populations that *O. mykiss* in the Sacramento River Basin do not warrant listing. CDFG conceded that *O. mykiss* in the Sacramento-San Joaquin Delta and San Joaquin River basin may warrant listing as threatened.

In comments submitted during the 6-month extension, a few commenters agreed with CDFG's conclusion that Central Valley steelhead populations are not at risk due to the presence of abundant rainbow trout populations and the stability of environmental conditions. These commenters acknowledged that conditions are much altered from historical conditions by the imposition of dams and changes in flow regime, but concluded that the existing environment selects for the resident life form and supports robust rainbow trout populations.

Other commenters argued that historical habitat loss and degradation remains to be addressed, and water management in the Sacramento-San Joaquin river systems poses significant threats to Central Valley *O. mykiss*, inclusive of both anadromous and resident populations. These commenters criticized CDFG's abundance estimates for: inappropriately extrapolating from areas above impassable dams not considered to be part of the ESU; inaccurately assuming a uniform distribution of fish within these systems by extrapolating from average density estimates; including an unquantifiable number of hatchery produced smolts in their analyses; and combining abundance estimates for different life-history stages. The commenters felt that CDFG's comments ignored that historical spawning and rearing habitats have been reduced in the Sacramento and San Joaquin river systems by more than 82 percent, and that CDFG appeared to downplay the loss of the San Joaquin basin as an historically important center of distribution.

Response: Under our adopted approach of delineating steelhead-only DPSs, CDFG's comments regarding resident *O. mykiss* populations do not affect our risk conclusion for the Central Valley steelhead DPS. Regardless, we disagree with CDFG's assertion that the presence of resident populations in the Sacramento River Basin substantially reduce risks to Central Valley *O. mykiss* populations. We acknowledge that resident forms of *O. mykiss* are widely distributed and possibly abundant in the Central Valley, particularly in the Sacramento River Basin and that the presence of these resident populations likely reduces risks to population abundance. However, the BRT described considerable uncertainty regarding whether and to what extent the resident form contributes to the productivity, spatial structure and diversity of *O. mykiss* metapopulations. As discussed in the response to Comment 19 it is unclear how long an *O. mykiss* population can persist if dependent entirely or mostly upon the productivity of resident fish in a dynamic freshwater environment, even if the resident forms are abundant. The BRT's concerns regarding the status of Central Valley steelhead are not based solely on the apparent continued decline in abundance, but also on evidence indicating the proportion of naturally produced fish is declining, the loss of the vast majority of historical spawning areas above impassable dams, continued impediments to fish passage, and the severe degradation of water quality and quantity conditions. Although altered habitat conditions may favor the resident life-history form in some areas, it is unclear whether such populations are sustainable over the long term (see response to Comment 19, above).

Middle Columbia River Steelhead

Comment 22: One commenter submitted an alternative viability analysis for Middle Columbia River steelhead that concludes that extinction risks are low for the wild populations throughout the Middle Columbia River (Cramer *et al.*, 2003). The report emphasizes the recent increases in abundance in 2001–2002, and asserts that all streams in the DPS share similar patterns of steelhead production, that hatchery-origin steelhead represent a small fraction of natural spawners and do not pose a threat to the DPS's productivity, and that rainbow trout and steelhead interbreed and produce progeny of the alternate life-history form.

Response: The information presented in Cramer *et al.* (2003) includes information from Cramer *et al.* (2002) that was provided to NMFS on April 1, 2002, as part of public comments received in response to our initial solicitation of information to support the status review updates (67 FR 6215; February 11, 2002). Cramer *et al.* (2002) focused on the status and trends of steelhead in the Yakima River subbasin, and Cramer *et al.* (2003) represents a subsequent submission that includes information for other major subbasins in the DPS. The information presented in Cramer *et al.* (2002) was evaluated by the BRT and considered in developing the proposed listing determination for the ESU. The supplemental material provided in Cramer *et al.* (2003) does not provide substantive additional data to what was available to and considered by the BRT. The BRT's assessments of extinction risk were based on long-term trends. A recent short-term increase in returns does not alleviate concerns regarding the long-term performance of the DPS, nor would it address concerns regarding the spatial distribution, connectivity, and diversity of populations within the DPS.

The conclusions made in the latter report are not inconsistent with the findings of the BRT. The report emphasizes recent increases in abundance and productivity, but, as noted above, the BRT concluded that there is insufficient certainty that the environmental conditions underlying recent encouraging trends will continue. The report also emphasizes the contributions of abundant and well distributed rainbow trout populations in the ESU in mitigating risks to the anadromous life-history form. As discussed in the response to Comment 19 (above), the BRT concluded that, despite the reduced risk to abundance for certain *O. mykiss* ESUs due to speculatively abundant resident fish, the collective contribution of the resident life-history form to the persistence of an *O. mykiss* ESU is unknown and may not substantially reduce the overall extinction risk to the ESU (NMFS, 2003b, 2004).

Upper Columbia River Steelhead

Comment 23: Several commenters opposed our proposal to change the listing status of the Upper Columbia River steelhead from endangered to threatened. The commenters noted that the majority opinion of the BRT (NMFS, 2003b) was that the ESU is ''in danger of extinction.'' The commenters disagreed with the finding of the Artificial Propagation Evaluation Workshop (NMFS, 2004c) (APEW) that the six hatchery programs in the ESU collectively mitigate the immediacy of extinction risk such that the ESU should be listed as threatened rather than endangered.

Response: The slight majority opinion of the BRT was that the ESU is ''in danger of extinction,'' although the substantial minority opinion was that the ESU is ''likely to become endangered in the foreseeable future.'' In evaluating the risks and benefits of the six hatchery programs included in the ESU, we concluded that these programs have: (1) A high certainty of implementation due to long-term agreements reached by Federal, state, tribal and local entities to ensure funding; and (2) a high certainty of effectiveness because they adhere to best professional practices, include extensive monitoring and evaluation efforts, and minimize the potential risks of artificial propagation. These programs have increased the number of natural spawners and thereby have increased the spatial distribution of spawning areas being used, although as yet the programs provide uncertain benefits to the abundance and productivity of the naturally spawned populations in the DPS. The careful design and implementation of these programs have been effective at conserving the diversity of the populations within the DPS. For these reasons we conclude that the hatchery programs in this ESU collectively mitigate the immediacy of extinction risk for Upper Columbia River steelhead in the short term (NMFS, 2004c).

Comments on the Consideration of Protective Efforts

California Central Valley Steelhead

Comment 24: Several commenters opposed our proposal to list steelhead in the California Central Valley as threatened. The commenters agreed with the BRT's majority opinion (NMFS, 2003b) and the conclusion of the APEW (NMFS, 2004c) after considering the benefits of hatchery programs, that the steelhead in the Central Valley are ''in danger of extinction.'' They disagreed that the habitat restoration efforts associated with the CALFED and the Central Valley Project Improvement Act (CVPIA) provide sufficient certainty of implementation and effectiveness (pursuant to PECE) to conclude that Central Valley steelhead should be listed as threatened rather than endangered.

Response: We disagree with the commenters and continue to believe that there are many protective efforts that have been implemented effectively, or are in the process of being implemented, throughout the California Central Valley that reduce risks to the DPS and support a threatened listing determination. These efforts were discussed in the proposed rule (69 FR 33102, at 33144; June 14, 2004) and include a wide range of habitat restoration efforts, changes in hatchery management, and limits on recreational harvest. As discussed further below, habitat improvement and planning efforts in the Central Valley conducted under the auspices of Federal and State programs, primarily CALFED and CVPIA, recently proposed monitoring and research activities regarding steelhead, and recently completed ESA section 7 consultations.

Significant Central-Valley-wide restoration efforts include the CALFED program and CVPIA, both comprehensive water management and restoration programs consisting of elements that potentially contribute toward ecosystem improvement and function as well as to the recovery of Central Valley steelhead. The CALFED program is a collaborative effort among 25 Federal and State agencies to improve water supplies in California and the health of the San Francisco Bay-Sacramento-San Joaquin River Delta watershed. The Ecosystem Restoration program of CALFED has invested more than $500 million on 415 projects aimed at improving and restoring ecosystems since its inception in 1997 (CALFED Bay-Delta Program, 2005, Annual Report: 2004). These actions include: fish screen and passage construction and planning projects; instream, floodplain, and riparian restoration projects; toxic studies and pollutant reduction efforts; monitoring for listed species; and instream flow augmentation. The CVPIA mandated changes in management of the Central Valley Project, particularly for the protection, restoration, and enhancement of fish and wildlife, and includes programs such as the Anadromous Fish Restoration Program, a water acquisition program, and a fish screen program. Wherever possible, CVPIA and CALFED programs are integrated to accomplish a single Central-Valley-wide restoration effort.

Approximately 70 percent of water diversions greater than 250 cfs in the Central Valley have now been screened or are planned to be screened. Notable efforts include the planning and/or construction of facilities at: Anderson-Cottonwood Irrigation District, Glenn Colusa Irrigation District, Princeton, Reclamation District 108, City of Sacramento, and Sutter Mutual Water District on the Sacramento River; the Banta Carbona and Patterson Irrigation Districts on the San Joaquin River; and numerous other screening projects in Suisun Marsh, the Sacramento-San Joaquin Delta, and tributaries throughout the Central Valley. Passage improvements and evaluations regarding common salmonid barriers such as Saeltzer Dam on Clear Creek and numerous barriers on Sacramento and San Joaquin tributaries are underway and are contributing to the improvement of habitat conditions for this DPS.

Restoration efforts such as spawning gravel augmentation, fine sediment removal activities, channel rehabilitation, riparian, floodplain, and wetland restoration have also contributed to improved habitat conditions for this DPS by restoring habitat function and quality. Watershed planning and restoration efforts are now underway in many of the Central Valley tributaries leading to the identification and potential elimination of factors limiting habitat restoration and population recovery. Large-scale restoration projects in Clear Creek in the Sacramento River Basin, and the Merced and Tuolumne Rivers in the San Joaquin Basin, are expected to restore ecological functions that benefit steelhead production. Efforts to restore spawning gravel supply and reduce fine sediment input in numerous Central Valley tributaries have likely contributed positively toward recent spawning success. Other elements of the CALFED program may also provide benefits to this DPS, although these benefits are not yet well demonstrated. These activities include water purchases through the Environmental Water Account program, efforts to reduce toxics and pollutants in Central Valley waters, community-based management efforts through the CALFED Watershed program, and improvements to channels and floodplains through the Conveyance and Levee programs.

Monitoring efforts for Central Valley steelhead have been implemented in selected tributaries in the Sacramento and San Joaquin basins in an effort to better understand life-history strategies,

as well as to provide better estimates of steelhead abundance. These activities include redd surveys, snorkeling, angling, rotary screen trapping, and beach seining. Ongoing genetic research is expected to provide additional information about genetic relationships of populations within and between rivers and basins in the Central Valley. This information will help define the spatial and genetic structure of the Central Valley steelhead DPS. The long-term juvenile fish monitoring program by the Interagency Ecological Program in the Sacramento-San Joaquin Estuary, as well as Chinook salmon monitoring programs by Federal and state agencies and private entities in some tributaries, also may provide incidental catch information. While these efforts do not specifically target steelhead and are not found in all Central Valley watersheds, they are filling information gaps regarding Central Valley steelhead that will likely help with recovery assessments and planning. Despite current monitoring and research efforts, additional needs include a more comprehensive monitoring program, better anadromous fish abundance estimating methods, and a better understanding of the use, needs and availability of habitat in the Central Valley for steelhead populations. Finally, we have completed ESA section 7 consultations for construction and water operation projects in the Central Valley that provide substantial benefits to steelhead.

We believe that the protective efforts being implemented for this DPS provide sufficient certainty of implementation and effectiveness to alter the BRT's (NMFS, 2003b) and APEW's (NMFS, 2004c) assessments and support our conclusion that the Central Valley steelhead DPS in-total is not in danger of extinction, but rather is likely to become endangered in the foreseeable future throughout all or a significant portion of its range. Accordingly, we conclude that the Central Valley steelhead DPS continues to warrant listing as a threatened species.

Middle Columbia River *O. mykiss* ESU

Comment 25: The U.S. Forest Service (FS) and the Bureau of Land Management (BLM) felt that implementation of existing Land and Resource Management Plans (LRMPs) within the range of the Middle Columbia River steelhead will help ensure its long-term viability. Specifically, the agencies assert that the following conservation programs provide sufficient certainty of implementation and effectiveness to mitigate the risk of extinction for Middle Columbia River steelhead and warrant a new review of its status: (1) Continued implementation of the Northwest Forest Plan aquatic conservation strategy under current FS and BLM LRMPs; (2) continued implementation of the Pacfish aquatic conservation strategy under current FS and BLM LRMPs; (3) continued participation in the Interagency Implementation Team ensuring the effective monitoring, evaluation, and adaptive management of actions under the LRMPs; (4) continued implementation of Best Management Practices project design criteria, and standards and guidelines as specified in existing ESA section 7 biological opinions and concurrence letters, with a strong focus on forestry, grazing, mining, and recreational activities; and (5) continued collaboration with regional partners to identify and implement high-value restoration projects. The FS and BLM criticized the proposed listing determination for the Middle Columbia River *O. mykiss* ESU for not considering implementation of their aquatic conservation strategies under their current LRMPs, for not articulating why these and other conservation efforts were deemed insufficient to ameliorate risks to the ESU, and for not detailing the specific conservation measures necessary to address any insufficiencies.

In an April 15, 2005, letter to NMFS from the State of Oregon Governor's Natural Resource Office, Oregon provided additional information regarding efforts to protect Middle Columbia River steelhead in the Deschutes, John Day, and Walla Walla Rivers. Oregon noted changes in the management of the Wallowa Hatchery intended to reduce the straying of out-of-ESU hatchery fish into the Deschutes and lower John Day rivers. Oregon believes that, if successful, these management actions may substantially reduce the threat posed by straying hatchery fish in these basins and the resulting uncertainties in interpreting trends in abundance and productivity of the local populations. Oregon emphasized its continuing commitment to conservatively managing fisheries in the John Day River in support of conserving self-sustaining natural populations of native summer steelhead. Oregon also felt that commitments to improve flow management in the Walla Walla River Basin as part of the Oregon-Washington Walla Walla River Habitat Conservation Plan for steelhead and bull trout have resulted in improved flow conditions over the past 4 years, improved fish passage, and increases in available habitat. Oregon also noted habitat and fish passage improvement projects that have been completed and are being developed in the John Day River, Deschutes River, Walla Walla River, and Fifteenmile Creek basins. Oregon asserted that these and other protective efforts merit closer scrutiny under PECE before a final listing determination should be made for steelhead in the Middle Columbia River.

Response: In the proposed listing determination we noted encouraging trends in the recent abundance and productivity of the ESU, in part due to favorable freshwater conditions and marine survival. However, several populations remain well below viable levels (including populations in the Yakima River Basin, which was historically a major production center), and there is insufficient certainty that the environmental conditions underlying recent encouraging trends will continue. In proposing to maintain the ESU's threatened status, we listed 11 conservation measures and commitments that if implemented might substantially address key limiting factors, ensure the viability over the long term, and likely bring Middle Columbia River steelhead to the point where the protections of the ESA are no longer necessary. To affect the final listing determination for Middle Columbia River steelhead, we expressed interest in receiving firm commitments with a high certainty of implementation and effectiveness, including: (1) That the Bonneville Power Administration (BPA) will continue its funding of ESU-wide riparian zone and instream habitat restoration efforts, consistent with its Fish and Wildlife Program's portion of the subbasin and recovery plans being developed; (2) that the BLM will adhere to best management practices for grazing, mining, and recreational activities ESU-wide; (3) that the FS will adhere to best management practices for grazing, forestry, and mining activities ESU-wide; (4) that Washington Department of Fish and Wildlife (WDFW) will continue to manage fisheries conservatively in this ESU, and develop and implement a long-term approach that balances natural and hatchery production across the ESU; (5) that Oregon Department of Fish and Wildlife (ODFW) will continue to manage fisheries conservatively in this ESU (particularly in the John Day River subbasin), develop and implement management approaches to reduce the straying of out-of-basin stocks into Deschutes and John Day spawning areas, and develop and implement a long-term approach that balances

natural and hatchery production across the ESU; (6) that the U.S. Bureau of Reclamation (BOR) provide passage and improve flow management below all its facilities in the Yakima River and the Umatilla River subbasins, provide fish passage into significant tributaries, and provide passage over at least two of its storage dams in the Yakima Basin; (7) that the Federal Energy Regulatory Commission (FERC) provide for passage in the Deschutes River subbasin above the Pelton/Round Butte complex, restore downstream water temperature regime to historical levels, and provide for upstream/downstream habitat enhancement and restoration; (8) that the U.S. Army Corps of Engineers (Corps) improve passage, screening and flow management in the Walla Walla River subbasin, and alter the flood operating rule for Mill Creek or alternatively screen the diversion into Bennington Lake; (9) that the Yakima Nation continue conservative hatchery and harvest management and adherence to best land management practices; (10) that the Confederated Tribes of the Umatilla Reservation continue conservative hatchery and harvest management; and (11) that the Confederated Tribes of the Warm Springs Reservation continue best land management practices in the Deschutes River subbasin. To date, the only items addressed are those summarized above by FS and BLM, the State of Oregon, and the 2003 Pelton Round Butte Project settlement agreement to provide for fish passage, research, and habitat enhancement (*see* discussion below).

We applaud FS' and BLM's continued commitments to implement LRMPs, adhere to established best management practices, and participate in monitoring and evaluation efforts. Although the Federal lands covered by the LRMPs are important components in conserving the ESU, these lands comprise a minority (approximately 28 percent) of the occupied stream reaches in the ESU. Populations in the Yakima, Klickitat, and Touchet Rivers remain well below their interim recovery target abundance levels, and in these streams Federal lands represent approximately 21 percent, four percent, and seven percent of the occupied stream reaches, respectively. Additionally, several of the key limiting factors within these basins (in particular fish passage and flow management in the Yakima River Basin) are outside FS' and BLM's authority to address. We are encouraged by FS' and BLM's commitment to continue to pursue high value restoration projects in the range of the DPS. However, with respect to our consideration of protective efforts, such general commitments lack the necessary certainty of implementation and effectiveness in that they do not identify specific actions and conservation objectives, do not include quantifiable performance measures, cannot guarantee the necessary funding and other resources, and lack sufficient authority to ensure the participation of all necessary parties.

In 2003 a settlement agreement was reached among the applicants and 21 intervenors in the FERC's relicensing of the Pelton Round Butte Project on the Deschutes River (central Oregon). The settlement agreement addresses project operations, natural resource protection, mitigation, and enhancement measures. The agreement will provide fish passage above the three-dam complex to over 150 miles (241 km) of spawning and rearing habitat for steelhead, as well as spring Chinook and sockeye salmon. Other measures include research on the augmentation of spawning gravels in the Lower Deschutes River, management of large woody debris entering the project reservoirs, altered flow management, and $21.5 million in funding for habitat enhancement projects. Fish passage is scheduled to begin in 2009, to be preceded by (as yet undetermined) habitat enhancement projects. If the provision of fish passage fails, funds that would otherwise support the operation and maintenance of the fish passage facility will be used for habitat restoration projects downstream of the project for the duration of the new license. The settlement agreement is reasonably certain to occur. However, scheduling delays have already occurred and are to be expected given the number of involved parties, the scale of the project, and the complexity of the engineering issues being addressed. We are optimistic that the passage improvements included in the settlement agreement will be effective. However, we cannot be certain that the provision of passage will be effective in reintroducing steelhead populations into currently blocked habitats in the Deschutes River. It is due to this uncertainty that contingencies were built into the settlement agreement for the potential failure of efforts to provide fish passage.

As with the above-mentioned protective efforts, we applaud the conservation measures described by Oregon to reduce stray rates into the Deschutes and John Day Rivers, conservatively manage fisheries in the John Day River, improve flow conditions in the Walla Walla River, and continue its collaboration in developing and implementing restoration projects. However, as Oregon acknowledges, there is considerable uncertainty as to whether the management actions for the Wallowa Hatchery will be effective in reducing the stray rates of out-of-DPS fish. The commitments to improve flow conditions in the Walla Walla River represent important contributions to addressing limiting factors in the subbasin; however, significant challenges remain. Additional water conservation measures, restoration of severely degraded riparian habitats, continued efforts to screen water diversions and improve fish passage, improvements in agricultural practices to benefit water quality, and hatchery reform efforts are needed to help ensure the conservation of the Walla Walla River steelhead population. As Oregon noted, the implementation of various habitat restoration activities is unclear given uncertainties in funding, technical assistance, necessary authorities, and voluntary participation.

The commitments addressed above represent valuable contributions to the conservation and recovery of the Middle Columbia River steelhead DPS. However, the FS' and BLM's commitments, the Pelton Round Butte Project settlement agreement, and the information provided by Oregon, alone are insufficient to substantially ameliorate risks to the DPS to the point that the protections afforded under the ESA are no longer necessary. As noted in the proposed listing determination and summarized above, we feel that continued and additional conservation efforts are necessary beyond those addressed in the commenters' commitments to substantively address factors limiting the recovery of the Middle Columbia River steelhead DPS.

Comments Regarding Public Notice and Opportunities for Public Comment

Comment 26: Several commenters expressed displeasure concerning the 30-day length of the public comment period regarding the proposed application of the joint DPS policy and delineation of steelhead DPSs. The commenters felt that additional time should have been allowed to comment given that the proposed approach represents a significant departure from NMFS' established application of the ESU policy, and poses potentially significant implications for West Coast steelhead management, conservation, and recovery planning. The commenters felt that NMFS' public notification of the new proposal was inadequate, and suspected that many interested and affected individuals, organizations, businesses, and municipalities are not

aware of the new proposal. Commenters noted that a short 30-day public comment period for such a radical change in approach stands in stark contrast to the more than 200 days of public comment solicited concerning the June 2004 proposals, which generally affirmed the approach NMFS has used for the last 14 years. Two commenters requested that public hearings be held to allow for additional explanation and discussion of the proposed alternative approach.

Response: Commenters were provided extensive opportunity for comment from the initial publication of the proposed rule in June 2004 until the close of the final comment period on December 5, 2005. Following an initial time period of 90 days, we twice extended the comment period, for an additional 36 and 22 days (69 FR 53031, August 31, 2004; 69 FR 61348, October 18, 2004). During this extensive comment period, we received numerous comments urging us to find resident and anadromous *O. mykiss* to be separate ESUs. The comment period was then reopened for another 30 days on November 4, 2005, to receive comments on our proposed alternative approach to delineating the *O. mykiss* populations (70 FR 67130). We received 24 comments during this 30-day comment period, specific to the proposal to use the DPS policy. Prior to the reopening of the comment period on November 4, 2005, we also received comments on a possible change in approach to apply the DPS policy rather than the ESU policy. We believe that the 24 cogent, insightful comments we received during the 30-day comment period on our proposed use of the DPS policy is evidence that the time allotted for comment on this issue was sufficient. The approach used in this final rule—giving rainbow trout and steelhead separate treatment under the ESA—was fully vetted in the comments on the 2004 proposed rule.

Final Species Determinations

We first must determine whether the geographic boundaries established for *O. mykiss* ESUs (*see* 69 FR 33102; June 14, 2004) under the ESU policy are the appropriate boundaries for steelhead DPSs under the DPS policy. We conclude they are. Under the ESU policy, we delineated geographic boundaries based on considerations of both reproductive isolation and significance. The ESU boundaries were drawn around population groups the BRT found to be reproductively isolated from other conspecific populations and significant to the evolutionary legacy of the species. Reproductive isolation was generally not conclusively demonstrated with genetic data but rather inferred from information about the ecology, physiology and behavior of the population groups. The distinctions relied on to make geographic delineations of the ESUs in the 2004 proposed rule are equally applicable to finding discrete (markedly separate) groups of steelhead populations. Moreover, each of the ESUs delineated under the ESU policy occupies a unique ecological region. Occupation of a unique ecological region satisfies the DPS criterion for significance. Loss of any of the ESUs from its geographic area would also represent a significant gap in the range of the species.

Within these geographic boundaries, we further conclude that the anadromous life form is markedly separate from the resident life form, as discussed more fully in the responses to Comments. We therefore are delineating 10 steelhead-only DPSs, with geographic boundaries unchanged from those previously delineated for the West Coast *O. mykiss* ESUs (except as noted for an adjustment of the boundary between two of the California DPSs).

We next must determine whether any hatchery stocks are to be included in the steelhead-only DPSs. On June 28, 2005, we finalized a new policy for the consideration of hatchery-origin fish in ESA listing determinations (''Hatchery Listing Policy;'' 70 FR 37204). Under the Hatchery Listing Policy hatchery stocks are considered part of an ESU if they exhibit a level of genetic divergence relative to the local natural population(s) that is no more than what occurs within the ESU (70 FR 37204, at 37215; June 28, 2005). We conclude that the considerations that informed the Hatchery Listing Policy for ESUs are equally valid for the steelhead DPSs we are now delineating under the DPS policy. The Hatchery Listing Policy is based in part on the recognition that important components of the evolutionary legacy of West Coast salmon and steelhead can be found in hatchery stocks, and that many hatchery stocks are derived from, and not significantly diverged from, the naturally spawning stocks. We developed a test for including hatchery stocks in the ESU based upon a consideration of ''whether a particular hatchery stock reflects an ESU's 'reproductive isolation' and 'evolutionary legacy' '' (70 FR 37204, at 37208; June 28, 2005). We believe those tests are equally applicable to determining whether hatchery stocks reflect the discreteness and significance of steelhead DPSs. Consistent with the June 14, 2004, proposed listing determinations (69 FR 33102) and the recent final listing determinations for 16 West Coast salmon ESUs (70 FR 37160; June 28, 2005), hatchery stocks are included in a steelhead DPS if they are no more than moderately diverged from local, native populations in the watershed(s) in which they are released. The level of divergence for hatchery programs associated with the steelhead DPSs is reviewed in the 2003 Salmon and Steelhead Hatchery Assessment Group Report (NMFS, 2003) and the 2004 Salmonid Hatchery Assessment and Inventory Report (NMFS, 2004b). The DPS membership of hatchery programs included in the steelhead DPS descriptions below and summarized in Table 1 are unchanged from that proposed for the 10 *O. mykiss* ESUs (69 FR 33102; June 14, 2004).

Southern California Steelhead DPS

The Southern California Steelhead DPS includes all naturally spawned populations of steelhead in streams from the Santa Maria River, San Luis Obispo County, California (inclusive) to the U.S.-Mexico Border (62 FR 43937, August 18, 1997; 67 FR 21586, May 1, 2002). This DPS does not include any artificially propagated steelhead stocks that reside within the historical geographic range of the DPS.

South-Central California Coast Steelhead DPS

The South-Central California Coast steelhead DPS includes all naturally spawned populations of steelhead in streams from the Pajaro River (inclusive) to, but not including the Santa Maria River, California (62 FR 43937; August 18, 1997). This DPS does not include any artificially propagated steelhead stocks that reside within the historical geographic range of the DPS.

Central California Coast Steelhead DPS

The Central California Coast steelhead ESU was previously defined to include all naturally spawned populations of steelhead in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin (62 FR 43937; August 18, 1997). Recent information, however, indicates that those portions of the ESU in San Francisco Bay and eastward towards the Central Valley were incorrectly described in the 1997 listing notice and need to be clarified. As part of the November 4, 2005, notice soliciting comment on the delineation and listing of steelhead-only DPSs (70 FR 67130), we proposed clarifying the definition of the Central California Coast steelhead DPS. We did not receive any

comments opposing the inclusion of these streams, nor has any information been made available that would lead us to reconsider our proposal. Accordingly, we are defining the Central California Coast steelhead DPS to include all naturally spawned populations of steelhead in coastal streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as a Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley.

Two artificial propagation programs are considered to be part of the DPS (Table 1): the Don Clausen Fish Hatchery, and Kingfisher Flat Hatchery/ Scott Creek (Monterey Bay Salmon and Trout Project) steelhead hatchery programs. We have determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the DPS (NMFS, 2004b, 2004c).

California Central Valley Steelhead DPS

The California Central Valley steelhead DPS includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries (63 FR13347; March 19, 1998). Two artificial propagation programs are considered to be part of the DPS (Table 1): the Coleman NFH, and Feather River Hatchery steelhead hatchery programs. We have determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the DPS (NMFS, 2004b, 2004c).

Northern California Steelhead DPS

The Northern California *O. mykiss* ESU was previously defined to include steelhead in California coastal river basins from Redwood Creek south to the Gualala River (inclusive) (65 FR 36074; June 7, 2000). Recently, however, we have discovered that there is a coastal section between the southern boundary of this DPS (the Gualala River) and the northern boundary of the Central California Coast steelhead DPS (the Russian River) that contains several small streams that support steelhead. No genetic or other information is currently available for determining which DPS includes these small streams. As part of the November 4, 2005, notice soliciting comment on the delineation and listing of steelhead-only DPSs (70 FR 67130), we proposed to include these small streams in this Northern California steelhead DPS on a conditional basis. We did not receive any comments opposing the inclusion of these streams, nor has any information been made available that would lead us to reconsider our proposal. Accordingly, the Northern California steelhead DPS is defined to include all naturally spawned populations of steelhead in California coastal river basins from Redwood Creek southward to, but not including, the Russian River.

Two artificial propagation programs are considered part of the DPS (Table 1): the Yager Creek Hatchery, and North Fork Gualala River Hatchery (Gualala River Steelhead Project) steelhead hatchery programs. We have determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the DPS (NMFS, 2004b, 2004c, 2005a).

Upper Willamette River Steelhead DPS

The Upper Willamette River steelhead DPS includes all naturally spawned populations of winter-run steelhead in the Willamette River, Oregon, and its tributaries upstream from Willamette Falls to the Calapooia River (inclusive) (64 FR 14517; March 25, 1999). This DPS does not include any artificially propagated steelhead stocks that reside within the historical geographic range of the DPS. Hatchery summer-run steelhead occur in the Willamette Basin but are an out-of-basin stock that is not included as part of the DPS.

Lower Columbia River Steelhead DPS

The Lower Columbia River steelhead DPS includes all naturally spawned populations of steelhead in streams and tributaries to the Columbia River between the Cowlitz and Wind Rivers, Washington (inclusive), and the Willamette and Hood Rivers, Oregon (inclusive). Excluded are steelhead in the upper Willamette River Basin above Willamette Falls and steelhead from the Little and Big White Salmon Rivers in Washington (62 FR 43937; August 18, 1997). Ten artificial propagation programs are considered to be part of the DPS (Table 1): the Cowlitz Trout Hatchery (in the Cispus, Upper Cowlitz, Lower Cowlitz, and Tilton Rivers), Kalama River Wild (winter- and summer-run), Clackamas Hatchery, Sandy Hatchery, and Hood River (winter- and summer-run) steelhead hatchery programs. We have determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the DPS (NMFS, 2004b, 2004c, 2005a).

Middle Columbia River Steelhead DPS

The Middle Columbia River steelhead DPS includes all naturally spawned populations of steelhead in streams from above the Wind River, Washington, and the Hood River, Oregon (exclusive), upstream to, and including, the Yakima River, Washington, excluding steelhead from the Snake River Basin (64 FR 14517; March 25, 1999). Seven artificial propagation programs are considered part of the DPS (Table 1): the Touchet River Endemic, Yakima River Kelt Reconditioning Program (in Satus Creek, Toppenish Creek, Naches River, and Upper Yakima River), Umatilla River, and the Deschutes River steelhead hatchery programs. We have determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the DPS (NMFS, 2004b, 2004c, 2005a).

Upper Columbia River Steelhead DPS

The Upper Columbia River steelhead DPS includes all naturally spawned populations of steelhead in streams in the Columbia River Basin upstream from the Yakima River, Washington, to the U.S.-Canada border (62 FR 43937; August 18, 1997). Six artificial propagation programs are considered part of the DPS (Table 1): the Wenatchee River, Wells Hatchery (in the Methow and Okanogan Rivers), Winthrop NFH, Omak Creek, and the Ringold steelhead hatchery programs. We have determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the DPS (NMFS, 2004b, 2004c, 2005a).

Snake River Basin Steelhead DPS

The Snake River Basin steelhead DPS includes all naturally spawned populations of steelhead in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho (62 FR 43937; August 18, 1997). Six artificial propagation programs are considered part of the DPS (Table 1): the Tucannon River, Dworshak NFH, Lolo Creek, North Fork Clearwater, East Fork

Salmon River, and the Little Sheep Creek/Imnaha River Hatchery steelhead hatchery programs. We have determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the DPS (NMFS, 2004b).

TABLE 1.—LIST OF ARTIFICIAL PROPAGATION PROGRAMS INCLUDED IN DISTINCT POPULATION SEGMENTS (DPSS) OF WEST COAST STEELHEAD (ONCORHYNCHUS MYKISS)

Artificial Propagation Program(s) Included in Steelhead Distinct Population Segments (DPSs)	Run timing	Location (State)
Southern California Steelhead DPS		
n/a		
South-Central California Coast Steelhead DPS		
n/a		
Central California Coast Steelhead DPS		
Scott Creek/Monterey Bay Salmon and Trout Project, Kingfisher Flat Hatchery.	Winter	Big Creek, Scott Creek (California).
Don Clausen Fish Hatchery	Winter	Russian River (California).
California Central Valley Steelhead DPS		
Coleman National Fish Hatchery (NFH)	Winter	Battle Creek, Sacramento River (California).
Feather River Hatchery	Winter	Feather River (California).
Northern California Steelhead DPS		
Yager Creek Hatchery	Winter	Yager Creek, Van Duzen River (California).
North Fork Gualala River Hatchery/Gualala River Steelhead Project.	Winter	North Fork Gualala River (California).
Upper Willamette River Steelhead DPS		
n/a		
Lower Columbia River Steelhead DPS		
Cowlitz Trout Hatchery	Late Winter	Cispus River (Washington).
Cowlitz Trout Hatchery	Late Winter	Upper Cowlitz River (Washington).
Cowlitz Trout Hatchery	Late Winter	Tilton River (Washington).
Cowlitz Trout Hatchery	Late Winter	Lower Cowlitz River (Washington).
Kalama River Wild	Winter	Kalama River (Washington).
Kalama River Wild	Summer	Kalama River (Washington).
Clackamas Hatchery (ODFW stock #122)	Late Winter	Clackamas River (Oregon).
Sandy Hatchery (ODFW stock #11)	Late Winter	Sandy River (Oregon).
Hood River (ODFW stock #50)	Winter	Hood River (Oregon).
Hood River (ODFW stock #50)	Summer	Hood River (Oregon).
Middle Columbia River Steelhead DPS		
Touchet River Endemic	Summer	Touchet River (Washington).
Yakima River Kelt Reconditioning Program	Summer	Satus Creek (Washington).
Yakima River Kelt Reconditioning Program	Summer	Toppenish Creek (Washington).
Yakima River Kelt Reconditioning Program	Summer	Naches River (Washington).
Yakima River Kelt Reconditioning Program	Summer	Upper Yakima River (Washington).
Umatilla River (ODFW stock #91)	Summer	Umatilla River (Oregon).
Deschutes River (ODFW stock #66)	Summer	Deschutes River (Oregon).
Upper Columbia River Steelhead DPS		
Wenatchee River Steelhead	Summer	Wenatchee River (Washington).
Wells Hatchery Steelhead	Summer	Methow River (Washington).
Wells Hatchery Steelhead	Summer	Okanogan River (Washington).
Winthrop NFH Steelhead (Wells Steelhead)	Summer	Methow River (Washington).
Omak Creek Steelhead	Summer	Okanogan River (Washington).
Ringold Hatchery (Wells Steelhead)	Summer	Middle Columbia River (Washington).
Snake River Basin Steelhead DPS		
Tucannon River	Summer	Tucannon River (Washington).
Dworshak NFH	Summer	South Fork Clearwater River (Idaho).
Lolo Creek	Summer	Clearwater River (Idaho).
North Fork Clearwater	Summer	North Fork Clearwater River (Idaho).

TABLE 1.—LIST OF ARTIFICIAL PROPAGATION PROGRAMS INCLUDED IN DISTINCT POPULATION SEGMENTS (DPSS) OF WEST COAST STEELHEAD (ONCORHYNCHUS MYKISS)—Continued

Artificial Propagation Program(s) Included in Steelhead Distinct Population Segments (DPSs)	Run timing	Location (State)
East Fork Salmon River	Summer	East Fork Salmon River (Idaho).
Little Sheep Creek/Imnaha River Hatchery (ODFW stock # 29)	Summer	Imnaha River (Oregon).

Assessment of Species' Status

NMFS's Pacific Salmonid BRT (an expert panel of scientists from several Federal agencies including NMFS, FWS, and the U.S. Geological Survey) reviewed the viability and extinction risk of naturally spawning populations in the 10 steelhead DPSs that are the subject of this final rule (Good *et al.*, 2005). Although the ESUs reviewed by the BRT included co-occurring populations of resident *O. mykiss*, little or no population data are available for most resident *O. mykiss* populations. The BRT's findings regarding extinction risk are based on the status of the steelhead populations in the ESUs reviewed. Where available, the BRT incorporated information about resident populations into their analyses of extinction risk, and in some instances the BRT noted the presence of speculatively abundant resident populations. However, the BRT concluded that the contribution of the resident life-history form to the viability of an *O. mykiss* ESU in-total is unknown and may not substantially reduce extinction risks to an ESU in-total. Therefore, the BRT's extinction risk findings directly inform evaluations of extinction risk for the steelhead DPSs under consideration.

We assessed effects of hatchery programs on the extinction risk of a DPS in-total on the basis of the factors that the BRT determined are currently limiting the DPS (*e.g.*, abundance, productivity, spatial structure, and diversity) and how artificial propagation efforts within the DPS affect those factors. The APEW (NMFS, 2004c) reviewed the BRT's findings (NMFS, 2003; Good *et al.*, 2005), evaluated the Salmonid Hatchery Inventory and Effects Evaluation Report (NMFS, 2004b), and assessed the overall extinction risk of DPSs with associated hatchery stocks. Below we summarize the status information for the steelhead DPSs under consideration. The reader is referred to the BRT's report (Good *et al.*, 2005), the Salmonid Hatchery Inventory and Effects Evaluation Report (NMFS, 2004b), and the APEW Report (NMFS, 2004c) for more detailed descriptions of the viability of individual natural populations and hatchery stocks within these DPSs.

In its analysis of the status of the *O. mykiss* ESUs, the BRT voted on whether each was ''in danger of extinction,'' ''likely to become endangered in the foreseeable future,'' or ''not warranted.'' While these categories correspond to the statutory definitions of ''endangered'' or ''threatened,'' they do not amount to an agency determination that any of the entities under consideration are an endangered species or a threatened species under the ESA. To make the ESA determination, we also considered the extent to which hatchery populations affect the extinction risk assessed by the BRT as well as the effect of any protective efforts being made by any state or foreign nation.

Southern California Steelhead DPS

Assessing the extinction risk for Southern California steelhead is made difficult by the general lack of historical or recent data for this DPS, and the uncertainty generated by this paucity of information. The historical steelhead run for four of the major river systems within the range of the DPS is estimated to have been between 32,000 and 46,000 adults. Recent run size for the same four systems, however, has been estimated to be fewer than 500 total adults. Run sizes in river systems within the DPS are believed to range between less than five anadromous adults per year, to less than 100 anadromous adults per year. The available data are insufficient to estimate abundance levels or trends in productivity. Of 65 river drainages where steelhead are known to have occurred historically, between 26 and 52 percent are still occupied (uncertainty in this estimate is the result of the inaccessibility of 17 basins to population surveys). Colonization events of steelhead were documented during 1996–2002 in Topanga and San Mateo Creeks. These colonization events were represented by a few spawning adults or the observation of a single individual. Twenty-two basins are considered vacant, extirpated, or nearly extirpated due to dewatering or the establishment of impassable barriers below all spawning habitats. Except for the colonization of a small population in San Mateo Creek in northern San Diego County, steelhead appear to have been completely extirpated from nearly all systems in the southern portion of the range of the DPS from Malibu Creek to the Mexican border. Recently, documentation of the presence and spawning of steelhead in two streams south of Malibu Creek (in Topanga and San Mateo Creeks) prompted the extension of the DPS's boundaries to the U.S.-Mexico border in 2002 (67 FR 21586; May 1, 2002).

The BRT found extremely high risks to the abundance, productivity, spatial structure, and diversity of the DPS. Informed by this assessment, the strong majority opinion of the BRT was that the Southern California steelhead DPS is ''in danger of extinction.'' The minority opinion was that the DPS is ''likely to become endangered within the foreseeable future.'' There are no artificially propagated stocks of steelhead that mitigate the BRT's assessment that the DPS is ''in danger of extinction.''

South-Central California Coast Steelhead DPS

There is a paucity of abundance information for the South-Central California Coast steelhead DPS. Data are not available for the two largest river systems within the range of the DPS, the Pajaro and Salinas basins. These systems are much degraded and are expected to have steelhead runs reduced in size from historical levels. Data available for the Carmel River underscore the population's vulnerability to drought conditions, as well as its dependence on the intensive management of the river system. The most recent 5-year mean abundance of fish in the Carmel River is approximately 600 adults. Despite observed and inferred declines in abundance, the current spatial distribution of steelhead populations in the DPS does not appear to be much reduced from what occurred historically. Steelhead are present in approximately 86 to 95 percent of historically occupied streams (the uncertainty in the estimated occupancy is due to three streams that could not be accessed for population surveys). The BRT was concerned, however, that the larger Pajaro and Salinas basins are

spatially and ecologically distinct from other populations in the DPS, such that further degradation of these areas will negatively impact the DPS's spatial structure and diversity. The BRT found high risks to the abundance, productivity, and the diversity of the DPS, and expressed concern particularly for the DPS's connectivity and spatial structure. Informed by this assessment, the strong majority opinion of the BRT was that the South-Central Coast steelhead DPS is ''likely to become endangered within the foreseeable future.'' The minority opinion was that the DPS is ''in danger of extinction.'' There are no artificially propagated stocks of steelhead that mitigate the BRT's assessment that the DPS is ''likely to become endangered within the foreseeable future.''

Central California Coast Steelhead DPS

There are no time series of population abundance data for the naturally spawning component of the Central California Coast steelhead DPS. The naturally spawning population in the largest river system in the DPS, the Russian River, is believed to have declined seven-fold since the mid-1960s. Juvenile density information is available for five ''representative'' populations, and each exhibits a decline in juvenile density over the last 8 years of available data. Predation by increasing numbers of California sea lions at river mouths and during the ocean phase was noted as a recent development also posing significant risk. Juvenile *O. mykiss* have been observed in approximately 82 percent of historically occupied streams, indicating that the DPS continues to be spatially well distributed. However, impassable dams have cut off substantial portions of spawning habitat in some basins, generating concern about the spatial structure of the naturally spawning component of the DPS. The BRT found moderately high risk to the abundance and productivity of the DPS, and comparatively less risk for the DPS's spatial structure and diversity. Informed by this risk assessment, the majority opinion of the BRT was that the naturally spawned component of the Central California Coast steelhead DPS is ''likely to become endangered within the foreseeable future.'' The minority opinion was that the DPS is ''in danger of extinction.''

Two artificial propagation programs are considered to be part of the Central California Coast steelhead DPS (Table 1; NMFS, 2004b, 2005a). Our assessment of the effects of these two artificial propagation programs on the viability of the DPS concluded that they decrease risk to some degree by contributing to increased abundance, but have neutral or uncertain effects on productivity, spatial structure or diversity of the DPS. Informed by the BRT's findings (Good *et al.*, 2005) and our assessment of the effects of artificial propagation programs (NMFS, 2004b, 2004c, 2005a), the APEW concluded that the Central California Coast steelhead DPS in-total is ''likely to become endangered in the foreseeable future'' (NMFS, 2004c).

California Central Valley Steelhead DPS

Little information is available regarding the viability of the naturally spawning component of the California Central Valley steelhead DPS. Steelhead spawning above the Red Bluff Diversion Dam (RBDD) have a small population size (the most recent 5-year mean is less than 2,000 adults) and exhibit strongly negative trends in abundance and productivity. However, there have not been any escapement estimates made for the area above RBDD since the mid 1990s. The only recent DPS-level estimate of abundance is a crude extrapolation from the incidental catch of out-migrating juvenile steelhead captured in a midwater-trawl sampling program for juvenile Chinook salmon below the confluence of the Sacramento and San Joaquin Rivers. The extrapolated abundance of naturally spawning female steelhead involves broad assumptions about female fecundity (number of eggs produced per female) and egg-to-smolt survival rates. Based on this extrapolation, it is estimated that on average during 1998–2000, approximately 181,000 juvenile steelhead were produced naturally each year in the Central Valley by approximately 3,600 spawning female steelhead. It is estimated that there were 1 to 2 million spawners in the Central Valley prior to 1850, and approximately 40,000 spawners in the 1960s. Although it appears that steelhead remain widely distributed in Sacramento River tributaries, the vast majority of historical spawning areas are currently above impassable dams. The BRT also expressed concern about the effects of significant production of out-of-DPS hatchery steelhead in the American (Nimbus Hatchery) and Mokelumne (Mokelumne River Hatchery) Rivers. The BRT found high risks to the abundance, productivity, and spatial structure of the DPS, and moderately high risk for the DPS's diversity. Informed by this risk assessment, the majority opinion of the BRT was that the naturally spawned component of the California Central Valley steelhead DPS is ''in danger of extinction.'' The minority opinion was that the naturally spawned component of the DPS is ''likely to become endangered within the foreseeable future.''

There are two artificial propagation programs considered to be part of the Central Valley steelhead DPS. Our assessment of the effects of these artificial propagation programs on the viability of the DPS concluded that they decrease risk to some degree by contributing to increased abundance of the DPS, but have a neutral or uncertain effect on the productivity, spatial structure and diversity of the DPS (NMFS, 2004b, 2004c, 2005a). Informed by the BRT's findings (Good *et al.*, 2005) and our assessment of the effects of artificial propagation programs (NMFS, 2004b, 2004c, 2005a), the APEW concluded that the presence of hatchery populations does not alter the BRT's conclusion that the California Central Valley steelhead DPS is ''in danger of extinction'' (NMFS, 2004c).

Northern California Steelhead DPS

There is little historical abundance information for the naturally spawning portion of the Northern California steelhead DPS. However, the available data (dam counts on the Eel and Mad Rivers) indicate a substantial decline from the abundance levels of the 1930s. The three available summer steelhead data sets exhibit recent 5-year mean abundance levels from three to 418 adults, and exhibit downward short- and long-term trends. The short- and long-term abundance trends for the one current winter steelhead data series show a slightly positive trend. However, the recent 5-year mean abundance level is extremely low (32 adults). The juvenile density data for six of 10 (putative) independent populations exhibit declining trends. Despite low abundance and downward trends, steelhead appear to be still widely distributed throughout this ESU. The BRT expressed concern about the DPS's diversity due to the low effective population sizes in the DPS, and concern over interactions with the Mad River Hatchery stock that is not considered to be part of the DPS. This hatchery program was terminated in 2004. Thus, potential genetic risks associated with propagation of this non-DPS stock will decline in the future. The BRT found high risk to the DPS's abundance, and moderately high risk for productivity. The DPS's spatial structure and diversity were of comparatively lower concern. Informed by this assessment, the majority opinion of the BRT was that the naturally spawned component of the Northern California steelhead DPS is ''likely to

become endangered within the foreseeable future.'' The minority BRT opinion was split between the ''in danger of extinction'' and ''not in danger of extinction or likely to become endangered within the foreseeable future'' categories.

There are two small artificial propagation programs producing steelhead considered to be part of the Northern California steelhead DPS (Table 1; NMFS, 2004b, 2005a). Our assessment of the effects of these two artificial propagation programs on the viability of the DPS concluded that they may decrease risk to some degree by contributing to increased abundance of the DPS, but have a neutral or uncertain effect on the DPS's productivity, spatial structure and diversity (NMFS, 2004b, 2004c, 2005a). Informed by the BRT's findings (Good *et al.*, 2005) and our assessment of the effects of artificial propagation programs (NMFS, 2004b, 2004c, 2005a), the APEW concluded that the presence of the hatchery populations does not alter the BRT's conclusion that the Northern California steelhead DPS is ''likely to become endangered in the foreseeable future'' (NMFS, 2004c).

Upper Willamette River Steelhead DPS

The BRT was encouraged by significant increases in adult returns (exceeding 10,000 total fish) in 2001 and 2002 for the Upper Willamette River steelhead DPS. The recent 5-year mean abundance, however, remains low for an entire DPS (5,819 adults), and individual populations remain at low abundance. Long-term trends in abundance are negative for all populations in the DPS, reflecting a decade of consistently low returns during the 1990s. Short-term trends, buoyed by recent strong returns, are positive. Approximately one-third of the DPS's historically accessible spawning habitat is now blocked. Notwithstanding the lost spawning habitat, the DPS continues to be spatially well distributed, occupying each of the four major subbasins (the Mollala, North Santiam, South Santiam, and Calapooia Rivers). There is some uncertainty about the historical occurrence of *O. mykiss* in the Oregon Coastal Range drainages. Coastal cutthroat trout is a dominant species in the Willamette Basin, and thus *O. mykiss* is not expected to have been as abundant or widespread in this DPS as it is east of the Cascade Mountains. The BRT considered the cessation of the ''early'' winter-run hatchery program a positive sign in reducing risks to the DPS's diversity, but remained concerned that releases of non-native summer hatchery steelhead continue. The BRT found moderate risks to the DPS's abundance, productivity, spatial structure, and diversity. Based on this risk assessment, the majority opinion of the BRT was that the Upper Willamette River steelhead DPS is ''likely to become endangered within the foreseeable future.'' The minority BRT opinion was that the DPS is ''not in danger of extinction or likely to become endangered within the foreseeable future.'' There are no artificially propagated stocks of steelhead that mitigate the BRT's assessment that the DPS is ''likely to become endangered in the foreseeable future.''

Lower Columbia River Steelhead DPS

Some steelhead populations in the Lower Columbia River DPS, particularly summer-run populations, have shown encouraging increases in abundance in recent years. However, population abundance levels remain small (no population has a recent 5-year mean abundance greater than 750 spawners). The BRT could not conclusively identify a single population that is naturally viable. A number of populations have a substantial fraction of hatchery-origin spawners and are hypothesized to be sustained largely by hatchery production. Long-term trends in spawner abundance are negative for seven of nine populations for which there are sufficient data, and short-term trends are negative for five of seven populations. It is estimated that four historical populations have been extirpated or nearly extirpated, and only one-half of 23 historical populations currently exhibit appreciable natural production. Although approximately 35 percent of historical habitat has been lost within the range of this DPS due to the construction of dams or other impassable barriers, the DPS exhibits a broad spatial distribution in a variety of watersheds and habitat types. The BRT was particularly concerned about the impact on DPS diversity of the high proportion of hatchery-origin spawners in the DPS, the disproportionate declines in the summer steelhead life history, and the release of non-native hatchery summer steelhead in the Cowlitz, Toutle, Sandy, Lewis, Elochoman, Kalama, Wind, and Clackamas Rivers. The BRT found moderate risks to the ESU's abundance, productivity, spatial structure, and diversity. Informed by this assessment the majority opinion of the BRT was that the naturally spawned component of the Lower Columbia River steelhead DPS is ''likely to become endangered within the foreseeable future.'' The minority opinion was that the DPS is ''not in danger of extinction or likely to become endangered within the foreseeable future.''

There are 10 artificial propagation programs releasing hatchery steelhead that are considered to be part of this DPS (Table 1). Our assessment of the effects of artificial propagation concluded that these hatchery programs collectively do not substantially reduce the extinction risk of the DPS (NMFS, 2004b, 2004c, 2005a). Non-DPS hatchery programs in the Lower Columbia River remain a threat to the DPS's diversity. Collectively, artificial propagation programs may provide a slight beneficial effect to the DPS's abundance, spatial structure, and diversity, but uncertain effects to the DPS's productivity. Informed by the BRT's findings (Good *et al.*, 2005) and our assessment of the effects of artificial propagation programs on the viability of the DPS (NMFS, 2004b, 2004c, 2005a), the APEW concluded that the presence of the hatchery populations does not alter the BRT's conclusion that the Lower Columbia River steelhead DPS is ''likely to become endangered in the foreseeable future'' (NMFS, 2004c).

Middle Columbia River Steelhead DPS

The abundance of some natural populations in the Middle Columbia River steelhead DPS has increased substantially in recent years. The Deschutes and Upper John Day Rivers have recent 5-year mean abundance levels in excess of their respective interim recovery target abundance levels (NMFS, 2002). Due to an uncertain proportion of out-of-DPS strays in the Deschutes River, the recent increases in this population are difficult to interpret. (These interim recovery targets articulate the geometric mean of natural-origin spawners to be sustained over a period of 8 years or approximately two salmonid generations, as well as a geometric mean natural replacement rate greater than one). The Umatilla River's recent mean abundance is approximately 72 percent of its interim recovery target abundance level. The natural populations in the Yakima River, Klickitat River, Touchet River, Walla Walla River, and Fifteenmile Creek, however, remain well below their interim recovery target abundance levels. Long-term trends for 11 of the 12 production areas within the range of the DPS were negative, although it was observed that these downward trends are driven, at least in part, by a peak in returns in the middle to late 1980s, followed by relatively low escapement levels in the early 1990s. Short-term trends in the 12 production areas were mostly positive from 1990 to 2001. The

continued low number of natural returns to the Yakima River (10 percent of the interim recovery target abundance level, historically a major production center for the DPS) generated concern among the BRT members. However, steelhead remain well distributed in the majority of subbasins within the range of the Middle Columbia River DPS. The presence of substantial numbers of out-of-basin (and largely out-of-DPS) natural spawners in the Deschutes River raised substantial concern regarding the genetic integrity and productivity of the native Deschutes population. The extent to which this straying is an historical natural phenomenon is unknown. The cool Deschutes River temperatures may attract fish migrating in the comparatively warmer Columbia River waters, thus inducing high stray rates. The BRT found moderate risks to the DPS's productivity, spatial structure, and diversity, with the greatest relative risk being attributed to the ESU's abundance. Informed by this assessment, the opinion of the BRT was closely divided between the ''likely to become endangered within the foreseeable future'' and ''not in danger of extinction or likely to become endangered within the foreseeable future'' categories.

There are seven hatchery steelhead programs considered to be part of the Middle Columbia River steelhead DPS. Our assessment of the effects of artificial propagation concluded that these hatchery programs collectively do not substantially reduce the extinction risk of the DPS (NMFS, 2004b, 2004c, 2005a). Informed by the BRT's findings (Good *et al.*, 2005) and our assessment of the effects of artificial propagation programs on the viability of the DPS (NMFS, 2004b, 2004c, 2005a), the APEW concluded that the presence of the hatchery populations does not alter the BRT's conclusion that the Middle Columbia River steelhead DPS in-total is ''likely to become endangered in the foreseeable future'' (NMFS, 2004c).

Upper Columbia River Steelhead DPS

Recent years have seen an encouraging increase in the number of naturally produced fish in the Upper Columbia River steelhead DPS. The 1996–2001 average return through the Priest Rapids Dam fish ladder (just below the upper Columbia steelhead production areas) was approximately 12,900 total adults (including both hatchery and natural origin fish), compared to 7,800 adults for 1992–1996. However, the recent 5-year mean abundances for naturally spawned populations in this DPS are 14 to 30 percent of their interim recovery target abundance levels. Despite increases in total abundance in the last few years, the BRT was frustrated by the general lack of detailed information regarding the productivity of natural populations. The BRT did not find data to suggest that the extremely low replacement rate of naturally spawning fish (0.25–0.30 at the time of the last status review in 1998) has appreciably improved. The predominance of hatchery-origin natural spawners (approximately 70 to 90 percent of adult returns) is a significant source of concern for the DPS's diversity and generates uncertainty in evaluating trends in natural abundance and productivity. Although the natural component of the anadromous run over Priest Rapids Dam has increased from an average of 1,040 (1992–1996) to 2,200 (1997–2001), this pattern is not consistent for other production areas within the ESU. The mean proportion of natural-origin spawners declined by 10 percent from 1992–1996 to 1997–2001. The BRT found high risk to the DPS's productivity, with comparatively lower risk to the DPS's abundance, diversity, and spatial structure. Informed by this risk assessment, the slight majority BRT opinion concerning the naturally spawned component of the Upper Columbia River steelhead DPS was in the ''in danger of extinction'' category, and the minority opinion was that the DPS is ''likely to become endangered within the foreseeable future.''

Six artificial propagation programs that produce hatchery steelhead in the Upper Columbia River Basin are considered to be part of the Upper Columbia River steelhead DPS. These programs are intended to contribute to the recovery of the DPS by increasing the abundance of natural spawners, increasing spatial distribution, and improving local adaptation and diversity (particularly with respect to the Wenatchee River steelhead). Research projects to investigate the spawner productivity of hatchery-reared fish are being developed. Some of the hatchery-reared steelhead adults that return to the basin may be in excess of spawning population needs in years of high survival conditions, potentially posing a risk to the naturally spawned populations in the DPS. The artificial propagation programs included in this DPS adhere to strict protocols for the collection, rearing, maintenance, and mating of the captive brood populations. The programs include extensive monitoring and evaluation efforts to continually evaluate the extent and implications of any genetic and behavioral differences that might emerge between the hatchery and natural stocks. Genetic evidence suggests that these hatchery stocks remain closely related to the naturally-spawned populations and maintain local genetic distinctiveness of populations within the DPS. Habitat conservation plans (HCPs, with the Chelan and Douglas Public Utility Districts) and binding mitigation agreements ensure that these programs will have secure funding and will continue into the future. These hatchery programs have undergone ESA section 7 consultation to ensure that they do not jeopardize the recovery of the DPS, and they have received ESA section 10 permits for production through 2007. Annual reports and other specific information reporting requirements are used to ensure that the terms and conditions as specified by NMFS are followed. These programs, through adherence to best professional practices, have not experienced disease outbreaks or other catastrophic losses.

Our assessment of the effects of artificial propagation on the DPS's extinction risk concluded that hatchery programs collectively mitigate the immediacy of extinction risk for the Upper Columbia River steelhead DPS in the short term, but that the contribution of these programs in the foreseeable future is uncertain (NMFS, 2004b, 2004c, 2005a). The within-DPS hatchery programs substantially increase total DPS returns, particularly in the Methow Basin where hatchery-origin fish comprise on average 92 percent of all returns. The contribution of hatchery programs to the abundance of naturally spawning fish is uncertain. The contribution of DPS hatchery programs to the productivity of the DPS is uncertain. Large numbers of hatchery-origin steelhead in excess of broodstock needs and limited habitat capacity may decrease the DPS's overall productivity. With increasing DPS abundance in recent years, naturally spawning hatchery-origin fish have expanded the spawning areas being used. Since 1996 efforts are being undertaken to establish the Wenatchee Basin programs separately from the Wells steelhead hatchery program. These efforts are expected to increase the DPS's diversity over time. There is concern that the high proportion of Wells Hatchery steelhead spawning naturally in the Methow and Okanogan basins may pose risks to the DPS' diversity by decreasing local adaptation. The Omak Creek program, although small in size, likely will increase population diversity over time. There has been concern that the early spawning components of the Methow and Wenatchee hatchery programs may

represent a risk to the DPS's diversity. The recent transfer of these early-run components to the Ringold Hatchery on the mainstem Columbia River will benefit the diversity of the tributary populations, while establishing a genetic reserve on the mainstem Columbia River. Collectively, artificial propagation programs benefit DPS abundance and spatial structure, but have neutral or uncertain effects on the DPS's productivity and diversity. Benefits of artificial propagation are more substantial in the Wenatchee Basin for abundance, spatial structure, and diversity. Informed by the BRT's findings (Good *et al.*, 2005) and our assessment of the effects of artificial propagation programs (NMFS, 2004b, 2004c, 2005a), the APEW concluded that the presence of the hatchery populations alters the BRT's conclusion, and that the Upper Columbia River steelhead DPS in-total is ''likely to become endangered in the foreseeable future'' (NMFS, 2004c).

Snake River Basin Steelhead DPS

The paucity of information on adult spawning escapement for specific tributary production areas in the Snake River Basin steelhead DPS makes a quantitative assessment of viability difficult. All of the available data series are for Oregon populations; there are no data series available for the Idaho populations, which represent the majority of the DPS. Annual return estimates are limited to counts of the aggregate return over Lower Granite Dam, and spawner estimates for the Tucannon, Grande Ronde, and Imnaha Rivers. The 2001 Snake River steelhead return over Lower Granite Dam was substantially higher relative to the low levels seen in the 1990s; the recent 5-year mean abundance (14,768 natural returns) is approximately 28 percent of the interim recovery target level. The abundance surveyed in sections of the Grande Ronde, Imnaha, and Tucannon Rivers was generally improved in 2001. However, the recent 5-year abundance and productivity trends were mixed. Five of the nine available data series exhibit positive long- and short-term trends in abundance. The majority of long-term population growth rate estimates for the nine available series were below replacement. The majority of short-term population growth rates were marginally above replacement, or well below replacement, depending upon the assumption made regarding the effectiveness of hatchery fish in contributing to natural production. The BRT noted that the DPS remains spatially well distributed in each of the six major geographic areas in the Snake River Basin. The BRT was concerned that the Snake River Basin steelhead ''B-run'' (steelhead with a 2-year ocean residence and larger body size that are believed to be produced only in the Clearwater, Middle Fork Salmon, and South Fork Salmon Rivers) was particularly depressed. The BRT was also concerned about the predominance of hatchery produced fish in this DPS, the inferred displacement of naturally produced fish by hatchery-origin fish, and the potential impacts on the DPS's diversity. High straying rates exhibited by some hatchery programs generated concern about the possible homogenization of population structure and diversity within the Snake River Basin DPS. Recent efforts to improve the use of local broodstocks and release hatchery fish away from natural production areas, however, are encouraging. The BRT found moderate risks to the DPS's abundance, productivity, and diversity, and comparatively lower risk to the DPS's spatial structure. Informed by this risk assessment, the majority opinion of the BRT was that the naturally spawned component of the Snake River Basin steelhead DPS is ''likely to become endangered within the foreseeable future.'' The minority BRT opinion was split between the ''in danger of extinction'' and ''not in danger of extinction or likely to become endangered within the foreseeable future'' categories.

There are six artificial propagation programs considered to be part of the Snake River Basin steelhead DPS (Table 1). Our assessment of the effects of artificial propagation concluded that these hatchery programs collectively do not substantially reduce the extinction risk of the DPS (NMFS, 2004b, 2004c, 2005a). Informed by the BRT's findings (Good *et al.*, 2005) and our assessment of the effects of artificial propagation programs on the DPS's viability (NMFS, 2004b, 2004c, 2005a), the APEW concluded that the presence of the hatchery populations does not alter the BRT's conclusion that the Snake River Basin steelhead DPS is ''likely to become endangered in the foreseeable future'' (NMFS, 2004c).

Efforts Being Made To Protect West Coast Steelhead

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

In the proposed rule addressing 10 *O. mykiss* ESUs, we reviewed protective efforts ranging in scope from regional conservation strategies to local watershed initiatives (see 69 FR 33102; June 14, 2004). We conclude that protective efforts collectively do not provide empirical evidence or sufficient certainty of implementation and effectiveness to substantially ameliorate the level of assessed extinction risk for all but one of the steelhead DPSs under consideration. For the California Central Valley, we concluded that conservation benefits from the CALFED, State Water Project, Central Valley Project, and California Endangered Species Act provide sufficient certainty of implementation and effectiveness to mitigate the immediacy of extinction risk facing the Central Valley steelhead DPS (see the June 14, 2004, proposed rule for a summary of the relevant protective efforts (69 FR 33102, at 33144) benefitting the California Central Valley DPS and a description of the proposed finding that these efforts mitigate the DPS's level of extinction risk (69 FR 33102, at 33163.))

While we acknowledge that many of the ongoing protective efforts for the other DPSs are likely to promote their conservation, many efforts are relatively recent, have yet to indicate their effectiveness, and few address conservation needs at scales sufficient to conserve entire DPSs. We will continue to encourage these and other future protective efforts, and we will continue to collaborate with tribal, Federal, state, and local entities to promote and improve efforts being made to protect the species.

Final Listing Determinations

Consideration of Factors Relevant to Listing

Section 4(a)(1) of the ESA and NMFS'' implementing regulations (50 CFR part 424) state that we must determine if a species is endangered or threatened because of any one or a combination of the following factors: (1) The present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; or (5) other natural or man-made factors affecting its continued existence. We have previously detailed the impacts of

various factors contributing to the decline of West Coast steelhead as part of our prior listing determinations (65 FR 36074, June 7, 2000; 64 FR 14517, March 25, 1999; 63 FR 42588, August 10, 1998; 63 FR 13347, March 19, 1998; 62 FR 43937, August 18, 1997), as well as in supporting technical reports (*e.g.*, Busby *et al.*, 1996; NMFS, 1996). There is no single factor solely responsible for the decline of West Coast steelhead stocks, and our prior listing determinations and technical reports concluded that all of the factors identified in section 4(a)(1) have played a role. Of these factors, the destruction and modification of habitat, overutilization for recreational purposes, and natural and man-made factors have been identified as the primary causes for the decline of West Coast steelhead. The following discussion briefly summarizes findings regarding threats across the range of West Coast steelhead. While these factors have been treated here in general terms, it is important to underscore that impacts from certain factors are more acute for specific DPSs.

1. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

West Coast steelhead have experienced declines in the past several decades as a result of forestry, agricultural, mining, and urbanization activities that have resulted in the loss, degradation, simplification, and fragmentation of habitat. Water storage, withdrawal, conveyance, and diversions for agriculture, flood control, domestic, and hydropower purposes (especially in the Columbia River and Sacramento-San Joaquin River Basins) have greatly reduced or eliminated historically accessible habitat. Modification of natural flow regimes have resulted in increased water temperatures, changes in fish community structures, depleted flow necessary for migration, spawning, rearing, flushing of sediments from spawning gravels, reduced gravel recruitment and the transport of large woody debris. In addition to these indirect effects from dams and other water control structures, they have also resulted in increased direct mortality of adult and juvenile steelhead.

Natural resource use and extraction leading to habitat modification can have significant direct and indirect impacts to steelhead populations. Land use activities associated with logging, road construction, urban development, mining, agriculture, ranching, and recreation have significantly altered steelhead habitat quantity and quality. Associated impacts of these activities include: alteration of streambank and channel morphology; alteration of ambient stream water temperatures; degradation of water quality; elimination of spawning and rearing habitats; fragmentation of available habitats; elimination of downstream recruitment of spawning gravels and large woody debris; removal of riparian vegetation resulting in increased stream bank erosion; and increased sedimentation input into spawning and rearing areas resulting in the loss of channel complexity, pool habitat, suitable gravel substrate, and large woody debris. Studies indicate that in most western states, about 80 to 90 percent of the historic riparian habitat has been eliminated. Wetland and estuarine habitats have been reduced by approximately one-third in Washington and Oregon, and over 90 percent in California (Dahl, 1990; Jensen *et al.*, 1990; Barbour *et al.*, 1991; Tiner, 1991; Reynolds *et al.*, 1993). The condition of the remaining wetland habitats for West Coast steelhead is largely degraded, with many wetland areas at continued risk of loss or further degradation.

The loss and degradation of habitats and flow conditions has been identified as a threat to each of the 10 steelhead DPSs addressed in this notice. Although many historically harmful practices have been halted, much of the historical damage to habitats limiting West Coast steelhead stocks remains to be addressed, and the necessary restoration activities will likely require decades. Additionally, in some areas certain land-use practices continue to pose risks to the survival of local steelhead populations.

2. Overutilization for Commercial, Recreational, Scientific or Educational Purposes

Steelhead have been, and continue to be, an important recreational fishery throughout their range. There are no commercial fisheries for steelhead in the ocean, and they are only rarely taken there in fisheries targeting other species. The primary fisheries taking steelhead are tribal fisheries and (public) recreational fisheries. More than thirty Native American tribes have guaranteed rights to fish for steelhead under treaties with the U.S. Government. These tribal fisheries serve ceremonial and subsistence and commercial purposes. Recreational fishing for hatchery-origin steelhead is extremely popular along the West Coast. These fisheries are highly selective, and only visibly marked surplus hatchery-origin fish may be harvested.

As much as 50 percent of all fish in a given run can be intercepted in such fisheries. Mortality rates for naturally spawned fish that are caught and released in these fisheries are presumed to be low, but the actual rates are unknown, as is the level of illegal retention. In the Columbia River, steelhead fishing is regulated under Federal, tribal and state agreement. Under these agreements the total harvest rate for steelhead intended to spawn naturally has been limited to approximately 10 percent, except for Idaho B run steelhead where harvest rates are limited to below 20 percent (NMFS, 2005b). We have previously concluded that harvest is a major limiting factor for three of the 10 DPSs under review (NMFS, 2005c): the Snake River Basin, South-Central California Coast, and Southern California steelhead DPSs.

3. Disease or Predation

Infectious diseases constitute one of many factors that can influence adult and juvenile steelhead survival. Steelhead are exposed to numerous bacterial, protozoan, viral, and parasitic organisms in spawning and rearing areas, hatcheries, migratory routes, and marine environments. Specific diseases, such as bacterial kidney disease (BKD), ceratomyxosis, columnaris, furunculosis, infectious hematopoietic necrosis virus, redmouth and black spot disease, erythrocytic inclusion body syndrome, and whirling disease, among others, are present and are known to affect steelhead (Rucker *et al.*, 1953; Wood, 1979; Leek, 1987; Foott *et al.*, 1994). Very little current or historical information exists to quantify changes in infection levels and mortality rates attributable to these diseases for steelhead. However, studies have shown that naturally spawned fish tend to be less susceptible to pathogens than hatchery-reared fish (Buchanon *et al.*, 1983; Sanders *et al.*, 1992). Native salmon populations have co-evolved with specific communities of these organisms, but the widespread use of artificial propagation has introduced exotic organisms not historically present in a particular watershed. Habitat conditions such as low water flows and high temperatures can exacerbate susceptibility to infectious diseases. Aggressive hatchery reforms implemented in some areas have reduced the magnitude and distribution of hatchery fish releases, and consequently the interactions between hatchery- and natural-origin fish and the potential transmission of infectious diseases. Additionally, regulations controlling hatchery effluent discharges into streams have reduced the potential

of pathogens being released into steelhead habitats.

Introduction of non-native species and modification of habitat have resulted in increased predator populations and salmonid predation in numerous river systems. Marine predation is also of concern in some areas, given the dwindling steelhead run-size in recent years. In general, predation rates on steelhead are considered by most investigators to be an insignificant contribution to the large declines observed in west coast populations. However, predation may significantly influence salmonid abundance in some local populations when other prey are absent and physical habitat conditions lead to the concentration of adults and juveniles. There is insufficient available information to suggest that the DPSs under consideration are in danger of extinction, or likely to become so in the foreseeable future, because of disease or predation.

4. The Inadequacy of Existing Regulatory Mechanisms

We reviewed existing regulatory mechanisms in the proposed rule as part of our evaluation of efforts being made to protect West Coast salmonids (69 FR 33102, at 33143; June 14, 2004). We noted several Federal, state, and local regulatory programs that have been successfully implemented to substantially reduce historical risks to West Coast steelhead DPSs (for example, the elimination of stocking hatchery rainbow trout in anadromous waters, and the conversion of many in-river recreational fisheries to catch-and-release only). The reader is referred to the proposed rule for a regional and state-by-state summary of these regulatory mechanisms. In particular, changes in regulations governing steelhead fisheries have significantly reduced the risks for many of the steelhead DPSs under consideration, although some DPSs continue to be harvested at significant rates. In addition, although there have been efforts to improve habitat conditions across the range of most of the DPSs under consideration, land use regulations across their range do not address continued threats from habitat degradation. Many of the DPSs are in danger of extinction, or threatened with endangerment, as a result of the inadequacy of existing regulatory mechanisms.

5. Other Natural or Manmade Factors Affecting Its Continued Existence

Variability in natural environmental conditions has both masked and exacerbated the problems associated with degraded and altered riverine and estuarine habitats. Floods and persistent drought conditions have reduced already limited spawning, rearing, and migration habitats. Furthermore, El Nino events and periods of unfavorable ocean-climate conditions can threaten the survival of steelhead populations already reduced to low abundance levels due to the loss and degradation of freshwater and estuarine habitats. However, periods of favorable ocean productivity and high marine survival can offset poor habitat conditions elsewhere and result in dramatic increases in population abundance and productivity (as was observed for some DPSs in recent years).

In an attempt to mitigate for lost habitat and reduced fisheries, extensive hatchery programs have been implemented throughout the range of steelhead on the West Coast. Most hatchery programs are designed to compensate for degraded habitat capacity and productivity, however, recently some hatcheries have been designed to assist in the conservation and recovery of natural populations. While some of the programs intended for mitigation purposes have been successful in providing fishing opportunities, many such programs have posed risks to the genetic diversity and long-term reproductive fitness of local natural steelhead populations. Potential threats to natural steelhead posed by hatchery programs include: excessive mortality of natural steelhead in fisheries targeting hatchery-origin steelhead; competition for prey and habitat; predation by hatchery-origin fish on younger natural fish; genetic introgression by hatchery-origin fish that spawn naturally and interbreed with local natural populations; disease transmission; degraded water quality and quantity, and impediments to fish passage imposed by hatchery facilities. Aggressive hatchery reform in some areas has halted historically harmful artificial propagation practices, and the use of conservation hatcheries may play an important role, under appropriate circumstances, in reestablishing depressed West Coast steelhead stocks. We have previously concluded that harmful hatchery practices still represent a major threat for the Southern California, California Central Valley, South-Central California Coast, Upper Willamette River, and Snake River Basin steelhead DPSs (NMFS, 2005c).

Final Conclusions Regarding ESA Listing Status

After reviewing the public comments received, independent expert reviewer comments, and other data available to us, we find that there is no substantive information that would cause us to reconsider the extinction risk assessments of the BRT (Good *et al.*, 2005) or the APEW Report's (NMFS, 2004c) conclusions regarding the contributions of hatchery programs to the viability of the subject DPSs. We conclude that the Southern California steelhead DPS is in danger of extinction throughout all or a significant portion of its range, and warrants listing as an endangered species. We conclude that the South-Central California Coast, Central California Coast, California Central Valley, Northern California, Lower Columbia River, Upper Willamette River, Middle Columbia River, Upper Columbia River, and Snake River Basin steelhead DPSs are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges. Accordingly, these nine ESUs warrant listing as threatened species.

Prohibitions and Protective Regulations

ESA section 9(a) take prohibitions (16 U.S.C. 1538(a)(1)(B)) apply to all species listed as endangered. In the case of threatened species, section 4(d) of the ESA leaves it to the Secretary's discretion whether and to what extent to extend the statutory 9(a) ''take'' prohibitions, and directs the agency to issue regulations it considers necessary and advisable for the conservation of the species. The 4(d) protective regulations may prohibit, with respect to threatened species, some or all of the acts which section 9(a) of the ESA prohibits with respect to endangered species. These 9(a) prohibitions and 4(d) regulations apply to all individuals, organizations, and agencies subject to U.S. jurisdiction.

Since 1997 we have promulgated a total of 29 ''limits'' to the ESA Section 9(a) ''take'' prohibitions for 19 threatened salmon and steelhead ESUs (62 FR 38479, July 18, 1997; 65 FR 42422, July 10, 2000; 65 FR 42485, July 10, 2000; 67 FR 1116, January 9, 2002). On June 28, 2005, as part of the final listing determinations for 16 West Coast salmon ESUs, we amended and streamlined the previously promulgated 4(d) protective regulations for threatened salmon and steelhead (70 FR 37160). We finalized an amendment to provide the necessary flexibility to ensure that fisheries and artificial propagation programs are managed consistently with the conservation needs of threatened salmon and steelhead. Under this change the section 4(d) protections apply to natural and hatchery fish with an intact adipose fin, but not to listed hatchery fish that have

had their adipose fin removed prior to release into the wild. Additionally, we made several simplifying and clarifying changes to the ESA 4(d) protective regulations including updating an expired limit (section 223.203(b)(2)) providing a temporary exemption for ongoing research and enhancement activities with pending applications through December 2005, and extending the same set of 14 limits to all threatened salmon and steelhead. With respect to steelhead, the amended June 2005 4(d) rule applies to the steelhead being listed as threatened in the following eight DPSs: The South-Central California, Central California Coast, California Central Valley, Northern California, Upper Willamette River, Lower Columbia River, Middle Columbia River, and Snake River Basin steelhead DPSs.

Protective Regulations for the Upper Columbia River Steelhead DPS

The Upper Columbia River steelhead ESU is currently listed as endangered and subject to the section 9(a) take prohibitions. With the new listing of the Upper Columbia River steelhead DPS as a threatened species, the existing 4(d) protective regulations do not apply to this DPS. As part of the June 14, 2004, proposed threatened determination for the Upper Columbia River *O. mykiss* ESU (69 FR 33102), we also proposed extending to this ESU the amended 4(d) protective regulations that were subsequently finalized in June 2005 (70 FR 37160; June 28, 2005). We will finalize the protective regulations for the threatened Upper Columbia River steelhead DPS in a subsequent **Federal Register** notice.

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

We and the FWS published in the **Federal Register** on July 1, 1994 (59 FR 34272), a policy that we shall identify, to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the ESA. The intent of this policy is to increase public awareness of the effect of this listing on proposed and ongoing activities within the species' range. At the time of the final rule, we must identify to the extent known specific activities that will not be considered likely to result in violation of section 9, as well as activities that will be considered likely to result in violation. We believe that, based on the best available information, the following actions will not result in a violation of section 9:

1. Possession of steelhead from any DPS that is listed as threatened or endangered that are acquired lawfully by permit issued by us pursuant to section 10 of the ESA, or by the terms of an incidental take statement issued pursuant to section 7 of the ESA; or

2. Federally funded or approved projects that involve activities such as silviculture, grazing, mining, road construction, dam construction and operation, discharge of fill material, stream channelization or diversion for which section 7 consultation has been completed, and when activities are conducted in accordance with any terms and conditions provided by us in an incidental take statement accompanying a biological opinion.

Activities that we believe could potentially ''harm'' steelhead (see 50 CFR 222.102) in the listed DPSs, and result in a violation of the section 9 take prohibition include, but are not limited to:

1. Land-use activities that adversely affect steelhead habitats for any listed DPS (*e.g.*, logging, grazing, farming, urban development, road construction in riparian areas and areas susceptible to mass wasting and surface erosion);

2. Destruction/alteration of the steelhead habitats for any listed DPS, such as removal of large woody debris and '''sinker logs''' or riparian shade canopy, dredging, discharge of fill material, draining, ditching, diverting, blocking, or altering stream channels or surface or ground water flow;

3. Discharges or dumping of toxic chemicals or other pollutants (*e.g.*, sewage, oil, gasoline) into waters or riparian areas supporting listed steelhead DPSs;

4. Violation of discharge permits;

5. Application of pesticides affecting water quality or riparian areas for listed steelhead DPSs;

6. Interstate and foreign commerce of steelhead from any of the listed DPSs and import/export of steelhead from any listed DPS without a threatened or endangered species permit;

7. Collecting or handling of steelhead from any of the listed DPSs. Permits to conduct these activities are available for purposes of scientific research or to enhance the conservation or survival of the species; or

8. Introduction of non-native species likely to prey on steelhead from any of the listed DPSs or displace them from their habitats.

This list is not exhaustive. It is intended to provide some examples of the types of activities that might be considered by us as constituting a take of steelhead in any of the listed DPSs under the ESA and its regulations. Questions regarding whether specific activities will constitute a violation of the section 9 take prohibitions and general inquiries regarding prohibitions and permits, should be directed to us (*see* **ADDRESSES**).

Effective Date of the Final Listing Determinations

Given the cultural, scientific, and recreational importance of West Coast steelhead, and the broad geographic range of these DPSs, we recognize that numerous parties may be affected by these final listing determinations. Therefore, to permit an orderly implementation of the consultation requirements associated with these determinations, the final listings will take effect on February 6, 2006.

Critical Habitat

On September 2, 2005, we issued final critical habitat designations for 19 West Coast salmon and steelhead ESUs, including the Southern California, South-Central California, Central California Coast, California Central Valley, Northern California, Upper Willamette River, Lower Columbia River, Middle Columbia River, Upper Columbia River, and Snake River Basin steelhead ESUs (70 FR 52488 and 52630). At the time of these final critical habitat designations for steelhead we had proposed including co-occurring resident *O. mykiss* as part of the ESUs; however, a Consent Decree governing the schedule for the final designations required that they be completed for the ESUs as they were listed as of August 15, 2005. As noted above in the ''Background'' section, the existing listings for steelhead ESUs promulgated between 1997–2000 include only the anadromous life-history form (for more detailed ESU-specific information the reader is referred to the summary of, and **Federal Register** citations for, the previous steelhead listing determinations provided in 69 FR 33102, June 14, 2004). Accordingly, the final critical habitat designations are restricted to the species' anadromous range, and are coextensive with the steelhead-only DPS delineations described in this notice. Whereas the final critical habitat designations may have warranted revision for the proposed *O. mykiss* ESUs including both the resident and anadromous life-history forms, the final critical habitat designations do not require revision for the proposed steelhead-only DPSs (NMFS, 2005d).

Classification

National Environmental Policy Act (NEPA)

ESA listing decisions are exempt from the requirements to prepare an environmental assessment or environmental impact statement under the NEPA. See NOAA Administrative Order 216–6.03(e)(1) and *Pacific Legal Foundation* v. *Andrus,* 675 F. 2d 825 (6th Cir. 1981). Thus, we have determined that the final listing determinations for the West Coast steelhead DPSs described in this document are exempt from the requirements of the NEPA of 1969.

Executive Order (E.O.) 12866, Regulatory Flexibility Act, and Paperwork Reduction Act

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

E.O. 13084—Consultation and Coordination With Indian Tribal Governments

E.O. 13084 requires that if NMFS issues a regulation that significantly or uniquely affects the communities of Indian tribal governments and imposes substantial direct compliance costs on those communities, NMFS must consult with those governments or the Federal government must provide the funds necessary to pay the direct compliance costs incurred by the tribal governments. The final listing determinations described in this document do not impose substantial direct compliance costs on the communities of Indian tribal governments. Accordingly, the requirements of section 3(b) of E.O. 13084 do not apply to this final listing determination. Nonetheless, we will continue to inform potentially affected tribal governments, solicit their input, and coordinate on future management actions.

E.O. 13132—Federalism

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific consultation directives for situations where a regulation will preempt state law, or impose substantial direct compliance costs on state and local governments (unless required by statute). Neither of those circumstances is applicable to this final listing determination. In keeping with the intent of the Administration and Congress to provide continuing and meaningful dialogue on issues of mutual state and Federal interest, the proposed rule was provided to the relevant agencies in each state in which the subject species occurs, and these agencies were invited to comment.

References

A complete list of all references cited herein is available upon request (*see* **ADDRESSES**), or can be obtained from the Internet at: *http://www.nwr.noaa.gov.*

List of Subjects in 50 CFR Parts 223 and 224

Endangered and threatened species.

Authority: 16 U.S.C. 1531 *et seq.*

Dated: December 22, 2005.

James W. Balsiger,

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

■ For the reasons set out in the preamble, 50 CFR parts 223 and 224 are amended as follows:

PART 223—THREATENED MARINE AND ANADROMOUS SPECIES

■ 1. The authority citation for part 223 continues to read as follows:

Authority: 16 U.S.C. 1531–1543; subpart B, § 223.12 also issued under 16 U.S.C. 1361 *et seq.*

■ 2. In § 223.102, revise paragraphs (a)(14) though (a)(21) and add paragraph (a)(22) to read as follows:

§ 223.102 Enumeration of threatened marine and anadromous species.

* * * * *

(a) * * *

Species [1]		Where listed	Citation(s) for listing determination(s)	Citation for critical habitat designation
Common name	Scientific name			
		* * * * * * *		
(14) South-Central California Coast Steelhead.	*Oncorhynchus mykiss*	U.S.A., CA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in streams from the Pajaro River (inclusive) to, but not including the Santa Maria River, California.	62 FR 43937, Aug 18, 1997, Jan. 5, 2006.	70 FR 52488; September 2, 2005.

Species [1]		Where listed	Citation(s) for listing determination(s)	Citation for critical habitat designation
Common name	Scientific name			
(15) Central California Coast Steelhead.	*Oncorhynchus mykiss*	U.S.A., CA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in California streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers. Tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), excluding the Sacramento-San Joaquin River Basin, as well as two artificial propagation programs: the Don Clausen Fish Hatchery, and Kingfisher Flat Hatchery/Scott Creek (Monterey Bay Salmon and Trout Project) steelhead hatchery programs.	62 FR 43937, Aug. 18, 1997, Jan. 5, 2006.	70 FR 52488; September 2, 2005.
(16) California Central Valley Steelhead.	*Oncorhynchus mykiss*	U.S.A., CA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs: the Coleman NFH, and Feather River Hatchery steelhead hatchery programs.	63 FR 13347; Mar. 19, 1998, Jan. 5, 2006.	70 FR 52488; September 2, 2005.
(17) Northern California Steelhead.	*Oncorhynchus mykiss*	U.S.A., CA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in California coastal river basins from Redwood Creek southward to, but not including, the Russian River, as well as two artificial propagation programs: the Yager Creek Hatchery, and North Fork Gualala River Hatchery (Gualala River Steelhead Project) steelhead hatchery programs.	65 FR 36074, June 7, 2000, Jan. 5, 2006.	70 FR 52488; September 2, 2005.
(18) Upper Willamette River Steelhead.	*Oncorhynchus mykiss*	U.S.A., OR, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in the Willamette River, Oregon, and its tributaries upstream from Willamette Falls to the Calapooia River (inclusive).	62 FR 43937, Aug. 18, 1997, Jan. 5, 2006.	70 FR 52630; September 2, 2005.
(19) Lower Columbia River Steelhead.	*Oncorhynchus mykiss*	U.S.A., OR, WA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in streams and tributaries to the Columbia River between the Cowlitz and Wind Rivers, Washington (inclusive), and the Willamette and Hood Rivers, Oregon (inclusive), as well as ten artificial propagation programs: the Cowlitz Trout Hatchery (in the Cispus, Upper Cowlitz, Lower Cowlitz, and Tilton Rivers), Kalama River Wild (winter- and summer-run), Clackamas Hatchery, Sandy Hatchery, and Hood River (winter- and summer-run) steelhead hatchery programs. Excluded are *O. mykiss* populations in the upper Willamette River Basin above Willamette Falls, Oregon, and from the Little and Big White Salmon Rivers, Washington.	63 FR 13347, Mar. 19, 1998, Jan. 5, 2006.	70 FR 52630; September 2, 2005.

Species [1]		Where listed	Citation(s) for listing determination(s)	Citation for critical habitat designation
Common name	Scientific name			
(20) Middle Columbia River Steelhead.	*Oncorhynchus mykiss*	U.S.A., OR, WA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in streams from above the Wind River, Washington, and the Hood River, Oregon (exclusive), upstream to, and including, the Yakima River, Washington, excluding *O. mykiss* from the Snake River Basin, as well seven artificial propagation programs: the Touchet River Endemic, Yakima River Kelt Reconditioning Program (in Satus Creek, Toppenish Creek, Naches River, and Upper Yakima River), Umatilla River, and the Deschutes River steelhead hatchery programs.	57 FR 14517, Mar. 25, 1999, Jan. 5, 2006.	70 FR 52630; September 2, 2005.
(21) Snake River Basin Steelhead.	*Oncorhynchus mykiss*	U.S.A., OR, WA, ID, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho, as well six artificial propagation programs: the Tucannon River, Dworshak NFH, Lolo Creek, North Fork Clearwater, East Fork Salmon River, and the Little Sheep Creek/Imnaha River Hatchery steelhead hatchery programs.	62 FR 43937, Aug. 18, 1997, Jan. 5, 2006.	70 FR 52630; September 2, 2005.
(22) Upper Columbia River Steelhead.	*Oncorhynchus mykiss*	U.S.A., WA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in streams in the Columbia River Basin upstream from the Yakima River, Washington, to the U.S.-Canada border, as well six artificial propagation programs: the Wenatchee River, Wells Hatchery (in the Methow and Okanogan Rivers), Winthrop NFH, Omak Creek, and the Ringold steelhead hatchery programs.	62 FR 43937, Aug. 18, 1997, Jan. 5, 2006.	70 FR 52630; September 2, 2005.

[1] Species includes taxonomic species, subspecies, distinct population segments (DPSs) (for a policy statement, see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement, *see* 56 FR 58612, November 20, 1991).

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PART 224—ENDANGERED MARINE AND ANADROMOUS SPECIES

■ 3. The authority citation for part 224 continues to read as follows:

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

■ 4. Amend the table in § 224.101(a) by:
■ a. Removing the row with the entry for Upper Columbia River steelhead; and
■ b. Revising the entry for Southern California Steelhead to read as follows:

§ 224.101 Enumeration of endangered marine and anadromous species.

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(a) * * *

Species [1]		Where listed	Citation(s) for listing determination(s)	Citation for critical habitat designation
Common name	Scientific name			
*	*	* * *	*	*
Southern California Steelhead.	*Oncorhynchus mykiss*	U.S.A., CA, Distinct Population Segment including all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in streams from the Santa Maria River, San Luis Obispo County, California, (inclusive) to the U.S.-Mexico Border.	62 FR 43937, Aug. 18, 1997, Jan. 5, 2006.	70 FR 52488; September 2, 2005.
*	*	* * *	*	*

[1] Species includes taxonomic species, subspecies, distinct population segments (DPSs) (for a policy statement, see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement, see 56 FR 58612, November 20, 1991).

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