



December 5, 2005

Chief
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VIA E-MAIL

RE: Proposed “steelhead” DPSs and listings

These comments are submitted on behalf of the Environmental Defense Center, the Center for Biological Diversity, and California Trout regarding the National Marine Fisheries Service’s (“NMFS”) proposed alternative approach to delineate 10 Evolutionary Significant Units of West Coast *Oncorhynchus mykiss* (NMFS 2005a¹). Specifically, NMFS proposes to apply the joint NMFS/U.S. Fish and Wildlife Service (“FWS”) “Policy Regarding the Recognition of Distinct Vertebrate Population Segments under the ESA” (“DPS Policy”) to delineate *O. mykiss* distinct population segments (“DPSs”). Our comments are primarily focused on just the three southernmost *O. mykiss* ESUs – Central California, South-Central California, and Southern California (hereafter “three southernmost ESUs”).

In general, we find NMFS’s proposed alternative approach to be an unsupportable step backward in determining whether resident *O. mykiss* are part of a given ESU. The categorical exclusion of all resident *O. mykiss* from a listed ESU cannot be supported by the best available science and is inconsistent with NMFS’s Policy on Applying the Definition of Species Under the Endangered Species Act to Pacific Salmon (“ESU policy,” NMFS 1991²) and a case-by-case evaluation of whether resident *O. mykiss* populations should be included in a particular ESU.

For this reason, we support the framework for inclusion of resident *O. mykiss* as proposed by NMFS in June 2004 – i.e., including all *O. mykiss* in an ESU where there are no obvious physical barriers to interbreeding between resident and anadromous forms, and including those *O. mykiss* above manmade barriers, but below natural barriers (NMFS’s “Case 3” *O. mykiss*) where there is evidence of a close genetic relationship with adjacent *O. mykiss* populations below

¹ 70 Fed. Reg. 67130 (November 4, 2005)

² 56 Fed. Reg. 58612 (Nov. 20, 1991)

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the manmade barriers. NMFS should also include other Case 3 populations that exhibit continued “steelhead” behavior.

The legal and factual bases for our opposition to the alternative approach now proposed by NMFS are identified below.

I. NMFS’s proposed departure from the longstanding ESU policy is arbitrary

NMFS issued its ESU policy in 1991. This policy, which was published in the Federal Register following notice and an opportunity for public comment, was developed specifically for Pacific salmonids, including *O. mykiss*³ (Waples 1991⁴). Upon issuance of the final ESU Policy, NMFS stated, “This final policy will be used in all Pacific salmon listing determinations until revised or superseded.” *Id.* The use of the ESU Policy for Pacific salmonids was confirmed in 1996 when NMFS and FWS issued their joint DPS Policy, in which they stated that “The Services believe that the NMFS policy . . . on Pacific salmon is consistent with the [DPS Policy] . . . Consequently, NMFS will continue to exercise its [ESU] policy with respect to Pacific salmonids.” (NMFS and FWS 1996⁵).

In keeping with these statements, NMFS has repeatedly and consistently applied its ESU Policy in its Pacific salmonid listing determinations under the Endangered Species Act (“ESA”), including as recently as the June 2004 proposal to list the same ten ESUs that are the subject of the new alternative proposal. *See, e.g.,* NMFS 1993⁶ (announcing a status review to identify all coastal steelhead ESUs within California, Oregon, and Washington and to determine whether any such ESUs warrant listing); NMFS 1996⁷ (proposed listing of steelhead ESUs identified in accordance with the ESU Policy); NMFS 1997a⁸ (final listing steelhead ESUs identified in accordance with ESU Policy); NMFS 2002⁹ (announcing a status review of steelhead ESUs identified in accordance with ESU Policy); NMFS 2004a¹⁰ (proposed policy to determine whether hatchery produced salmon and steelhead are part of an ESU as defined by the ESU Policy); NMFS 2004b¹¹ (proposed listing determinations for 27 west coast salmon and steelhead

³ The family *Salmonidae* includes, among other genera, *Salmo* and *Oncorhynchus*.

⁴ Waples, R. S. 1991. Pacific salmon, *Oncorhynchus* spp., and the definition of "species" under the Endangered Species Act. U.S. Natl. Mar. Fish. Serv., Mar. Fish. Rev. 53(3):11-22

⁵ 61 Fed. Reg. 4722 (February 7, 1996)

⁶ 58 Fed. Reg. 29390 (May 20, 1993)

⁷ 61 Fed. Reg. 41541 (August 9, 1996)

⁸ 62 Fed. Reg. 43937 (August 18, 1997)

⁹ 67 Fed. Reg. 6215 (February 11, 2002)

¹⁰ 69 Fed. Reg. 31353 (June 3, 2004)

¹¹ 69 Fed. Reg. 33102 (June 14, 2004)

ESUs identified in accordance with ESU Policy); NMFS 2005b¹² (final policy to determine whether hatchery produced salmon and steelhead are part of an ESU as defined by the ESU Policy); and NMFS 2005c¹³ (final listing of 16 Pacific salmon ESUs identified in accordance with the ESU Policy).

NMFS has thus established a longstanding, unerring practice of applying the ESU Policy to Pacific salmonid listing determinations, including *O. mykiss*. When an agency abandons a longstanding policy, it is required to show “not only that its new policy is reasonable, but also to provide a reasonable rationale supporting its departure from prior practice (Seldovia Native Assn. v. Lujan¹⁴).

Here, NMFS fails to provide any such explanation. ESA listing determinations are to be based solely on the best available science.¹⁵ However, NMFS does not identify any scientific basis to explain why it is no longer appropriate to apply the ESU policy to delineate *O. mykiss* ESUs. Life history differences between steelhead and resident *O. mykiss* (e.g., size, smoltification, migration strategy) identified by NMFS have been known since the original west coast steelhead listing decisions in 1996-1998 (NMFS 1996¹⁶). In fact, most of the references cited by NMFS in support of the so-called “marked separation” of the two forms predate even the original listing decisions (NMFS 2005a¹⁷). NMFS does not explain why this long known information suddenly warrants an entirely new approach to listing steelhead. See, e.g., Friends of the Wild Swan v. USFWS¹⁸ (invalidating FWS’ decision to list only bull trout by DPSs, rather than species-wide and noting that the explanation provided “does not identify why these details – which have not changed since the original 1994 finding and the 1995 finding – suddenly warrant an entirely new approach to the listing process.”). Nor is the question of whether resident *O. mykiss* should be included in an *O. mykiss* ESU a new question (NMFS 1996¹⁹). Indeed, the ESU policy itself raises this very issue and discusses the factors that should be considered in making such a determination.

It is difficult to conceive of a rational explanation for abandoning the ESU Policy under these circumstances. The ESU Policy is not an alternative to the DPS Policy, but a specific application of the DPS Policy developed for the precise issue at hand – a listing determination

¹² 70 Fed. Reg. 37204 (June 28, 2005)

¹³ 70 Fed. Reg. 37160 (June 28, 2005)

¹⁴ 904 F.2d 1335, 1343 (9th Cir. 1990)

¹⁵ 16 U.S.C. § 1533

¹⁶ See, e.g., 61 Fed. Reg. 41541, 41542 (discussing life history and differences between resident and anadromous “forms”)

¹⁷ 70 Fed. Reg. 67132

¹⁸ 12 F.Supp. 2d 1121 (D. Or. 1997)

¹⁹ See, e.g., 61 Fed. Reg. 41541, 41543 (August 9, 1996)

involving Pacific salmonids. See, e.g., NMFS and FWS 1996²⁰ (“The NMFS policy is a detailed extension of” the DPS Policy, and it was “formulated specifically to address the biology” of Pacific salmonids); and NMFS 1997a²¹ (The ESU Policy is “more detailed and applies specifically to Pacific salmonids, and therefore was used for this [steelhead listing] determination”). The ESU Policy thus represents the best available scientific framework for delineating *O. mykiss* ESUs, and a delineation of *O. mykiss* ESUs developed in accordance with the ESU Policy, by definition, complies with the DPS Policy.

NMFS’s proposal to switch to the DPS Policy is also arbitrary because it results in reducing protections for threatened and endangered *O. mykiss*. The primary effect of switching to the DPS policy is to categorically exclude all resident *O. mykiss* and thus reduce ESA protection for *O. mykiss* that NMFS has previously determined are part of the ESUs and that may warrant listing protection. This is a significant step back from the June 2004 proposal, and it is also a step back from the current regulatory status of resident *O. mykiss* that are sympatric with anadromous *O. mykiss* which, although not included in the current ESA listing, have been determined to be part of the *O. mykiss* ESUs (NMFS1997a²²). As such, resident *O. mykiss* (including both those sympatric with anadromous steelhead and those above human caused migration barriers) and their role in the conservation of *O. mykiss* have been considered in recovery planning (NMFS 2004 at 86 - 96²³).

It is improper to utilize the DPS Policy as a tactic to reduce protection for a species. See, e.g., Defenders of Wildlife v. Secretary of U.S. DOI,²⁴ (“listing of population segments is a proactive measure to prevent the need for listing a species over a larger range – not a tactic for subdividing a larger population the FWS has already determined warrants listing throughout the larger range” (emphasis in original) (citing to Friends of Wild Swan, 12 F. Supp. 2d at 1133)). NMFS new proposal would eliminate protection of resident *O. mykiss*, despite the fact that the preponderance of scientific opinion is that “the presence of both resident and anadromous life-history forms is critical for conserving the diversity of steelhead/rainbow trout populations” (Independent Scientific Advisory Board 2005²⁵). NMFS’s approach may thus limit rather than enhance its efforts to protect and conserve threatened and endangered *O. mykiss*.

²⁰ 61 Fed. Reg. 4722-23

²¹ 62 Fed. Reg. 43937, 43939

²² See, e.g., 62 Fed. Reg. 43937, 43941

²³ U.S. National Marine Fisheries Service, 2004. Biennial Report to Congress on the Recovery Program for Threatened and Endangered Species, October 1, 2002 – September 30, 2004. Office of Protected Resources, National Marine Fisheries Service National Oceanic and Atmospheric Administration, U.S. Department of Commerce (Attached)

²⁴ 354 F. Supp. 2d 1156, 1171 (D. Or. 2005)

²⁵ Independent Scientific Advisory Board, 2005. Viability of ESUs Containing Multiple Types of Populations, April 8, 2005

II. NMFS's Proposed Rule Violates the *Alsea* Decision

In addition, NMFS's proposal is unlawful because it effectively sub-divides *O. mykiss* below the DPS level. The ESA does not allow NMFS to make listing distinctions below that of species, subspecies or distinct population segment of a species. See, e.g., *Alsea Valley Alliance v. Evans*.²⁶ Thus, NMFS must list all members of any distinct population segment of *O. mykiss*, not just certain members of a distinct population segment. In *Alsea Valley*, the Court considered NMFS's decision to exclude hatchery spawned coho salmon from a coho salmon listing, even though NMFS had determined hatchery spawned salmon to be part of the coho salmon ESU. The Court concluded that this approach "makes improper distinctions, below that of a DPS." Id. at 1162. The Court found that NMFS's approach "creates the unusual circumstance of two genetically identical coho salmon swimming side-by-side in the same stream, but only one receives ESA protection while the other does not," and held that "The distinction is arbitrary." Id. at 1163.

Similarly, NMFS's proposal here arbitrarily separates genetically, morphologically and behaviorally similar individual *O. mykiss* into two DPSs based on life history – one comprised of "resident rainbow" *O. mykiss* and one comprised of anadromous "steelhead" *O. mykiss*. This is inconsistent with NMFS's conclusions and the best available data that "Genetic differences, when studied, have indicated greater differences among geographically separated *O. mykiss* populations of the same life history form, than between anadromous and resident life-history forms in the same geographical area," and that "No suite of morphological or genetic characteristics has been found that consistently distinguishes between the two life-history forms (NMFS 2004b²⁷). This is also inconsistent with the best available data showing the absence of morphological and behavioral differences in juvenile *O. mykiss* and sometimes in adult *O. mykiss*. See also section III.a. below.

III. NMFS's proposed rule is not based upon the best available science

a. Steelhead and rainbow trout *O. mykiss* are not markedly separate

NMFS's proposed rule appears to disregard the preponderance of scientific information that most steelhead and resident *O. mykiss* in the three southernmost ESUs are not distinct populations under either the ESU or DPS policies. Steelhead begin their lives as rainbow trout and are often indistinguishable from resident *O. mykiss* even as adults, so the illogical effect of NMFS's proposal could be that all *O. mykiss* that have not actually smolted or successfully migrated and returned from the ocean (including juvenile steelhead and possibly even those that have migrated but have reverted to rainbow colors) will be excluded from the "steelhead" DPS.

NMFS's proposal also appears to disregard the opinion of its own independent expert scientific panel convened to specifically address life history, behavioral and ecological

²⁶ 161 F. Supp. 2nd 1154 (D. Or. 2001)

²⁷ 69 Fed. Reg. 33102, 33113

complexity in defining conservation units for Pacific Salmon (Hey *et al.* 2005²⁸). In their report to NMFS, the panel concluded:

In those cases where the two populations co-occur and the lifestyle variation is present as a polymorphism, then the conservation unit should include both the resident and anadromous forms.

Little if any evidence exists of marked separation of steelhead and resident *O. mykiss* in the three southernmost ESUs. Sympatric steelhead and resident *O. mykiss* are indistinguishable as juveniles and inconsistently indistinguishable as adults. Therefore, anadromous *O. mykiss* cannot be classified as distinct “steelhead” populations under either the DPS or ESU policies.

Various local, state and federal agencies and others responsible for managing *O. mykiss* describe juveniles of the two life forms as being impossible to distinguish:

- The California Department of Fish and Game (1996²⁹) and its biologists (McEwan *et al.* 2005³⁰) have concluded that all life stages of *O. mykiss* can appear identical or virtually identical. The department cites to numerous scientific reports in finding that “little or no morphological or genetic differentiation has been found between anadromous and resident forms inhabiting the same stream system.”
- The U.S. Bureau of Reclamation (1999³¹) found that, “During the early part of their lives, young rainbow trout and steelhead are indistinguishable, both in appearance and habitat use,” and diet.
- The Oregon Department of Fish and Wildlife (2001³²) concluded that its biologists are unable to differentiate sympatric juvenile steelhead and resident rainbow *O. mykiss*.
- The Alaska Department of Fish and Game (2005³³) has stated that, “Juvenile steelhead are identical to rainbow trout until the period prior to their ocean migration.”

²⁸ Hey, J., E. L. Brannon, D. E. Campton, R.W. Doyle, I. A. Fleming, M. T. Kinnison, R. Lande, J. Olsen, D. P. Philipp, J. Travis, C. C. Wood, H. Doremus (Facilitator), 2005. Considering Life History, Behavioral, and Ecological Complexity in Defining Conservation Units for Pacific Salmon. Independent panel report, requested by NOAA Fisheries, June 13, 2005

²⁹ California Department of Fish and Game. Steelhead restoration and management Plan for California. February 1996 (Attached) (citing Behnke 1972; Allendorf 1975; Allendorf and Utter 1979; Busby *et al.* 1993; and Nielsen 1994; all attached)

³⁰ McEwan, D., K. Perry, and M. Lacy, 2005. The rainbow trout-steelhead debate, continued. *The Osprey*, 50: 8-12 (Attached)

³¹ U.S. Bureau of Reclamation, 1999. Biological Assessment for Cachuma Project Operations and Lower Santa Ynez River. April 7, 1999 (Attached)

³² Oregon Department of Fish and Wildlife, 2001. Fish Research Project – Oregon; Aspects of Life History and Production of Juvenile *O. mykiss* in the Grande Ronde River Basin, Northeast Oregon (Attached)

As juveniles, steelhead and resident *O. mykiss* are not markedly separate in terms of habitat because they are sympatric, in terms of behavior and diet because they are identical, or in terms of morphology because they are indistinguishable.

All steelhead spend the immature portion of their lives as rainbow trout. As they mature, environmental conditions appear to trigger some rainbows to metamorphose (smolt) into steelhead and migrate to the ocean. Therefore, by classifying and proposing listing for a “steelhead” DPS, NMFS is effectively (and arbitrarily) excluding juvenile steelhead. By listing only steelhead adults without listing their resident offspring, siblings and parents, NMFS’s proposed DPS perverts the ESA’s definition of species because it groups adult steelhead as a separate “species” from juveniles and related siblings, offspring, and parents.

Sympatric adult steelhead and adult residents are also not consistently distinguishable based on morphology or genetics. NMFS (2004b³⁴) concluded in the 2004 listing proposal that, where they co-occur, “No suite of morphological or genetic characteristics has been found that consistently distinguishes between the two life history forms.”³⁵ And Entrix, Inc. (undated), a biological consulting firm specializing in fisheries management, has also stated that “The resident form of rainbow trout can not be visually differentiated from the anadromous steelhead form.”³⁶

While at certain points in an individual anadromous steelhead’s life cycle (i.e. when it reenters freshwater) it can briefly be distinguished from its resident siblings, parents and/or offspring based on its silver coloration, evidence in the record (including information attached hereto) supports NMFS’s (2004b) finding that there is no consistent way to distinguish between these forms based on genetics or appearance.

When steelhead return from the ocean to spawn they are silver, while residents do not turn silver. However, when steelhead reenter freshwater, they lose the silver color and revert back to the standard colors of resident rainbow trout within days^{37 38 39} and are therefore not

³³ <http://www.adfg.state.ak.us/pubs/notebook/fish/steelhd.php> (Alaska Department of Fish and Game website as of 11/16/05 – Steelhead trout) (Attached)

³⁴ 69 Fed. Reg. 33102, 33113

³⁵ 69 Fed. Reg. 33113

³⁶ ENTRIX, Inc. Memo from Shawn Chase to Jean Baldrige RE: Fish Sampling in El Jaro and Salsipuedes Creek. Undated (Attached)

³⁷ <http://www.piscatorialpursuits.com/wafish.htm> (Bob’s Piscatorial Pursuits website as of 11/16/05 – Basic Overview of Salmon Life History – Steelhead Trout) (Attached)

³⁸ <http://www.casitaswater.org/ventura%20hcp/steelhead.htm> (Casitas Mutual Water District web page as of 11/17/05 – Steelhead) (Attached)

³⁹ <http://gssafaris.com/steelhead.htm> (Global Sporting Safaris website as of 11/16/05 – Species Locator - Steelhead) (Attached)

morphologically distinct or consistently distinguishable from large residents based on appearance.

Furthermore, evidence shows that steelhead and resident *O. mykiss* can grow to comparable sizes. For instance, the Juncal Dam caretaker employed by a local water district in Santa Barbara County reports seeing 25 inch *O. mykiss* in Jameson Reservoir. (Pers comm. Louis Andolora, 2005⁴⁰) A photograph shows angler William Trautwein with an 18 inch *O. mykiss* in Juncal Creek above Jameson Reservoir (Attached). The angler also reported seeing 19 inch fish migrating up the creek. These fish are in the same size range of *O. mykiss* with access to the ocean below Bradbury Dam in the same river system (California Department of Fish and Game 1996 at 197⁴¹). Therefore, a categorical statement that steelhead are distinguishable because they are always larger than their resident siblings, offspring, and parents is not supported by the best available science or evidence in the record.

Studies suggest the ultimate adult form – either steelhead or resident rainbow – taken by juvenile *O. mykiss* is driven primarily by environmental factors, such as water flow rates. Similarly, if two acorns from the same oak tree are planted in two nearby but different environments – one fully exposed to sun, wind, and with bedrock underlying shallow soil, and another sheltered, shady, and with deep soil – the resulting adult trees will take on very different forms. With every other factor held equal, the tree in the exposed area with rocky soil will be stunted, shorter and much smaller overall. The other tree will grow larger and taller and appear very different. However, both are still the same species and subspecies of oak tree. Similarly, even though offspring from “steelhead” may become either “resident rainbow” or “steelhead” and may thus appear different as a result of their different environments, they are not different species or subspecies and in fact may breed upon return of the anadromous fish to freshwater.

The mating of steelhead and resident rainbow *O. mykiss* (Pacific States Marine Fisheries Commission and US Fish and Wildlife Service 2004⁴²) serves as additional significant evidence that these life forms are not markedly separate. NMFS has previously compiled and reviewed much of the best available data and concluded there is substantial evidence that the two forms readily mate and produce both steelhead and resident rainbow trout offspring. According to NMFS:

Under the ESU Policy we have previously determined that where resident and anadromous *O. mykiss* co-occur there is likely to be interbreeding between the two life-history forms, and that co-occurring resident and anadromous *O. mykiss* below longstanding impassable barriers are part of the same ESU. This conclusion was based on empirical studies that show that resident and anadromous *O. mykiss* are similar

⁴⁰ Genetic studies by Neilson and others have identified trout above this dam as part of the native southern California anadromous steelhead genotype.

⁴¹ California Department of Fish and Game, 1996. Steelhead restoration and management Plan for California. February 1996

⁴² Pacific States Marine Fisheries Commission and US Fish and Wildlife, 2004. Pacific Coast Steelhead Management Meeting: March 9-11, 2004; Session abstracts (Attached)

genetically when they co-occur with no physical barriers to migration or interbreeding (Chilcote, 1976; Currens et al., 1987; Leider et al., 1995; Busby et al., 1996; Pearsons et al., 1998), and the observation that individuals can occasionally produce progeny of the alternate life-history form (Shapovalov and Taft, 1954; Burgner et al., 1992; Mullan et al., 1992; Zimmerman and Reeves, 2000; Kostow, 2003; Ardren, 200 (sic); Blouin, 200 (sic); Pearsons et al., 2003; Marshal and Foley, 2004; Narum et al., 2004, Seamons et al., 2004). (NMFS 2005a⁴³).

Where the two forms co-occur, the offspring of resident fish may migrate to the sea, and the offspring of anadromous fish may remain in streams as resident fish. (NMFS 2004b⁴⁴)

Empirical studies show that resident and anadromous *O. mykiss* are typically very similar genetically when they cooccur with no physical barriers to migration or interbreeding. Id.

Current and relatively recent pre-dam interbreeding of steelhead and resident rainbow trout – evidenced in significant part by genetic similarities (NMFS, undated;⁴⁵ California Trout *et al.* 2005;⁴⁶ Center for Biological Diversity 2005⁴⁷) – is strong evidence of similarities in behavior which in turn are strong evidence that there is no marked separation of the life forms.

With regard to behavior, some *O. mykiss* above human caused migration barriers persist as adfluvial populations, smolting and migrating from tributaries downstream to reservoirs and returning. NMFS has even reasonably referred to these adfluvial *O. mykiss* as “steelhead” (See section III.b. below). This behavioral similarity, coupled with the morphological and genetic similarities identified above and in the record show that steelhead and resident rainbow trout are not markedly separate and are therefore part of the same ESU/DPS.

It appears that none of the above information was considered by NMFS when it concluded that steelhead and resident *O. mykiss* are “markedly separate” from each other. NMFS cannot simply ignore information that does not support its decision. See, e.g., Pacific Coast Fed’n of Fishermen’s Ass’ns v. National Marine Fisheries Serv.,⁴⁸ (quoting Motor Vehicle Mfrs.

⁴³ 70 Fed. Reg. 67132

⁴⁴ 69 Fed. Reg. 33113

⁴⁵ U.S. National Marine Fisheries Service. Overview of NOAA Fisheries’ Proposed Hatchery Listing Policy & Proposed Listing Determinations for 27 ESUs of West Coast Salmon and Steelhead. Power Point presentation by Dr. Scott Rumsey (Attached)

⁴⁶ California Trout, Center for Biological Diversity, and Environmental Defense Center, 2005. Letter to U.S. National Marine Fisheries Service commenting on six month extension of steelhead listing determinations with attachments, July 28, 2005

⁴⁷ Center for Biological Diversity, 2005. Letter to U.S. National Marine Fisheries Service commenting on proposed treatment of Case 3 *O. mykiss* populations, April 13, 2005

⁴⁸ 265 F. 3d 1028, 1034 (9th Cir. 2001)

Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983)) (An agency decision is arbitrary and capricious if the agency has “relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.”). Contrary to NMFS conclusion in its alternative proposal, categorical exclusion of resident *O. mykiss* from *O. mykiss* ESUs is not supported by the best available science.

b. Case 3 *O. mykiss* should be included in any listed ESU/DPS on a case-by-case basis

NMFS’s new proposal makes no mention of treatment of *O. mykiss* living above human caused migration barriers but below natural barriers. To the extent NMFS intends to exclude all of these Case 3 fish from the new proposed “steelhead” DPSs, default exclusion of all Case 3 *O. mykiss* is also not supported by the best available data, would constitute fundamentally arbitrary decision-making, and represent a significant reversal from NMFS previous direction.

In the June 2004 listing proposal, NMFS proposed a framework to address whether above-human barrier populations should be included in any particular *O. mykiss* ESU. Specifically, NMFS proposed that, absent site-specific information indicating that populations above human-made barriers are related to an adjacent below-barrier *O. mykiss* ESU, such populations would not be included in the listing for that ESU (NMFS 2004b⁴⁹). Consistent with this framework and utilizing “recent genetic data,” NMFS concluded that populations above human-made barriers should be included in the Central California Coast ESU (Alameda Creek) and in the Snake River Basin ESU (North Fork Clearwater River). *Id.* at 33118, 33119

Our organizations have previously provided extensive similar evidence for several Case 3 populations in the Southern California ESU,⁵⁰ including information on how those Case 3 *O. mykiss* excluded from NMFS below-human-barrier-ESUs do not meet the definition of a separate ESU. Based on this, NMFS must include in the three southernmost listed ESU/DPSs those Case 3 *O. mykiss* in Alameda Creek and the following other additional select Case 3 populations consistent with its 2004 proposal to include such populations on a case-by-case basis where there is evidence of close genetic relationships: those in the Santa Ynez River, Ventura River (including Matilija Creek), and Santa Clara River (including Piru and Sespe creeks).

NMFS has also previously noted significant evidence of continuing adfluvial “steelhead” behavior above human caused migration barriers (e.g. smolting and migration) suggesting necessary inclusion in the final listing decision of at least one additional select Case 3 *O. mykiss* population on Old Creek in the South-Central ESU. According to NMFS,

⁴⁹ 69 Fed. Reg. 33102, 33113

⁵⁰ Environmental Defense Center, 2004. Letter to U.S. National Marine Fisheries Service commenting on proposed listing determinations for 27 ESUs of West Coast salmonids, November 12, 2004. See also California Trout *et al.* 2005; and Center for Biological Diversity 2005

Anecdotal evidence suggests that *O. mykiss* located above man-made barriers but below natural barriers attempt to migrate to the ocean ... (NMFS 1997b⁵¹)

[The Old Creek Whale Rock Reservoir steelhead stock] ... apparently retains an anadromous component. Juvenile steelhead are able to emigrate from Whale Rock Reservoir during high spill years, and anecdotal information indicates that some of these juveniles return as adults to the base of the dam 2 years later. *Id.* At 32 (emphasis added).

... a land-locked population of steelhead is known to occur in the [Whale Rock] reservoir above the dam.⁵²

The Whale Rock Reservoir has a resident population that is reported to make steelhead-like runs up several tributaries for spawning. *Id.* At 111 (emphasis added).

The native rainbow trout (*O. mykiss*) in the tributaries [above Piru and Pyramid reservoirs on Piru Creek] are known to exhibit an ad fluvial life history pattern (i.e. juveniles rear in the tributaries, emigrate to the reservoirs serving as a substitute ocean, with the adults maturing in the reservoirs before returning to spawn ...⁵³

Steelhead exhibit a particularly plastic life history, with individual populations containing individuals which exhibit strong, weak, or no anadromous behavior traits. Populations which have been cut off from access to the ocean, either by natural or anthropogenic conditions, have continued to produce progeny which exhibit anadromous behavior; the relatively large number of young steelhead (smolts) which continued to emigrate out of the Sespe Creek drainage after adult fish passage was blocked is one local example of such behavior. *Id.*

Persistent “steelhead” behavior in these Case 3 populations strongly suggests that these fish should be considered a part of either NMFS’s proposed “steelhead” DPS or NMFS’s prior *O. mykiss*, especially given the agency’s logical use of the identical “steelhead” terminology. Based on this, NMFS should include Case 3 populations in the listed ESUs where these continue to exhibit “steelhead” behavior.

IV. Conclusion

For the reasons discussed above, NMFS should finalize West Coast *O. mykiss* ESA listings consistent with its longstanding ESU Policy and with the June 2004 proposal. Under this

⁵¹ National Marine Fisheries Service. 1997. Status Review Update for West Coast Steelhead from Washington, Idaho, Oregon, and California. Memorandum from the Biological Review Team to the NMFS Northwest Regional Office. July 7, 1997, at 8.

⁵² U.S. National Marine Fisheries Service, 2003. Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead, at 108 (emphasis added)

⁵³ McInnis, R. R. 2005. NMFS comments on Draft Environmental Impact Report for Simulation of Natural Flows in Piru Creek, January 11, 2005, at 2, (citations omitted, emphasis added).

approach, the best available data shows that all *O. mykiss* below human caused migration barriers should be included in the three southernmost ESUs, as should those Case 3 populations where there is evidence showing a close genetic relationship to adjacent below-manmade barrier populations and Case 3 populations exhibiting continued “steelhead” behavior.

Thank you for your consideration. Please note that all but one of the references cited in this letter and identified as “Attached” were sent separately to NMFS via overnight delivery on December 2, 2005, and delivery has been confirmed for December 5, 2005. The remaining document is attached to this letter.

You may contact me at (805) 963-1622 if you have any questions.

Sincerely,

/s/

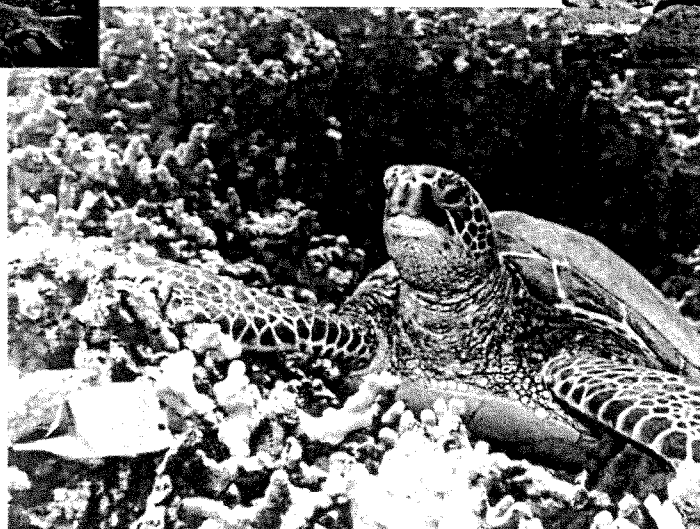
Karen M. Kraus
Staff Attorney

On behalf of
ENVIRONMENTAL DEFENSE CENTER
CENTER FOR BIOLOGICAL DIVERSITY
CALTROUT

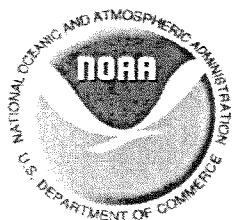
Attachments

Biennial Report to Congress on the Recovery Program for Threatened and Endangered Species

October 1, 2002 – September 30, 2004



Prepared by:
Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. DEPARTMENT OF COMMERCE



Central California Coast Steelhead ESU (*Oncorhynchus mykiss*)

Date Listed: August 18, 1997

Legal Status: Threatened

Recovery Plan Status:

No recovery plan has been completed for this ESU, but recovery planning is under way.

NMFS Southwest Region (SWR) will initiate the preparation of the recovery plan for the Central California Coast (CCC) steelhead ESU at the same time the Technical Recovery Team (TRT) distributes the draft Population Structure report for ESUs of Chinook salmon, coho salmon, and steelhead in the North Central California Coast Recovery Domain. NMFS will work closely with the California Department of Fish and Game (CDFG) to ensure appropriate integration and collaboration between the state Coho Recovery Planning process and the Federal recovery planning process. Primary authorship of the recovery plan will be the responsibility of NMFS staff, with outreach by NMFS to state, Federal, and private partners central to the recovery effort.

Species Status:

The CCC steelhead ESU includes all naturally spawned populations of steelhead and their progeny 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. Resident populations of *O. mykiss* that co-occur with anadromous populations below impassable barriers (natural and manmade) are included in the CCC steelhead ESU.

No time series data exist of population abundance for the naturally spawning component of the CCC steelhead ESU. The naturally spawning population in the largest river system for this ESU, the Russian River, is believed to have declined seven-fold since the mid-1960s. Juvenile density data is available for five “representative” populations, and each population exhibits a decline over the past 8 years of available data. The population trend for the CCC steelhead ESU is a continuing decline in abundance.

Threats and Impacts:

The following limiting factors are prevalent throughout the ESU and affect most populations within the ESU: low over-winter and summer survival of juveniles; limited smolt production; low productivity¹; reduced spawning success; and limited spatial distribution throughout the ESU. The threats affecting these limiting factors are pervasive throughout the ESU and vary among populations within the ESU. Most of the threats are associated with habitat and water quantity and quality issues, which include:

- Lack of side-channel, alcove, tributary, pool, and floodplain habitats for over-winter and summer survival of juveniles

¹ Defined as: (recruits • spawners⁻¹)

- Reduced riparian areas, including function and diversity of habitat types along all water courses
- Decreased stream channel sinuosity² and habitat complexity due to excessive removal of habitat forming structures (e.g., large woody debris and boulders) and stream channel straitening for flood control purposes
- Excessive sedimentation in stream channels from a variety of past and current land use activities that have filled in pools, covered spawning gravels and benthic invertebrates, and reduced flood flow capacity
- Fragmentation of historic and current habitats due to human-caused barriers (e.g., dams, culverts, and bridges)
- Negative impacts on steelhead and habitat from water impoundments, hydroelectric facilities, push-up dams for small riparian diversions, surface and subsurface water withdrawals, and water conveyance and flood control systems – Many of the water facilities do not have fish passage facilities, and the few facilities with some adult passage capabilities have met with limited success. These blockages fragment historic and current steelhead habitat directly or indirectly due to their operations.
- Inadequate screening of numerous water diversions to protect adult and juvenile salmon from being entrained into the diversions
- Significant point and non-point source pollution, which can contribute pollutants such as heat and toxic substances into streams and rivers

Conservation Actions:

The Preliminary Recovery Strategy for the CCC steelhead ESU is to ensure NMFS is fulfilling its obligation under the ESA to conserve and recover Central California Coast (CCC) steelhead. NMFS focuses primarily on linking and coordinating ESA programs to recovery planning and developing stronger, more collaborative partnerships with other entities whose decisions affect salmon recovery options. Under this guidance, NMFS conducted numerous conservation actions from 2002–2004 for CCC steelhead ESU recovery and these actions are detailed below.

Agricultural Land Management Practices

- Implemented the Fish Friendly Farming program, a multi-agency, third-party certification and technical assistance program for wine grape growers practicing best management practices (BMPs) for salmon – Over 10,000 acres of private property have been inspected and certified through this program.
- Collaborated proactively with counties on General Plan Updates, Grading Ordinances, and Riparian Ordinances
- Continued working closely with Resource Conservation Districts (RCDs) and the Natural Resources Conservation Service (NRCS) to help identify potential impacts on ESA-listed species, to help develop measures to address these impacts, and to help obtain regulatory relief under the ESA

² Stream channel sinuosity as defined by the U.S. Geological Survey (USGS) is the ratio of the channel length between two points on a channel to the straight-line distance between the same two points – a measure of meandering.

Gravel Mining

- Applied the NMFS Southwest Region (SWR) Gravel Mining Guidelines, entitled “Sediment Removal from Freshwater Salmonid Habitat: Guidelines to NMFS Staff for the Evaluation of Sediment Removal Actions from California Streams”
- Used guidelines to conduct effects analyses of proposed actions that would remove sediment from streams, either for commercial sediment production or flood control channel excavation

Municipal and Agricultural Water Diversions

- Developed “Guidelines for Maintaining Instream Flows to Protect Fisheries below Water Diversions,” which are used by NMFS and the California State Water Resources Control Board for flow standards when issuing water rights permits – The Governor of California recently signed into law an amendment to the California Water Code to adopt NMFS’ Instream Flow Guidelines.
- Applied the Water Drafting Specifications, Guidelines for Salmonid Passage at Stream Crossings, Fish Screening Criteria for Anadromous Salmonids, and the Addendum to Fish Screening Criteria for Pumped Water Intakes
- Developed a fisheries enhancement plan for the Santa Clara Valley Water District’s operation of six reservoirs in northern Santa Clara County, California
- Developed a fish barrier removal program and habitat enhancement plan with the Alameda County Water District and San Francisco Public Utilities
- Worked with the City of Vallejo and Bureau of Reclamation to establish instream flows for steelhead in Suisun Creek, Solano County, California

Summer Dams

- Developed a database of summer dams and commenced proactive efforts to engage with landowners to minimize the effects of such dams
- Implemented staff guidelines, entitled “The Effects of Summer Dams on Salmon and Steelhead in California Coastal Watersheds & Recommendations for Mitigating Their Impacts”

Timberland Management and Forest Conversions

- Continued to engage with the Board of Forestry in public meetings, and presented information to the Board on specific areas in the Forestry Rules needing improvements based on Science Panel findings and field experience
- Engaged in on-site reviews of timber operations, and implemented the “Salmonid Guidelines for Forest Practices” when evaluating non-Federal timber harvest operations
- Implemented the Stewardship Non-Industrial Timber Management Plan program in negotiation with the State Board of Forestry to encourage and minimize regulatory burdens on small forest landowners operating under a stewardship philosophy (over 1 million acres)
- Conducted Habitat Conservation Plan (HCP) negotiations with the Mendocino Redwood Company – A Planning Agreement is in place that includes riparian protections from timber harvest and other operating restrictions beneficial to salmon until the HCP is completed.

Urbanization/Channelization

- Conducted ESA section 7 consultations to minimize the effects of flood control projects, levee setbacks, and floodplain management on the ESU
- Conducted Apanolia Creek Fish Barrier Removal and Habitat Restoration by removing three fish barriers, allowing steelhead access to the upper watershed
- Conducted San Pedro Creek floodplain restoration
- Worked with Caltrans and the Federal Highway Administration (FHWA) to develop guidelines and minimization measures for pile driving impacts on salmonids
- Worked with Stanford University to remedy fish passage impediments in San Francisquito Watershed, San Mateo County, California

Other Actions

- Worked with the San Francisco Bay maritime industry to refine environmental work windows for protection of listed salmonids

Federal Efforts

- Streamlined programs through programmatic strategies and developed best management practices for Federal, state, county, or city governments and private landowners for the benefit of steelhead habitat – Some programmatic strategies and actions have been completed and others are currently under way. These include the following:
 - * State of California Road Maintenance Manual
 - * Bank Stabilization Guidelines
 - * Gravel Mining Guidelines (completed in 2004)
 - * Ground Water Management Guidelines
 - * Water Development and Rights Policies
 - * Minimum Flow Policies for dry seasons to ensure appropriate water temperatures and conditions (under way)
 - * Desalination Management Policy and Timber Harvest Guidelines (completed in January 2005)
- Evaluated impacts to the CCC steelhead ESU through numerous ESA section 7 consultations, which have improved or minimized adverse impacts
- Drafted an ESA section 6 agreement to support state recovery actions
- Provided annual grants to the State of California through the Pacific Coastal Salmon Recovery Fund program to assist recovery efforts in coastal watersheds

Restoration

- Continued to provide annual grants to the State of California to assist recovery efforts in coastal watersheds as part of the Pacific Coastal Salmon Recovery Fund program – NMFS assisted the California Department of Fish and Game (CDFG) in the development of ranking criteria to evaluate grant proposals and ensure that (1) Federal grant money is used for the purposes set forth by Congress and (2) there is a representative on the technical ranking committee for projects developed and submitted to this program for potential funding. These projects include a wide range of activities such as easements; road inventories and restoration; improvement of fish passage at barriers; public outreach; sediment source inventories and stabilization; fencing of riparian areas along

streams; and species and habitat monitoring. Many of these projects have been implemented but will require some time before the benefits to the species are realized.

- Continued to collaborate with the California Conservation Corps, the CDFG, and other state and Federal agencies conducting anadromous salmonid and aquatic stream habitat restoration projects – These projects include fish passage barrier modifications, instream habitat projects, riparian tree planting, and up-slope sediment reduction projects.
- Continued working with the California Resource Agency and numerous state, local and regional agencies; non-profit and stakeholder groups; and consultants as part of the State of California’s Fish Passage Forum – The Forum addresses man-made barriers to adult and juvenile salmonid passage throughout California’s coastal rivers and streams. The Forum identified administrative, financial, and technical impediments to addressing these issues, including information gaps, lack of watershed-level assessments and planning, and poorly coordinated project review and permitting processes. Group participants worked together to develop short- and long-term solutions to these impediments. The Forum continues to work to identify barriers; evaluate and prioritize restoration opportunities; provide consistent barrier inventory data; and conduct training, public outreach, and education related to fish passage barriers.

Priority Recovery Actions Needed:

Several priority recovery actions are needed for the Central California Coast steelhead ESU, including the following:

- Research and monitor distribution, status, and trends of steelhead.
- Promote operations of current recovery hatcheries and develop Hatchery and Genetics Management Plan (HGMPs) to minimize negative influences of hatcheries.
- Improve freshwater habitat quantity and quality.
- Protect and restore habitat complexity and connectivity from the upper watershed to the ocean.
- Conduct focused freshwater habitat restoration in anadromous salmonid streams (e.g., erosion control, bank stabilization, riparian protection and restoration, and reintroduction of large woody debris).
- Balance water supply and allocation with fisheries needs through a water rights program, designate fully appropriated watersheds, develop passive diversion devices or offstream storage, eliminate illegal water diversions, and improve criteria for water drafting and dam operations.
- Improve agricultural and forestry practices, in particular, riparian protections, road construction, and road maintenance.
- Improve county/city planning, regulations (e.g., riparian and grading ordinances) and county road maintenance programs.
- Finalize the ESA section 6 agreement to support state recovery actions
- Remove/upgrade high-priority man-made fish passage barriers (e.g., watercourse crossings and non-hydropower dams).
- Screen all water diversion structures.
- Replace existing outdated septic systems and improve wastewater management.
- Identify and treat point and non-point source pollution of streams from wastewater, agricultural practices, and urban environments.

- Modify channel and flood control maintenance and eliminate artificial breeching of sandbars for improvements in channel and estuarine habitats.

Recovery Priority Number: 3

Ranking for the CCC steelhead ESU was based on a high degree of threat, a low-moderate recovery potential, and an anticipated conflict with development projects or other economic activity. This determination was made based on the following factors: (1) the largest run for the ESU (the Russian River) has been reduced in size and this decline continues, (2) populations in the southern part of the range have declined substantially, (3) habitats are degraded, and (4) there have been recent droughts and a change in ocean productivity. A low-moderate recovery potential exists due to the large extent of urbanization within the range. Imminent land use changes and encroaching urbanization into rural areas are anticipated to conflict with the conservation needs of the CCC steelhead.

South-Central California Steelhead ESU (*Oncorhynchus mykiss*)

Date Listed: August 18, 1997

Legal Status: Threatened

Recovery Plan Status:

No recovery plan has been completed for this ESU, but recovery planning is under way. A Technical Recovery Team (TRT) has been convened and is in the Phase I recovery planning process. The TRT will establish the historic geographic distribution of the species within the South-Central California Steelhead Evolutionary Significant Unit (ESU), identify historic independent and dependent populations, and establish recovery goals and scenarios. Phase II recovery planning will involve the establishment of an appropriate policy and planning structure to develop a recovery plan, implementation strategy, and cost assessment.

Species Status:

The steelhead population within the South-Central California Steelhead ESU (SCC) has declined dramatically from estimated annual runs totaling 25,000 adults to less than 500 returning adult fish. Of the 36 watersheds historically supporting steelhead runs, approximately 90 percent continue to support runs, although run sizes have been sharply reduced in most watersheds. Current population trends within individual watersheds continuing to support runs are generally unknown, but may vary widely.

Threats and Impacts:

The SCC steelhead ESU is near the southern limit of the steelhead's range. Extensive loss of populations in most of the major watersheds is the result of agricultural development, urbanization, dewatering, and modification of rivers and creeks. A significant portion of the spawning and rearing habitat has been rendered inaccessible to steelhead because dams and other instream structures block or impede migration.

The principal threats to the SCC steelhead ESU are associated with the four major river systems, the Pajaro, Salinas, Nacimiento/Arroyo Seco, and Carmel rivers. Each of these watersheds is heavily impacted by water facilities (both surface and subsurface) and development on the floodplain and associated riparian corridor (for agricultural, residential, and industrial uses including sand and gravel extraction). Water developments have physically blocked or impeded migration of adult steelhead to headwater spawning and rearing tributaries, and have restricted the emigration of juveniles to the ocean. Development of the floodplains has altered the natural fluvial processes that facilitate migration and that, in some cases, sustain over-summering habitat for juvenile steelhead. Associated flood control structures and activities have further disrupted the natural fluvial processes necessary to maintain these habitats. Harvesting of timber and development of residential structures (and associated roads) on steep-sided erosive slopes has resulted in accelerated erosion and sedimentation of river and stream channels. In addition, the continued spread and propagation of invasive plants and aquatic species has further degraded habitats for steelhead, particularly juveniles. The loss and degradation of the remaining estuarine habitat as a result of both point and non-point source pollution and artificial breaching of sand-bars has reduced the suitability of these habitats for rearing and acclimation. Finally, the

introduction of exotic fish, and the stocking of non-native steelhead fish stocks (in lieu of land and water conservation measures) to support recreational fishing have also contributed to the decline of native steelhead and related resident trout populations in many coastal rivers and streams.

Conservation Actions:

Fish passage facilities have been constructed on the Carmel River at the Los Padres Dam with funding from the Carmel River Steelheaders and the CalAm Water Agency. A number of impediments to fish passage caused by road crossings and other instream structures have been eliminated or substantially improved as a result of retro-fitting (or in some cases eliminating) such structures. Funding for these projects was provided through the Pacific Coastal Salmon Recovery Fund. Planning for the potential removal of San Clemente Dam in the Carmel River has advanced substantially; funding for this project was provided by the CalAm Water Agency and the California Department of Water Resources.

Sport fishing regulations for native steelhead have been changed to regulate recreational angling in virtually all coastal rivers and streams accessible to SCC steelhead ESU adults migrating from the ocean. This recreational fishery is limited to several days a week during the migratory season and is catch-and-release only. In addition, the California Department of Fish and Game has curtailed its stocking of hatchery-reared trout, limiting stockings to reservoirs, or stream reaches above impassable barriers.

Finally, NMFS has conducted both formal and informal ESA section 7 consultations with Federal agencies that fund, carry out, or regulate projects such as flood protection, road construction, water diversion, and gravel mining throughout the range of the SCC steelhead ESU.

Priority Recovery Actions Needed:

Recovery planning will require further investigation of life history traits of this species, including use of estuarine habitat, juvenile growth and smolting patterns, distribution of residualized populations above artificial impassable barriers, and the relationship between putative resident and migratory forms of steelhead.

Re-establishing access to upper watersheds in both small coastal streams and several of the larger river systems is one of the highest priorities for the SCC steelhead ESU. Other major recovery actions include the completion of planning for the removal of San Clemente Dam on the Carmel River. The re-establishment of adequate flow regimes for the Salinas and Nacimiento rivers are also high priorities. Further investigation of potential recovery actions south of San Simeon is necessary to develop an ESU-wide recovery plan for the SCC steelhead ESU.

Recovery Priority Number: 3

Ranking for the SCC steelhead ESU was based on a moderate magnitude of threat, a high potential for recovery, and anticipated conflict with current and future development/disturbance within the range of the ESU. The Biological Review Team (BRT) that conducted an updated status review in 2004 concluded that the SCC steelhead ESU was “not in danger of extinction but likely to become so in the foreseeable future.” This determination was based in part on the

negative effects of poor land use practices, trout stocking, and generally downward trends in adult populations. It is believed there is a moderate magnitude of threat, with a high potential for recovery and continued conflict with land disturbance and water-associated impacts.

Southern California Steelhead ESU (*Oncorhynchus mykiss*)

Date Listed: August 18, 1997; Southern Range Extension May 1, 2002

Legal Status: Endangered

Recovery Plan Status:

No recovery plan has been completed for this ESU, but recovery planning is under way. A Technical Recovery Team (TRT) has been convened and is in the Phase I recovery planning process. The TRT will establish the historic geographic distribution of the species within the ESU, identify historic independent and dependent populations, and establish recovery goals and a range of recovery scenarios. Phase II recovery planning will involve the establishment of an appropriate policy and planning structure to develop a recovery plan, implementation strategy, and cost assessment.

Species Status:

The steelhead populations within the Southern California steelhead ESU have declined dramatically, from estimated annual runs totaling 55,000 adults to less than 500 returning adult fish. Populations are believed to have been extirpated from over half the 46 watersheds historically supporting steelhead runs. In the southern range extension (from Malibu to the U.S.–Mexico border), adult steelhead have been documented in only three watersheds since the original listing of the Southern California steelhead ESU. Current population trends within individual watersheds continuing to support runs are unknown, but may vary widely between watersheds and likely are declining in a majority of the watersheds within the Southern California steelhead ESU.

Threats and Impacts:

The Southern California steelhead ESU is at the extreme southern limit of the steelhead range. Extensive loss of populations, especially south of Malibu Creek, have resulted from urbanization, dewatering, and channelization of rivers and creeks. Southern California has also lost approximately 90 percent of its historical estuarine habitat. The majority of the spawning and rearing habitat has been rendered inaccessible to steelhead as a result of dams, debris basins, road crossings, and other instream structures blocking or impeding migration. The introduction of exotic fish and the stocking of non-native steelhead fish stocks in many coastal rivers and streams (in lieu of land and water conservation measures) to support recreational fishing have also contributed to the decline of native steelhead and related resident trout populations.

Conservation Actions:

Fish passage facilities have been constructed on the Ventura River at the Robles Diversion Dam, on Santa Paula Creek at the Harvey Dam and Santa Paula Creek Flood Control Channel, and on Sycamore Creek at the Sycamore Debris Basin. Funding for these projects was provided by the California Coastal Conservancy, the California Wildlife Conservation Board, and the Pacific Coastal Salmon Recovery Fund. A number of impediments to fish passage caused by road crossings and other instream structures have been eliminated or substantially improved as a result of retro-fitting (or in some cases eliminating) such structures. Funding for these projects was provided by through the Pacific Coastal Salmon Recovery Fund. Planning for the removal

of Matilija Dam in the Ventura River watershed (the largest dam removal project in the United States to date) has advanced substantially, and planning has commenced on the removal of Rindge Dam on Malibu Creek. Funding for these two major dam removal projects was provided by the U.S. Bureau of Reclamation, the U.S. Army Corps of Engineers, the U.S. Department of Justice, the California Coastal Conservancy, and local dam owners.

Sport-fishing regulations for native steelhead were changed to eliminate recreational angling in virtually all coastal rivers and streams accessible to adult steelhead migrating from the ocean. In addition, the California Department of Fish and Game (CDFG) curtailed its stocking of hatchery-reared trout, limiting stockings to reservoirs or stream reaches above impassable barriers. In at least one case, the CDFG has begun stocking sterile (triploid) fish to prevent the inter-breeding of hatchery-reared fish with native steelhead.

NMFS has formulated recommendations regarding fish passage and migration flows at Pyramid and Santa Felicia Dams on Piru Creek (a tributary to the Santa Clara River) as part of Federal Energy Regulatory Commission re-licensing actions. In addition, NMFS has participated in the Public Trust/Water Right hearings held by the California State Water Resources Control Board on the re-licensing of the Cachuma Dam project on the Santa Ynez River.

Finally, NMFS has conducted both formal and informal ESA section 7 consultations with Federal agencies that fund, carry out, or regulate projects such as flood protection, road construction, water diversion, and gravel mining throughout the range of the Southern California steelhead ESU.

Priority Recovery Actions Needed:

Recovery planning will require investigation of life history traits for this species, including use of estuarine habitat, juvenile growth and smolting patterns, distribution of residualized populations above artificial impassable barriers, and the relationship between putative resident and migratory forms of steelhead.

Re-establishing access to upper watersheds in both small coastal streams and several of the larger river systems is one of the highest priorities for the Southern California steelhead ESU. Other major recovery actions include completion of planning for the removal of Matilija Dam on the Ventura River and Rindge Dam on Malibu Creek. The re-establishment of adequate flow regimes for the Santa Maria, Santa Ynez, Ventura, and Santa Clara rivers is also a high priority. Further investigation of potential recovery actions south of Malibu Creek (within the southern range extension) includes watershed barrier inventories, habitat suitability assessments, and research into metapopulation dynamics between the larger river systems and short-run coastal streams. Such studies are necessary to develop an ESU-wide recovery plan for the Southern California steelhead ESU.

Recovery Priority Number: 3

Ranking for the Southern California steelhead ESU was based on a high magnitude of threat, a moderate potential for recovery, and anticipated conflict with current and future development/disturbance within the range of the ESU. The Biological Review Team (BRT) that conducted an updated status review in 2004 reiterated the conclusions reached during the

previous status review, that the Southern California steelhead ESU “was in danger of extinction.” This determination was based in part on the extirpation of populations through much of their historical range, the blockage of freshwater habitats, and the continued stocking of hatchery-reared rainbow trout. It is believed there is a high magnitude of threat, with a moderate potential for recovery and continued conflict with land disturbance and water-associated development.