

Federal Communications Commission.

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[FR Doc. 01-8244 Filed 4-3-01; 8:45 am]

BILLING CODE 6712-01-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 223

[Docket No. 010118020-1082-02; I.D.
010801A]

RIN 0648-AO86

Endangered and Threatened Species: Final Listing Determination for Klamath Mountains Province Steelhead

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

ACTION: Notice of determination of
status review.

SUMMARY: In keeping with a recent
Federal Court ruling, NMFS has
reconsidered the status of Klamath
Mountains Province (KMP) steelhead
Evolutionarily Significant Unit (ESU)
under the Endangered Species Act of
1973 (ESA), as amended. After
reviewing the best available scientific
and commercial information, NMFS has
determined that KMP steelhead do not
warrant listing as threatened or
endangered at this time.

DATES: The finding for this document
was made on March 28, 2001.

ADDRESSES: Protected Resources
Division, NMFS, 525 NE Oregon Street,
Suite 500, Portland, OR 97232.
Reference materials regarding this
determination can be obtained via the
Internet at www.nwr.noaa.gov.

FOR FURTHER INFORMATION CONTACT:
Garth Griffin, 503-231-2005, Craig
Wingert, 562-980-4021, or Chris
Mobley, 301-713-1401.

SUPPLEMENTARY INFORMATION:

Previous Federal ESA Actions Related to West Coast Steelhead

The history of petitions and agency
findings regarding the KMP steelhead
ESU are detailed in the February 12,
2001, listing proposal (66 FR 9808).
Briefly, NMFS first proposed this ESU
as a threatened species under the ESA
in 1995 (60 FR 14253, March 16, 1995),
identified areas of substantial scientific
disagreement for this and other ESUs in

1997 (62 FR 43974, August 18, 1997),
and finally determined that listing was
not warranted for KMP steelhead in
1998 (63 FR 13347, March 19, 1998).
The no-list decision was based on
evidence indicating the ESU was at a
lower risk of extinction than at the time
it was proposed for listing. Even though
it found that the risks had been reduced
to a point at which listing was not
warranted, NMFS expressed concerns
about the status of KMP steelhead, and
identified the ESU as a candidate
species, which the agency would
continue to monitor and re-assess by
2002.

On October 25, 2000, the U.S. District
Court for the Northern District of
California (Court) ruled that NMFS'
March 19, 1998, determination
regarding the KMP steelhead ESU was
arbitrary and capricious (*Federation of
Fly Fishers v. Daley*, Civ. No. C-99-0981-
SI). The Court set aside NMFS' "not
warranted" determination and
remanded the case to NMFS for further
consideration and decision consistent
with its Order by March 31, 2001. In
vacating the agency's decision, the
Court held that the ESA does not allow
NMFS to consider the expected effects
of future conservation actions or to rely
exclusively on voluntary conservation
efforts. In response to the Court's
mandate, NMFS re-proposed listing the
KMP steelhead as a threatened species
under the ESA on February 12, 2001 (66
FR 9808). NMFS noted that the Court-
ordered deadline of March 31, 2001, for
a final listing decision did not provide
sufficient time to conduct a thorough
assessment of new information (i.e.,
data since 1998) prior to re-proposing
this ESU for listing. Therefore, the re-
proposal relied primarily upon
information contained in the NMFS
steelhead administrative record as it
existed on March 19, 1998. Comments
on the proposed listing yielded
substantial new information regarding
the status of this ESU. This new
information was evaluated by NMFS'
steelhead Biological Review Team (BRT)
which resulted in an updated status
review document for the KMP steelhead
ESU (NMFS, 2001).

Life History of KMP Steelhead

Biological information for West Coast
steelhead, and the KMP steelhead ESU
in particular, can be found in agency
assessments conducted by NMFS
(NMFS, 1993, 1994, 1996a, 1997a,
1998a) and in previous **Federal Register**
documents (60 FR 14253, March 16,
1995; 61 FR 41541, August 9, 1996).
Steelhead exhibit one of the most
complex suites of life history traits of
any salmonid species. Individuals may

exhibit anadromy (meaning they migrate
as juveniles from fresh water to the
ocean, and then return to spawn in fresh
water) or freshwater residency (meaning
they reside their entire life in fresh
water). Resident forms are usually
referred to as "rainbow" or "redband"
trout, while anadromous life forms are
termed "steelhead." The KMP steelhead
ESU includes both life forms. However,
only the anadromous forms are under
the jurisdiction of NMFS; the U.S. Fish
and Wildlife Service (USFWS)
maintains ESA authority over resident
life forms.

Within the KMP steelhead ESU, the
species inhabits coastal river basins
between the Elk River in Oregon and the
Klamath River in California, inclusive.
Steelhead can be divided into two
reproductive ecotypes, based on their
state of sexual maturity at the time of
river entry and the duration of their
spawning migration. These two
ecotypes are termed "stream maturing"
and "ocean maturing." Stream maturing
steelhead enter fresh water in a sexually
immature condition and require several
months to mature and spawn. Ocean
maturing steelhead enter fresh water
with well developed gonads and spawn
shortly after river entry. These two
reproductive ecotypes are more
commonly referred to by their season of
freshwater entry (i.e., summer (stream
maturing) and winter (ocean maturing)
steelhead). The KMP steelhead ESU
contains populations of both winter and
summer steelhead. In addition, the
Rogue and Klamath River Basins are
distinctive in that they are two of the
few basins producing "half-pounder"
steelhead. This life history type refers to
immature steelhead that return to fresh
water after only 2-4 months in the
ocean, generally overwinter in fresh
water, then outmigrate again the
following spring (Snyder, 1925; Kesner
and Barnhart, 1972; Everest, 1973;
Barnhart, 1986).

Summary of Comments Received in Response to the Proposed Rule

Following NMFS' proposal to list
KMP and other steelhead ESUs in 1995
and 1996 (60 FR 14253, March 16, 1995;
61 FR 41541, August 9, 1996), a total of
16 public hearings were held in
California, Oregon, Idaho, and
Washington to solicit comments on the
proposed rule. During the 90-day public
comment period, NMFS received nearly
1,000 written comments on the listing
proposals from Federal, state, and local
government agencies, Indian tribes, non-
governmental organizations, the
scientific community, and other
individuals. A number of comments
addressed specific technical issues

pertaining to a particular geographic region or *O. mykiss* population. These technical comments were considered by NMFS' steelhead BRT and were discussed in the agency's 1997 updated status review report (NMFS, 1997a). These and other comments were also addressed in the agency's 1998 listing determination (63 FR 13347, March 19, 1998).

During the recent 21-day public comment period following NMFS' proposal to list this ESU (66 FR 9808, February 12, 2001), the agency held public hearings in Gold Beach, OR and Eureka, CA, and received additional comments and data pertaining to KMP steelhead. A total of 47 individuals presented testimony at these public hearings; all but one person expressed opposition to the proposed listing. NMFS also received more than 170 documents containing comments and information from Federal, state, and local government agencies, Indian tribes, non-governmental organizations, and other individuals. A large majority of written comments (approximately 110) opposed the listing proposal, including co-manager comments from the California Department of Fish and Game (CDFG), Oregon Department of Fish and Wildlife (ODFW), and Hoopa Valley Tribe. Also, in accordance with a joint NMFS and USFWS policy regarding peer review under the ESA (59 FR 34270, July 1, 1994), NMFS solicited peer review of the KMP proposal from eight recognized experts in the field of steelhead biology. Only one peer reviewer responded to NMFS' request during the relatively short public comment period. As with the bulk of other comments received, this reviewer also was of the opinion that the KMP steelhead ESU does not warrant listing at this time. As noted previously, NMFS' steelhead BRT reviewed new information germane to drawing risk conclusions for the KMP steelhead ESU and have described their findings in an updated status review document (NMFS, 2001). A summary of major issues/comments received in response to the February 12, 2001, proposed rule and NMFS' responses follows.

Issue 1: Public Notification Process

Comment 1: Some commenters complained about the lack of notification and the failure to hold public hearings in interior areas of the Rogue and Klamath River basins. One commenter requested that NMFS extend the deadline for comments.

Response: NMFS made every attempt to communicate the KMP steelhead proposal to the affected communities.

The agency notified local media sources (newspaper, radio, and television) in these communities, and encouraged all parties to provide written comments on the proposed rule. As noted earlier, public hearings were held in Eureka, CA and Gold Beach, OR on February 22, 2001. Unfortunately, significant time constraints limited the number of hearings that could be accommodated, so NMFS chose sites where previous public hearings had been successful in engaging the affected public. In addition, NMFS recognized the high level of interest expressed by communities in interior areas of the KMP steelhead range, and held an additional public meeting in Yreka, CA, on February 28, 2001, to discuss issues regarding KMP steelhead. Finally, due to the deadline imposed by the Court, NMFS was unable to extend the period for public comments. Any and all parties are encouraged to contact NMFS if they have questions or need additional information regarding this final determination (see **FOR FURTHER INFORMATION CONTACT**).

Issue 2: The Court Decision

Comment 2: Some commenters wondered why NMFS did not appeal the Court's decision. Others took exception with the Court's dim view of conservation efforts that were "voluntary" and based on unreliable funding.

Response: Litigation decisions, such as whether to appeal, involve myriad legal, policy, and other considerations by several involved Federal agencies. In this case, the Federal Government decided that it would be more useful to conduct a thorough re-assessment of the ESU, especially in light of the fact that in 1998, NMFS committed to re-evaluate the ESA status of KMP steelhead by 2002 (63 FR 13347, March 19, 1998). With respect to the Court's views on voluntary conservation efforts, the judge held that "[a]lthough it was appropriate for NMFS to consider such measures, it was arbitrary and capricious for NMFS to rely, in effect, exclusively on voluntary actions." NMFS understands that there is a wide spectrum of conservation efforts with varying degrees of certainty in terms of effectiveness and implementation. To aid future assessments of conservation efforts, NMFS and USFWS recently published a proposed joint policy that identifies criteria that will be used to evaluate the certainty of implementation and effectiveness of formalized conservation efforts that have not yet been fully implemented or have been recently implemented and have not yet demonstrated effectiveness at the time

of a listing decision (65 FR 37102, June 13, 2000). Moreover, the agency will continue to encourage all forms of species conservation—voluntary and otherwise—that it believes will help prevent species from being listed under the ESA or aid in listed species' recovery.

Issue 3: Sufficiency and Accuracy of Scientific Information and Analyses

Comment 3: Some commenters questioned the sufficiency and accuracy of data NMFS employed in the listing proposal. Many, including the peer reviewer, requested that NMFS make every effort to review new data, especially from tribes, states, anglers/guides, and hatchery personnel. Some commenters suggested that risk assessments were made in an arbitrary manner and that NMFS did not rely on the best available science.

Response: As noted in the February 12, 2001, listing proposal, NMFS expected that more information was available than that which the agency had on file as of December 2000. Therefore, the agency considered it imperative to solicit and review updated information prior to making a final listing determination for KMP steelhead. Based on the considerable amount of new information received, it is apparent that this solicitation was both prudent and successful. NMFS acknowledges that there are still significant data gaps pertaining to this ESU, and that conclusions about the ESU's status are complicated by such uncertainties. However, the ESA does not require that a specific information threshold be met prior to making a listing determination. Instead, section 4(b)(1)(A) of the ESA requires that NMFS make its listing determinations solely on the basis of the best available scientific and commercial data after reviewing the status of the species and after taking into account conservation efforts. NMFS invested considerable time and effort in working with co-managers and the affected public to compile such information on KMP steelhead. This information came from a variety of sources (including those described here) and the agency appreciates the significant contributions made by all interested parties—in particular, the state and tribal co-managers—to assist in this effort. Information contained in the agency's previous status reviews (NMFS, 1996a; NMFS, 1997a; NMFS, 1998a; NMFS, 2000) and updated status review (NMFS, 2001), along with information on conservation efforts, represents the best scientific and commercial information presently available for the KMP steelhead ESU. The agency

believes that these reviews, coupled with considerable input from the public, co-managers, peer reviewers, and other species experts, demonstrate that its listing determinations are based on an open and rigorous scientific assessment.

Issue 4: Steelhead Biology and Ecology

Comment 4: Some commenters contend that hatchery-produced steelhead are no different from “wild” steelhead and hence should be considered in NMFS’ risk assessment.

Response: NMFS believes that section 2(b) of the ESA establishes a clear linkage between “wild” (i.e., naturally produced) fish and their native habitats when it states that “the purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved.” NMFS’ interim policy on artificial propagation of Pacific salmon (58 FR 17573, April 5, 1993) reinforces that “evaluations of the status of the population under the ESA depend on the viability of the population in the natural habitat.”

There is ample evidence indicating that hatchery- and naturally produced fish are in fact different, and that hatchery fish can have significant and long-lasting impacts on natural steelhead populations (see NMFS, 1996b). Indeed, one of the most difficult tasks in conducting a salmonid risk assessment is discerning the viability of natural populations when their actual status is being “masked” by hatchery fish. That said, NMFS recognizes that hatchery propagation can be used to prevent a species from becoming extinct in the near term while steps are taken to address factors contributing to the decline of natural populations. To better understand the relationship between hatchery- and naturally produced fish in the KMP steelhead ESU, the NMFS steelhead BRT completed an assessment of hatchery stocks (NMFS, 1998a) (see “KMP Steelhead ESU Determination” later in this document) and concluded that 7 steelhead hatchery stocks should be considered part of this ESU. However, using criteria described in NMFS’ artificial propagation policy (58 FR 17573, April 5, 1993), none of these stocks was deemed essential for the recovery of the ESU.

Comment 5: Several commenters questioned NMFS’ inclusion of both summer- and winter-run steelhead in the same ESU. These commenters suggested that summer- and winter-run steelhead be segregated into individual ESUs based on life history differences and the fact that winter-run fish are relatively healthier in this ESU.

Response: While NMFS considers both life history forms (summer- and winter-run steelhead) to be important components of diversity within the species, new genetic data reinforce previous conclusions that, within a geographic area, summer- and winter-run steelhead typically are more genetically similar to one another than either is to populations with similar run timing in different geographic areas. This indicates that an ESU that includes summer-run populations from different geographic areas but excludes winter-run populations (or vice-versa) would be an inappropriate unit. The only biologically meaningful way to have summer- and winter-run steelhead populations in separate ESUs would be to have a very large number of ESUs, most consisting of just one or a very few populations. This would be inconsistent with the approach NMFS has taken in defining ESUs for other anadromous Pacific salmonids. Taking these factors into consideration, NMFS concludes that summer- and winter-run steelhead should be considered part of the same ESU in geographic areas where they co-occur.

For similar reasons, NMFS does not believe it is appropriate to split ESUs based on the varying degrees of health of constituent populations.

Comment 6: Some commenters believe that resident rainbow trout should be included in the KMP steelhead ESU if it is listed.

Response: In its August 9, 1996, listing proposal, NMFS stated that based on available genetic information, it was the consensus of NMFS scientists, as well as regional fishery biologists, that resident fish should generally be considered part of the steelhead ESUs, but also concluded that available data were inconclusive regarding the relationship of resident rainbow trout and steelhead. NMFS requested additional data to clarify this relationship and determine if resident rainbow trout should be included in listed steelhead ESUs. In response to this request for additional information, many groups and individuals expressed opinions regarding this issue.

While conclusive evidence does not yet exist regarding the relationship of resident and anadromous *O. mykiss*, NMFS believes available evidence suggests that resident rainbow trout should be included in listed steelhead ESUs in certain cases. Such cases include: (1) where resident *O. mykiss* have the opportunity to interbreed with anadromous fish below natural or man-made barriers; or (2) where resident fish of native lineage once had the ability to interbreed with anadromous fish but no

longer do because they are currently above human-made barriers, and they are considered essential for recovery of the ESU. Resident fish above long-standing natural barriers, and those that are derived from the introduction of non-native rainbow trout, would not be considered part of any ESU.

NMFS believes resident fish can help buffer extinction risks to an anadromous population by mitigating depensatory effects in spawning populations, by providing offspring that migrate to the ocean and enter the breeding population of steelhead, and by providing a “reserve” gene pool in fresh water that may persist through times of unfavorable conditions for anadromous fish. In spite of these potential benefits, presence of resident populations is not a substitute for conservation of anadromous populations. A particular concern is isolation of resident populations by human-caused barriers to migration. This interrupts normal population dynamics and population genetic processes and can lead to loss of a genetically based trait (anadromy). As discussed in NMFS’ “species identification” paper (Waples, 1991), the potential loss of anadromy in distinct population segments may in and of itself warrant listing the “species” as a whole.

NMFS and USFWS adopted a joint policy to clarify their interpretation of the phrase “distinct population segment (DPS) of any species of vertebrate fish or wildlife” for the purposes of listing, delisting, and reclassifying species under the ESA (61 FR 4722). DPSs are “species” pursuant to section 3(15) of the ESA. Previously, NMFS had developed a policy for stocks of Pacific salmon where an ESU of a biological species is considered “distinct” (and hence a species) if (1) it is substantially reproductively isolated from other conspecific population units, and (2) it represents an important component in the evolutionary legacy of the species (56 FR 58612, November 20, 1991). NMFS believes available data suggest that resident rainbow trout are in many cases part of steelhead ESUs. However, the FWS, which has ESA authority for resident fish, holds that behavioral forms can be regarded as separate DPSs and that absent evidence suggesting resident rainbow trout need ESA protection, the FWS concludes that only the anadromous forms of each ESU should be listed under the ESA (U.S. Department of Interior, 1997; USFWS, 1997).

Issue 5: Factors Contributing to the Decline of the KMP Steelhead ESU

Comment 7: Some commenters identified factors for decline that were either not identified in the NMFS status reviews or which they believed were not given sufficient consideration in the risk analysis. Other commenters contend that recent declines in KMP steelhead abundance are related to natural factors such as marine mammal predation and changes in ocean productivity.

Response: The status review did not attempt to exhaustively identify factors for decline, except insofar as they contributed directly to the risk analysis. Nevertheless, NMFS agrees that a multitude of factors, past and present, have contributed to the decline of west coast steelhead. Many of the identified risk factors were specifically cited in NMFS' original west coast steelhead status review (NMFS, 1996a) and subsequent listing notices (61 FR 41541; 63 FR 13347; 65 FR 6960). In addition, NMFS has prepared a report that summarizes the factors leading to the decline of steelhead on the west coast entitled: "Factors for Decline: A supplement to the notice of determination for west coast steelhead" (NMFS, 1996b). This report concludes that all of the factors identified in section 4(a)(1) of the ESA have played a role in the decline of the species. The report identifies destruction and modification of habitat, overutilization for recreational purposes, and natural and human-made factors as being the primary causes for the decline of steelhead on the west coast.

NMFS recognizes that natural environmental fluctuations have likely played a role in the species' recent declines as well. However, NMFS believes other human-induced impacts (e.g., harvest in certain fisheries, artificial propagation, and widespread habitat modification) have played a greater role in the decline of steelhead. NMFS' 1996 status review briefly addressed the impact of adverse marine conditions and climate change, but concluded that there is considerable uncertainty regarding the role of these factors in steelhead abundance. At this time, we do not know whether these climate conditions represent a long-term shift in conditions that will continue into the future or short-term environmental fluctuations that can be expected to reverse soon (NMFS, 1996b). A recent review by Hare *et al.* (1999) suggests that these conditions could be part of an alternating 20- to 30-year regime pattern. These authors concluded—and NMFS concurs—that although at-risk salmonid stocks may

benefit from a reversal in the current climate/ocean regime, fisheries management should continue to focus on reducing impacts from harvest and artificial propagation and improving freshwater and estuarine habitats.

With respect to predation impacts on steelhead, NMFS has recently published reports describing the impacts of California sea lions and Pacific harbor seals upon salmonids and on the coastal ecosystems of Washington, Oregon, and California (NMFS, 1997b; NMFS, 1999a). These reports conclude that in certain cases where pinniped populations co-occur with depressed salmonid populations, salmonid populations may experience severe impacts due to predation. An example of such a situation is at the Ballard Locks, WA, where sea lions are known to consume significant numbers of adult winter steelhead. These reports further conclude that data regarding pinniped predation are quite limited and that substantial additional research is needed to fully address this issue. Existing information on the seriously depressed status of many salmonid stocks may be sufficient to warrant actions to remove pinnipeds in areas of co-occurrence where pinnipeds prey on depressed salmonid populations (NMFS, 1997b; NMFS, 1999a).

Issue 6: Consideration of Existing Conservation Measures

Comment 8: Numerous commenters noted that an array of state and Federal conservation measures were underway for this and other species and asked that NMFS give them more consideration in its listing determination. Several summarized ongoing conservation efforts that have resulted in millions of dollars being spent to benefit fish. In contrast, some reviewers contended that the state efforts were inadequate to conserve steelhead and that Federal protection under the ESA was the best way to protect the species from threats due to habitat degradation.

Response: NMFS has reviewed existing conservation efforts relevant to the KMP steelhead ESU (see "Efforts Being Made to Protect West Coast Steelhead" later in this document) and believes that many of the efforts described in comments show promise for ameliorating the risks facing the species. The agency acknowledges that in some cases, measures described in comments have not been implemented or are in their early stages of implementation and have not yet demonstrated success. Some of these measures are also geographically limited to individual river basins or political subdivisions, thereby improving

conditions for only a small portion of the entire ESU. Still, NMFS recognizes and applauds the considerable interest and efforts shown by individual landowners, conservation groups, and Federal and state agencies, tribes, and local entities to improve watershed health and restore fishery resources.

NMFS has recently initiated recovery planning for the threatened southern Oregon/northern California Coasts (SONCC) coho salmon (*O. kisutch*) ESU, a species with substantial habitat overlap with KMP steelhead. NMFS intends to capitalize on the significant efforts being made by all entities, from large-scale transboundary actions adopted via the Northwest Forest Plan and Klamath and Trinity Rivers Restoration Acts to more localized efforts like those implemented by the Five Counties Salmon Conservation Program and Scott River Watershed Council. These efforts, coupled with ESA protective regulations for listed coho salmon, will likely improve conditions for KMP steelhead as well.

Comment 9: Several commenters expressed their belief that current California Forest Practice Rules (FPRs) were adequate to protect northern California steelhead. Several comments expressed concern that NMFS did not adequately review and consider the interim FPR changes adopted by the California Board of Forestry (BOF) for anadromous salmonids in March 2000.

Response: NMFS disagrees with the assertion that the state's FPRs, as currently implemented, are adequate to protect anadromous salmonids in California. NMFS has reviewed the state FPRs, including those interim changes recently adopted by the BOF and concludes that they do not adequately protect anadromous salmonids, including steelhead, or provide for properly functioning habitat conditions. In fact, the deleterious impacts of timber harvest and other activities have resulted in recent listings by the Environmental Protection Agency of many north coast California streams as sediment and/or temperature impaired under section 303(d) of the Clean Water Act. Furthermore, the failure of the state to amend the FPRs was a primary reason that NMFS recently reconsidered its March 19, 1998, (63 FR 13347) decision for the Northern California steelhead ESU and has now listed that ESU as a threatened species under the ESA (65 FR 36074, June 7, 2000).

Issue 7: Economic Considerations

Comment 10: Numerous commenters believed that NMFS failed to address the economic impacts that would result from listing the KMP steelhead ESU.

One commenter contended that some counties could incur annual economic impacts amounting to several million dollars due to reductions in revenues associated with tourism and angling.

Response: NMFS recognizes that an ESA listing would likely result in economic costs to some entities. The ESA has been interpreted to prohibit the consideration of economic impacts in the listing process, but requires analysis of economic impacts when designating critical habitat. NMFS did not propose to designate critical habitat for KMP steelhead and therefore did not draw conclusions about economic impacts.

Issue 8: Supplemental ESA Requirements Regarding Take Prohibitions, Critical Habitat Designation, and Recovery Planning

Comment 11: Several commenters requested NMFS' guidance on ESA 4(d) regulations in case the KMP steelhead ESU is listed as a threatened species. Others requested that the agency designate critical habitat as soon as possible. Comments from a tribal entity requested that NMFS exclude tribal lands from critical habitat. This commenter also requested that NMFS define specific recovery goals for steelhead to expedite recovery planning.

Response: As noted in the listing proposal, NMFS had planned to develop and propose take prohibitions (i.e., an ESA 4(d) rule) and critical habitat designations after the event of a final listing for KMP steelhead. However, these issues are now moot given that the agency has determined that listing is not warranted for this ESU (see Listing Determination).

KMP Steelhead ESU Determination

The KMP steelhead ESU has been described in NMFS' status review documents and **Federal Register** notices cited here; no new scientific information has been received to indicate that the ESU should be redefined. This ESU includes both winter and summer steelhead inhabiting coastal river basins between the Elk River in Oregon and the Klamath River in California, inclusive. Half-pounder juveniles (described previously under "Life History of KMP Steelhead") also occur in this geographic area. Geologically, this region includes the Klamath Mountains Geological Province, which is not as erosive as the Franciscan formation terrains south of the Klamath River Basin. Dominant vegetation along the coast is redwood forest, while some interior basins are much drier than surrounding areas. The region is characterized by many endemic plant species. Elevated stream

temperatures are a factor affecting steelhead and other species in some of the larger river basins. With the exception of major river basins, such as the Rogue and Klamath, most rivers in this region have a short duration of peak flows. Strong and consistent coastal upwelling begins at about Cape Blanco and continues south into the central California coast, resulting in a relatively productive nearshore marine environment. Protein electrophoretic analyses of coastal steelhead have indicated genetic discontinuities between the steelhead of this region and those to the north and south (Hatch, 1990; NMFS, 1993; NMFS, 1994; NMFS, 1996a). Chromosomal studies have also identified a distinctive karyotype that has been reported only from populations within this ESU.

The relationship between hatchery steelhead populations and naturally spawned steelhead within this ESU was also assessed in a NMFS status review update (NMFS, 1998a). Based on this assessment, NMFS' steelhead BRT concluded that 7 steelhead hatchery stocks are part of this ESU because they were established from indigenous natural populations. In Oregon these stocks are: Applegate River - ODFW stock # 62 (winter run), Upper Rogue River - ODFW stock # 52 (winter run), Upper Rogue River - ODFW stock # 52 (summer run), and Chetco River - ODFW stock # 96 (winter run). In California, the stocks are: Iron Gate Hatchery stock (winter run), Trinity River Hatchery stock (fall/winter run), and Rowdy Creek Hatchery stock (winter-run).

Updated Status of KMP Steelhead

As described previously in this document, NMFS last addressed the KMP steelhead ESU in 1998 (63 FR 13347, March 19, 1998), with the steelhead BRT concluding its assessments in January 1998 (NMFS, 1997a; NMFS, 1998a). Hence, the agency's decision to place this ESU on the candidate species list was based on information made available through 1997. For the current review, NMFS considered information that has become available since then, with particular emphasis on how that information addressed the specific concerns that the BRT initially expressed in 1994. Information from a wide variety of sources was submitted to NMFS during the public comment period, at public hearings, and during meetings with comanagers. Information directly integral to the BRT's latest assessment are described in detail in the updated status review for KMP steelhead (NMFS, 2001) and included: dam, weir, and trap

counts; angler reports/catch data; seine, gillnet, and electrofishing surveys; snorkel and redd counts; hatchery release/return data; and population modeling analyses.

In its previous status reviews for West Coast salmon and steelhead, NMFS has identified a number of factors that should be considered in evaluating the level of risk faced by an ESU, including: (1) absolute numbers of fish and their spatial and temporal distribution; (2) current abundance in relation to historical abundance and current carrying capacity of the habitat; (3) trends in abundance; (4) natural and human-influenced factors that cause variability in survival and abundance; (5) possible threats to genetic integrity (e.g., from strays or outplants from hatchery programs); and (6) recent events (e.g., a drought or changes in harvest management) that have predictable short-term consequences for abundance of the ESU. Specific concerns raised by the BRT in its 1994 review include:

1. Although historical trends in overall abundance within the ESU are not clearly understood, there has been a substantial replacement of natural fish with hatchery produced fish.

2. Since about 1970, trends in abundance have been downward in most steelhead populations within the ESU, and a number of populations are considered by various agencies and groups to be at moderate to high risk of extinction.

3. Declines in summer steelhead populations are of particular concern.

4. Most populations of steelhead within the area experience a substantial infusion of naturally-spawning hatchery fish each year. After accounting for the contribution of these hatchery fish, we are unable to identify any steelhead populations that are naturally self-sustaining.

5. Total abundance of adult steelhead remains fairly large (above 10,000 individuals) in several river basins within the region, but several basins have natural runs below 1,000 adults per year.

Recently the BRT considered new information regarding KMP steelhead in the context of previously existing information and assessed these collective data with respect to the general risk factors identified above. A summary of their assessment and conclusions follows.

Naturally Spawning Hatchery Fish

The original status review for KMP (NMFS, 1994) identified the high estimated proportion of naturally spawning hatchery fish as a major risk

factor. Subsequently, ODFW (Chilcote, 1997) indicated that some of the earlier estimates they had provided, and which were used in the 1994 status review, were largely based on samples provided by anglers and thus were upwardly biased by counts of non-spawning half-pounder steelhead. More recently, ODFW (2001) has collected new empirical data indicating that the percentage of naturally spawning hatchery fish is very low (less than 4 percent) in the upper Rogue Basin. The hatchery proportion remains relatively high in two areas of the Oregon portion of the ESU that still have hatchery programs: the Applegate River (about 25 percent of natural spawners are hatchery origin) and the Chetco River (about 50 percent of the fish in the lower river are of hatchery origin). The incidence of natural spawning by hatchery fish in the Chetco River as a whole is not known but is likely much lower; most of the spawning areas are above the sampling area, which is also near the area where juvenile hatchery fish are released and hatchery broodstock is collected. In 2000–01, ODFW also sampled adult steelhead returning to streams outside the Rogue River basin in the Oregon part of this ESU and found that 7 percent were hatchery fish. This compares with an estimate of 15 percent in the 1997 ODFW report and 25–80 percent for most populations considered by NMFS (1994) for which ODFW provided information.

In California, the largest proportions of naturally spawning hatchery fish are believed to occur in the Trinity River, where estimates from the 1990s range from 20–70 percent hatchery. These estimates apply to fall-run fish. Because the hatchery program in the Trinity River basin propagates mostly fall-run fish, natural spawners in this basin that return at other run times are believed to be predominantly of natural origin. In the Klamath River basin, the Iron Gate Hatchery stock has been such a poor producer of adult returns (Koch, 2001) that the proportion of naturally spawning hatchery fish in the basin is believed to be low. Recent CDFG angler-catch data for the Klamath River supports this conclusion, which is also corroborated by information from several commenters and a peer reviewer (some of whom provided data from their harvest punchcards). In the Smith River, an estimated 27–37 percent of adults in the lower portion of the river have been hatchery fish in recent years; however, as discussed earlier, this probably overestimates (but by an unknown

amount) the proportion of hatchery fish in natural spawning areas.

Based on this information, the BRT concluded that significant impacts of naturally spawning hatchery fish appear to be localized to a few areas of the ESU: The Applegate River, the Trinity River fall run, and perhaps the Smith River and the Chetco River.

Declining Trends

Most populations in the Oregon part of this ESU for which adequate data were available during the initial status review showed sharply declining trends (NMFS, 1994). Trends were mixed in the data sets for California populations. For both states, the trends in the initial status review were based on data series that ended in 1989 to 1991. Comparisons of recent trends with these older data are difficult because most of the Oregon data series were based on angler counts, and these data stopped after implementation of catch and release regulations in 1991. Outside of the Rogue River in Oregon, no recent information is available to estimate trends in adult abundance.

In California, adult trend data are available for a number of relatively small summer steelhead populations. Most of these showed a precipitous decline to very low abundance around 1990 and relatively little change since that time. In 2000, however, many of these populations showed a modest increase in abundance.

Interpretation of these trend data is difficult because they are sensitive to the initial year in the data series. For most steelhead populations coastwide, peak abundances over the last 30–40 years occurred during the 1980s. Therefore, population trends that started during this period almost universally show declines. However, it is difficult to determine whether these declines are part of a natural cycle of abundance or something more serious. Trends that cover longer time series (e.g., the counts at Gold Ray Dam on the Rogue River) are often positive or flat. Most of the trends for summer steelhead are based on snorkel surveys, that do not represent population abundance and are difficult to standardize across years.

Some insight into effects of the last few years of data on population trends can be gained by comparing current short-term trends (based on the most recent 7–10 years of data) with short-term trends computed based on data available at the time of the last status review update. In Oregon streams, the current short term trends are more positive (or at least less negative) than they were in 1997 for all of the streams for which a comparison is possible; in

California streams, seven of the current trends for natural populations are better than they were in 1997, two are essentially unchanged, and two are less favorable than they were in 1997. Collectively, these data indicate that in most areas within the ESU, recent trends are somewhat more favorable now than they were at the time of the last status assessment. In spite of these relative improvements, however, in some cases the populations are still declining.

Population Abundance and Distribution

Reliable estimates of population abundance are available for only a fraction of the populations in this ESU. Throughout the ESU, monitoring of adult winter steelhead which local biologists agree is the dominant and most abundant life history form is very poor due to logistical difficulties in sampling adults during the winter season. The most reliable data are probably counts at Gold Ray Dam that separate fish of hatchery and natural origin. These data show recent (5 year) geometric mean abundance of about 6800 natural origin winter steelhead and about 3000 natural origin summer steelhead. In the Trinity River, counts at Willow Creek weir provide an estimate of about 2000 natural origin fall-run spawners per year.

To help address the considerable information gap for the majority of steelhead populations in this ESU, in 1999 and 2000 ODFW conducted juvenile density surveys in streams in Oregon. Based on results summarized above, they concluded that steelhead populations in other Oregon streams in the ESU were at least as robust as those in the Rogue basin. ODFW also found juvenile *O. mykiss* resnet in almost all the sites they examined in the Rogue River basin and in all of the sites examined in other Oregon streams. This suggests that adult steelhead are well distributed throughout suitable habitat in the Oregon portion of the ESU. However, as this study did not separate out data for the higher elevation habitats most likely to support summer steelhead, the mean density values could be masking lower densities of summer steelhead.

ODFW also used four methods to estimate total adult abundance of steelhead in the Oregon portion of the ESU. All involved extrapolation based on the total number of miles of steelhead habitat, and two also involved expanding from juveniles to adults based on estimated survival rates. All methods yielded annual estimates in the range 69,000 to 83,000 adults.

No comparable methods have been used to estimate total abundance for California populations. However, CDFG and tribal biologists did point out that existing data provide information about only a fraction of the natural steelhead populations in the California portion of this ESU. For example, the Willow Creek weir samples steelhead only over a period of about 3 months during the fall run and thus provides no information about other runs in the basin. Based on professional judgement and the consensus that the largely unsampled winter-run populations are the most abundant, California biologists estimated natural escapement in the California part of this ESU to be approximately 30,000–50,000 adults per year. Combined with the ODFW estimates, these suggest the total abundance of naturally spawning steelhead in the ESU may be approximately 100,000–130,000.

Finally, ODFW biologists observed that the KMP steelhead ESU range is a geologically unique area; in fact, geological and ecological distinctiveness was one of the factors that helped identify this area as an ESU (NMFS, 1994). This area is characterized by high relief and highly erosive habitat that is more well-suited to steelhead than the generally lower-relief streams in coastal areas to the north and the south of the KMP. The widespread availability of good steelhead habitat throughout the KMP made the ODFW biologists more comfortable in extrapolating steelhead data into unsampled areas.

The BRT regarded the overall abundance estimates as only very crude approximations. Two of the ODFW methods are based on survival estimates that may be optimistic, and all depend on the assumption that unsampled areas are comparable to the small fraction of the areas actually sampled. The abundance estimates for the California side are even less rigorous. However, even if the estimates are high by a factor of two, they still would represent a significant number of natural fish—quite possibly more than in any other steelhead ESU considered in NMFS' coastwide status reviews of the species.

The BRT agreed that the juvenile abundance data suggest that adult steelhead are well distributed throughout at least the Oregon part of the ESU. However, the BRT noted the large variance associated with these estimates and also noted that other studies (e.g., Shea and Mangel, 2001) have shown that juvenile abundance data provides at best low power to estimate adult abundance of salmon and steelhead.

Summer Steelhead

In previous status reviews, the BRT expressed serious concern about the status of summer steelhead in the KMP steelhead ESU. Those concerns have not diminished. Summer steelhead populations remain severely depressed throughout the ESU, in spite of a modest upward turn in 2000 in many streams. The uniformity in the status of summer steelhead throughout large geographic areas of this ESU suggest that they may all be experiencing a common risk factor(s)—perhaps poor environmental conditions in freshwater habitat or in the ocean.

As discussed earlier, little direct information is available regarding historical distribution of summer steelhead in this ESU. However, it is believed that, historically, summer steelhead occurred primarily in the upper parts of the major basins—the Rogue, Klamath, and Trinity Rivers. Considerable summer-run habitat has already been lost above and because of impassible dams in these three systems. Recent data indicate that summer steelhead still exist in about five areas within each of these major basins, which may be the most widespread representation of the summer-run life history type for any ESU of the coastal subspecies of steelhead. Whether summer steelhead have disappeared from other areas that they used historically cannot be determined based on available data, but the 1997 Klamath National Forest Survey cited above provides some reason for concern that this may be the case.

Viability Analyses

Chilcote (2001) revised a method he used previously (Chilcote, 1997) to estimate viability of Oregon steelhead populations, including four populations in the Rogue River basin for which adequate data were available. On the basis of this analysis, Chilcote concluded that the summer- and winter-run populations in the upper Rogue River and the winter run population in the Applegate River all have a negligible probability of extinction, but the mid-Rogue River summer-run population is at appreciable risk. The BRT was concerned about several aspects of this viability model (in particular the form of the recruitment function, the use of an 18-year cycle of ocean survivals, the choice of viability criteria, and assumptions about hatchery fish) that they believe can lead to overly optimistic conclusions regarding viability. Nevertheless, the BRT did not disagree with the conclusions regarding viability of the upper Rogue River

winter-run population, which appears to be healthy based on overall abundance and trend. The Upper Rogue summer-run population also is relatively large, but the ODFW model does not account for the sharp downward trend in recent years which, if it persists into the future, could eventually place the population at risk. The BRT was skeptical of the conclusion of no extinction risk for the Applegate River population because it depends upon specific assumptions about the response of the natural fish to naturally spawning hatchery fish. Other assumptions could lead to the conclusion that the population is falling far short of replacing itself.

After considering the best available information since the last steelhead status review (NMFS, 1997a; NMFS, 1998a), the BRT evaluated the overall status of the KMP steelhead ESU. The majority of BRT scientists believed that the ESU was not in danger of extinction nor likely to become so in the foreseeable future, while a substantial minority believed that it was likely to become endangered. The range of views among BRT scientists reflected the substantial degree of uncertainty that continues to be associated with evaluating the status of this ESU. This result differs from that of previous evaluations of this ESU, in which a majority of BRT scientists concluded that the ESU was likely to become endangered in the foreseeable future. However, the BRT's conclusions parallel the reductions in the risks associated with various factors for the species' decline (see "Summary of Factors Affecting the Species" later in this document).

In spite of relatively favorable indicators for this ESU, the BRT remained concerned about several issues. First, the status of summer steelhead throughout this ESU continues to be a serious concern to the BRT as well as to local biologists. Second, the pervasive lack of information for winter-run populations, which by all accounts represent the majority of fish in this ESU, continues to hinder a more quantitative and reliable assessment of the status of KMP steelhead. More effort is needed to collect biological data on winter steelhead throughout this ESU. Third, the contribution of hatchery fish to natural spawning escapements continues to be high in some areas, and this poses continuing demographic, ecological, and genetic risks to wild populations. Ongoing monitoring of these effects, as well as longer time series of data to demonstrate conclusively whether previous

estimates of hatchery contribution were biased upwards, should be an important component of steelhead conservation programs in this area.

Summary of Factors Affecting the Species

Section 4(a)(1) of the ESA and NMFS' implementing regulations (50 CFR part 424) set forth procedures for listing species. The Secretary of Commerce (Secretary) must determine, through the regulatory process, if a species is endangered or threatened based upon 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 human-made factors affecting its continued existence. NMFS has prepared a report that summarizes the numerous factors leading to the decline of steelhead on the West Coast (NMFS, 1996b). This report, available upon request (see **ADDRESSES** section), concludes that all of the factors identified in section 4(a)(1) of the ESA have played a role in the decline of West Coast steelhead. The report further identifies several factors that were considered to have contributed to the decline of the KMP steelhead ESU, including: hatchery introgression, logging, water diversion/extraction, habitat blockages, poaching, agriculture, hydropower development, historic flooding, and mining. Hence, the present depressed condition of this ESU can be attributed to longstanding, human-induced factors that serve to exacerbate the adverse effects of natural environmental variability from such factors as drought, floods, and poor ocean conditions.

In reassessing the status of the KMP steelhead ESU, the BRT evaluated specific areas of risks associated with many of the factors identified above. This evaluation involved ranking risk factors on a scale from 1–5 (very low risk to high risk). More detailed descriptions of this process are contained in the updated status review for KMP steelhead (NMFS, 2001), while the following sections summarize the conclusions.

Abundance and Distribution

This element covers demographic and genetic risks caused by small population size and risks to the ESU as a whole caused by reductions in distribution of populations. The mean score for this element was 3.0 (range 2–4), indicating

moderate risk. Most of the concerns regarding this element were for summer steelhead populations, most of which are at very low abundance. The BRT remained concerned about possible loss of this key life history type in portions of the ESU.

Trends and Productivity

The mean score for this element was 2.9 (range 2–4), indicating moderate risk. The scores reflect the mixed nature of the trend data; many are declining, but others are not. The general lack of reliable trend data for most winter-run populations remained a concern and a major source of uncertainty.

Genetic Integrity

Genetic integrity primarily covers genetic risks to natural populations from hatchery programs, including loss of fitness and loss of diversity among populations. The mean score for this element was 2.3 (range 2–3), indicating low to moderate risk. The concerns focused primarily on areas with a relatively high proportion of naturally spawning hatchery fish (Trinity, Applegate, and perhaps Smith and Chetco Rivers).

Other Risk Factors

The only additional risk factor identified was the very low survival of Iron Gate Hatchery fish. Although in itself this is not a risk factor for wild fish, it may be an indication of serious environmental problems in the river that could also affect wild fish. The BRT expressed concern about this issue but recognized that at this point it is only speculative.

Recent Events

The BRT considered factors that have recently occurred and which may have predictable consequences for steelhead populations, but whose effects for the most part have not yet been reflected in the data. These include:

(1) There are some indications that atmospheric and oceanographic conditions have recently shifted toward a regime more favorable for ocean survival of salmonids in the Pacific Northwest. The majority of the BRT felt that this might benefit steelhead in the KMP ESU in the near future. However, the BRT acknowledged that there is no way to predict with any certainty how long favorable ocean conditions might last, and that no one has demonstrated a direct link between ocean conditions and marine survival of KMP steelhead.

(2) A majority of the BRT felt that habitat improvements (e.g., stream restoration activities, riparian corridor restoration, improvements to culverts,

road removal) that have occurred through various state and Federal programs should improve conditions for steelhead, but there is no basis at this point for quantifying the possible beneficial effects of these activities.

(3) No-retention provisions for wild steelhead have recently been implemented in both Oregon and California portions of the ESU. The first 2–3 years of data for Klamath and Smith River basin steelhead suggest that this has already been effective in allowing several hundred more natural fish per year to spawn. The BRT concluded that this management change would benefit wild steelhead populations in the near term.

(4) Drought and recent power shortages. The BRT was concerned that these factors might lead to low water flows in some streams, but insufficient information was available to provide any quantitative evaluation of this factor.

Scores for each of three major risk elements (i.e., abundance, trends, and genetics) were lower than in the last BRT evaluation of this ESU. In 1997, the mean (and range) scores were 3.4 (2–5), 3.4 (3–4), and 3.0 (2–4) for abundance, trends, and genetic integrity, respectively (NMFS, 1997a). The current risk scores can also be compared with scores for 11 other steelhead ESUs that were considered for final listing determinations by the BRT in 1997. Of those 11 ESUs, 10 were subsequently listed as threatened or endangered species. For those 10 listed ESUs, the range of the mean risk scores were as follows: abundance (3.4–5.0); trends (3.4–4.4); genetic integrity (2.8–4.3). The current mean risk scores for the KMP ESU, therefore, are lower than those for any listed ESU for each of the three risk elements. The only ESU included in the 1997 evaluations that was not listed was the Oregon Coast ESU, for which the respective risk scores were 2.9, 2.9, and 3.1. The current risk scores for the KMP ESU are comparable to those of the Oregon Coast ESU for abundance and trends and lower than the Oregon Coast ESU for genetic integrity.

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 conducting a review of the status of the species and after taking into account efforts being made by any state or foreign nation to protect the species. Therefore, in making its listing determinations, NMFS first assesses the status of the species and identifies

factors that have lead to the decline of the species. NMFS then assesses conservation measures to determine if they ameliorate risks to the species. In judging the efficacy of existing conservation efforts, NMFS has considered the following: (1) The substantive, protective, and conservation elements of such efforts; (2) the degree of certainty such efforts will be reliably implemented; and (3) the presence of monitoring provisions that determine effectiveness and that permit adaptive management. In some cases, conservation efforts may be relatively new and may not have had time to demonstrate their biological benefit. In such cases, provisions for adequate monitoring and funding of conservation efforts are essential to ensure intended conservation benefits are realized.

As part of its West Coast steelhead status reviews, NMFS reviewed an array of protective efforts for steelhead and other salmonids, ranging in scope from regional strategies to local watershed initiatives. NMFS has summarized some of the major efforts in a supplement to the earlier status reviews (NMFS, 1996c). NMFS also reviewed steelhead conservation measures being implemented by the States of California and Oregon at the time of its March 19, 1998, listing determination for the KMP steelhead ESU (63 FR 13347). The following sections summarize new information reviewed since the status of this ESU was last addressed in March 1998.

State and Local Efforts

Recent efforts in California and Oregon include habitat improvements, harvest restrictions and hatchery improvements, and monitoring under the following categories/programs: (1) California's Watershed and Anadromous Fish Habitat Restoration Program; (2) California's harvest and hatchery management; (3) California's steelhead monitoring; (4) Oregon harvest and hatchery management; and (5) Oregon steelhead monitoring. In addition, NMFS received several comments describing local conservation efforts, in particular for the California portion of the KMP steelhead ESU. The status of these efforts is discussed in more detail here.

1. California Watershed and Anadromous Fish Habitat Restoration - In 1997, California's funding for watershed and habitat restoration in coastal watersheds, including those in the KMP steelhead ESU, increased substantially with the enactment of new legislation (SB 271) which provided CDFG with \$43 million over 6 years for

these types of projects. State funding available for coastal watershed and habitat restoration projects was greatly supplemented in 2000 and will be again in 2001 by Federal Pacific Coastal Salmon Recovery funds. Since 1997, the state has spent approximately \$8 million on over 140 watershed an fish habitat restoration projects within the geographic area encompassed by the KMP steelhead ESU. In 2000-01, the state funded approximately 35 projects in this ESU at a total of over \$4.5 million and expects to continue restoration funding at this level for the next several years. Restoration projects that have been implemented include instream habitat improvements, improved fish passage through barrier modification and construction of fish screens and ways, streambank stabilization, riparian habitat restoration and upslope activities geared at minimizing erosion and sedimentation in streams. In addition to the expanded habitat restoration program funded by SB 271 and other sources, CDFG has added additional staff positions to assist in administering the program, provide technical support in the development of watershed plans and habitat restoration projects and implement a new steelhead monitoring and adaptive management program throughout coastal northern California. In accordance with the 1998 NMFS/California MOA for Northcoast steelhead and the 2000 MOA with the state concerning the transfer and administration of Federal Pacific Coast Salmon Recovery funds, NMFS participates in the review of watershed and habitat restoration proposals under the state program.

2. California Harvest and Hatchery Management - In February 1998, CDFG completed a strategic management plan for the KMP steelhead ESU which included new and existing management measures addressing the recreational harvest of steelhead and the management of steelhead hatchery programs. In March 1998, the State and NMFS formally committed to implement this plan as part of the NMFS/California MOA. As called for in the plan, the California Fish and Game Commission (Commission) adopted emergency changes to the state's inland fishing regulations in February and March 1998 to protect steelhead in this ESU. These changes included: (1) elimination of wild steelhead retention in all stream and rivers within the ESU except for the Smith River where limited retention was allowed based on the health of the population, (2) fishing closures in steelhead rearing tributaries throughout the ESU to protect juvenile

fish, (3) expanded mainstem river closures through the end of May to protect juvenile outmigrating steelhead, and (4) various gear/bait restrictions to decrease mortality associated with incidental hooking of steelhead juveniles. Prior to NMFS' 1998 final listing determination for the KMP steelhead ESU, NMFS reviewed these regulation changes and concluded they would substantially reduce impacts to adult and juvenile steelhead (NMFS 1998). The emergency regulations were formally enacted by the Commission in June 1998 following public review and comment and they continue to be in place. NMFS believes these more restrictive angling regulations continue to provide the reduction in impacts and other benefits that were expected at the time they were enacted in 1998.

In accordance with the KMP steelhead strategic management plan and the 1998 NMFS/California MOA, the CDFG also committed to continue and/or implement new hatchery management measures intended to reduce impacts to wild steelhead in this ESU. These measures included: (1) the continuation of release strategies intended to minimize impacts on wild steelhead, (2) continued marking of all hatchery produced steelhead that were released, (3) the continued prohibition on stocking of domestic trout in steelhead waters, (4) a commitment to reduce hatchery releases or implement other changes in hatchery practices if significant straying of hatchery fish was found to occur, (5) a cap on hatchery production at current levels, regular health checks during the rearing cycle and the destruction of diseased fish that cannot be treated, and (6) a review of the existing operating procedures for all coop rearing facilities and adoption of a requirement that coop facilities develop and submit 5-year management plans to the state for approval. As with the harvest management changes enacted by the State, NMFS reviewed these management measures and concluded they would benefit wild steelhead in the KMP steelhead ESU. In addition to these measures, NMFS and CDFG have also been conducting a state-wide review of CDFG's hatchery programs including those in the KMP steelhead ESU (Iron Gate hatchery and Trinity River hatchery) with the objective of ensuring these programs are compatible with the conservation of listed and candidate anadromous salmonids, including steelhead. This review is expected to be completed in 2001.

3. California Steelhead Monitoring - In accordance with the 1998 NMFS/California MOA, the CDFG committed to develop and implement an expanded

monitoring, evaluation, and adaptive management program for steelhead with the range of the KMP and Northern California steelhead ESUs. In response to this commitment, CDFG funded and established the Steelhead Research and Monitoring Program (S-RAMP) in early 1999 and developed a research program which was implemented in late 1999/2000. Within the KMP steelhead ESU, this program conducts projects on the Smith, Klamath and Trinity Rivers, including various creel censuses, spawner surveys, juvenile trapping studies, and other research oriented projects. Future studies are planned to address steelhead residualism in the Klamath and Trinity Rivers and summer steelhead abundance in both ESUs. NMFS intends to continue working with CDFG through the joint scientific and technical team which provides advice to the S-RAMP to refine its study objectives and funding priorities so that it will provide useful information of the status of wild steelhead stocks in the KMP steelhead ESU.

4. Oregon Harvest and Hatchery Management - Prior to NMFS' 1998 listing determination for the KMP steelhead ESU, significant changes were made to hatchery programs and recreational fishing regulations affecting steelhead in the Oregon portion of this ESU. The major changes related to fishing included reduction or elimination of the harvest of wild adult steelhead, reduction or elimination of the harvest of wild trout, specific gear restrictions when angling with bait, and establishing sanctuary areas that are closed to all fishing. Significant changes to hatchery management included eliminating stocking of hatchery trout in flowing waters where anadromous fish occur, reducing the number of hatchery steelhead smolts released, elimination of inappropriate hatchery broodstocks, and development of locally adapted broodstocks. NMFS assessed these management changes in 1998 and concluded that they would benefit KMP steelhead (NMFS, 1998b). Moreover, all of the management changes related to hatcheries and harvest that were implemented by ODFW's emergency regulations in March 1998 were adopted as permanent rules in August 1998 and remain in effect.

5. Oregon Steelhead Monitoring - The steelhead supplement to the Oregon Plan for Salmon and Watersheds (OPSW, 1998) includes a measure committing the ODFW to work with NMFS to establish population health goals for wild steelhead in Oregon. In support of this measure, and in coordination with the OPSW's state-wide monitoring strategy, ODFW

developed a set of population health goals and assessment methods in 1999 (ODFW, 1999). The specific goals address: (1) habitat characteristics; (2) densities of juvenile steelhead; (3) steelhead distribution; (4) fry production; (5) abundance of Rogue River steelhead; and (6) life history of summer steelhead. NMFS participated in the development of these goals and concluded that the overall monitoring approach addressed key issues and would improve understanding of the health of KMP steelhead populations (NMFS, 1999b). Monitoring conducted during the past 2 years has generated a considerable amount of information on KMP steelhead. As noted previously in this document (see "Updated Status of KMP Steelhead"), ODFW has reported *O. mykiss* present in almost all the sites they examined, suggesting that adult steelhead are well distributed throughout suitable habitat in the Oregon portion of the ESU. NMFS will continue to work with ODFW to make needed modifications in these monitoring efforts to ensure that they continue to track the health and productivity of KMP steelhead populations.

6. Local Efforts - Private lands comprise approximately 35 percent of the land ownership within the range of the KMP steelhead ESU. As noted previously in this document, NMFS received numerous comments regarding salmonid conservation efforts by local entities and individual landowners. Specific efforts identified included those by the Five Counties Salmon Conservation Program, Scott River Watershed Council, Shasta River Coordinated Resource Management Plan, Salmon River Restoration Council. In addition, the Natural Resources Conservation Service district offices and Resource Conservation Districts have been working closely with local landowners and governments to improve salmonid habitats throughout the range of KMP steelhead. These efforts have involved expenditures of millions of dollars and helped generate considerable landowner interest in salmonid restoration work, including: inventorying fish barriers and restoring access to anadromous fish habitats (e.g., replacing culverts with bridges); improving and abandoning forest roads; fencing and planting riparian areas; identifying riparian reserves; promoting large woody debris; screening water diversions; controlling runoff/sedimentation; monitoring fish and habitat; and educating youth and local communities about the importance of salmon and watersheds. NMFS believes

that these efforts, coupled with ESA protective regulations for listed coho salmon, will likely improve conditions for KMP steelhead as well.

Tribal Efforts

During the public comment period, NMFS received information from the Hoopa Valley and Yurok Tribes; the latter provided information regarding their efforts to promote the conservation of KMP steelhead. Key efforts cited by the Yurok Tribe include: (1) monitoring of adult and juvenile steelhead in the Klamath and Trinity River basins via creel, outmigrant, and spawner surveys; and (2) tribal advocacy and funding for habitat restoration activities and hatchery fish marking strategies. The tribe also underscored their support for the recent Trinity River Record of Decision which establishes in-stream flows aimed at protecting fish in this Klamath River subbasin.

Federal Efforts

Substantial Federal conservation efforts in California and Oregon continue to address and improve habitat conditions for KMP steelhead. As described in the agency's 1998 listing determination (63 FR 13347, March 19, 1998), benefits to steelhead accrue from four major Federal efforts: (1) the Northwest Forest Plan; (2) Klamath and Trinity River basin restoration; and (3) ESA protections for threatened SONCC coho salmon, in particular, (a) ESA section 7 consultations and (b) habitat conservation planning. The status of these efforts is discussed in more detail here.

1. Northwest Forest Plan (NFP) - The NFP is a Federal interagency cooperative program, for which a Record of Decision was signed and implemented in April 1994. The NFP represents a coordinated ecosystem management strategy for Federal lands administered by the U.S. Forest Service (USFS) and Bureau of Land Management (BLM) within the range of the northern spotted owl (which overlaps considerably with the freshwater range of KMP steelhead). The most significant element of the NFP for anadromous fish is its Aquatic Conservation Strategy (ACS), a regional-scale aquatic ecosystem conservation strategy that includes: (1) special land allocations, such as key watersheds, riparian reserves, and late-successional reserves, to provide aquatic habitat refugia; (2) special requirements for project planning and design in the form of standards and guidelines; and (3) new watershed analysis, watershed restoration, and monitoring processes. These ACS components collectively

ensure that Federal land management actions achieve a set of nine Aquatic Conservation Strategy objectives, which include salmon habitat conservation. In recognition of over 300 "at-risk" Pacific salmonid stocks within the NFP area (Nehlsen et al., 1991), the ACS was developed by aquatic scientists, with NMFS participation, to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands. The ACS strives to maintain and restore ecosystem health at watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources and to restore currently degraded habitats. The approach seeks to prevent further degradation and to restore habitat on Federal lands over broad landscapes.

NMFS believes that implementation of the NFP will continue to provide substantial benefits to KMP steelhead. While the NFP covers a very large area, the overall effectiveness of the NFP in conserving KMP steelhead is somewhat limited by the extent of Federal lands (approximately 63 percent of the ESU's range) and the fact that Federal land ownership is not uniformly distributed in watersheds within the affected ESUs. Therefore, long-term habitat protection within the range of this ESU continues to be improvement in non-Federal land management, particularly those lands used for timber harvest.

2. Klamath/Trinity River Basin Restoration - The Klamath Act (Pub. L. 99-552), which was passed by Congress in 1986, authorized a 20-year Federal-state cooperative Klamath River Basin Conservation Area Restoration Program for the rebuilding of the river's fish resources. The Klamath Act created a 14-member Klamath River Basin Fisheries Task Force (Task Force) and directs the U.S. Secretary of Interior to cooperate with the Task Force in the creation and implementation of a Klamath River Basin Conservation Area Fishery Restoration Program (KRBFTF, 1991). The Task Force members are appointed by, and represent, the Governors of California and Oregon; the U.S. Secretaries of Interior, Commerce and Agriculture; the California counties of Del Norte, Humboldt, Siskiyou and Trinity; Hoopa Valley, Karuk and Yurok Indian tribal fishers; as well as by anglers and commercial fishermen. The Klamath Act also created an 11-member Klamath Fishery Management Council to "establish a comprehensive long-term plan and policy * * * for the management of the in-river and ocean harvesting that affects or may affect Klamath and Trinity River basin anadromous salmon populations." The

Council comprises essentially the same interests as the Task Force, except for the four county representatives who hold seats only on the Task Force.

In addition to habitat restoration projects implemented pursuant to the Klamath Act, the Department of Interior contracted with Utah State in 1998 to develop interim flow recommendations downstream of Iron Gate Dam for salmon and steelhead. This study was initiated to develop a more scientific basis for instream flow needs for anadromous salmonids than existed previously. The second phase of this study is ongoing and involves close technical coordination with the USFWS, U.S. Geological Survey, NMFS, CDFG, and the Klamath basin Indian tribes. NMFS is confident this research effort will provide the technical and scientific basis leading to increased flows, improved water quality, and increased rearing habitat for juvenile salmon and steelhead in the Klamath River.

In October 1984, the Trinity River Basin Fish and Wildlife Restoration Act (Act) was enacted by Congress. The Act appropriated \$33 million dollars over a 10-year period for design and construction of restoration projects and \$2.4 million dollars annually for operation, maintenance, and monitoring. The Act embodied in law an 11-point plan to restore and maintain fish and wildlife resources in the basin at levels which occurred prior to the construction of the Trinity River Diversion, Central Valley Project. The Trinity River Basin Fish and Wildlife Task Force, which was formed to investigate and develop an action plan to identify and correct fish and wildlife problems in the Trinity River basin, issued the Trinity River Basin Fish and Wildlife Management Program Report, which outlined five major goals to restore fish and wildlife. The report identified ten major actions and associated costs to restore fish populations and rehabilitate habitat. A 3-year action plan was issued by the Task Force in 1988 and a second 3-year plan was issued in 1992. This most recent plan identifies over 100 restoration, supplementation, and monitoring activities to be completed over the next 3 years.

In December 2000, the Secretary of Interior issued a Record of Decision for restoration of the Trinity River which culminated years of study (Trinity River Flow Evaluation Study) and a multi-year effort to develop an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the program. The development of this program was mandated by several Federal actions of statutes including a 1981 Department of

Interior Secretarial Decision, the Trinity River Restoration Act, and the 1992 Central Valley Project Improvement Act. The new restoration program includes: (1) a new instream flow regime that provides for increases flow releases according to hydrologic year type and reduced exports to the Central Valley, (2) mechanical channel rehabilitation of 47 sites in the river, (3) coarse and fine sediment management and gravel replacement, (4) bridge replacement and infrastructure modification, (5) watershed restoration, and (6) adaptive management. NMFS fully supports the implementation of this new program and believes it will result in significant increases in anadromous fish populations, including steelhead within the Trinity River basin.

3. ESA Section 7 Consultations - On May 6, 1997, the SONCC coho salmon ESU was listed as a threatened species under the ESA (62 FR 24588). The range of this ESU encompasses all major river basins inhabited by KMP steelhead, although the species' distribution varies to a degree within individual subbasins. The SONCC coho salmon listing has resulted in significant Federal focus on improving salmonid habitat conditions in southern Oregon and northern California. The USFS and BLM routinely engage NMFS in section 7 consultations to ensure that ongoing or proposed activities do not jeopardize coho salmon or adversely modify its critical habitat.

Over the past 4 years, NMFS has consulted on over 200 ongoing and proposed activities that may affect salmonid habitats within the range of the KMP steelhead ESU. Biological assessments (BAs) and biological opinions (BOs) cover a wide range of management activities, including forest and/or resource area-wide routine and non-routine road maintenance, hazard tree removal, range allotment management, watershed and instream restoration, special use permits (e.g., mining, ingress/egress), flood control, water supply/irrigation (e.g., Klamath River and Trinity River flows), and timber sale programs (e.g., green tree, fuel reduction, thinning, regeneration, and salvage). These BAs and BOs include region-specific best management practices, necessary measures to minimize impacts for listed anadromous salmonids, monitoring, and environmental baseline checklists for each project. In addition to the numerous consultations involving Federal land management actions, NMFS has also consulted on a variety of activities involving private actions requiring Federal authorization or approval. Examples of these actions

include significant instream projects such as building boat ramps and docks, water withdrawals, and dredging activities. NMFS' involvement in these consultations, and the resultant BOs, have resulted in a more consistent approach to management of public lands throughout the range of KMP steelhead.

4. Habitat Conservation Plans - NMFS and USFWS are also engaged in an ongoing effort to assist in the development of multiple species Habitat Conservation Plans (HCPs) for state and privately owned lands in California and Oregon. While section 7 of the ESA addresses species protection associated with Federal actions and lands, Habitat Conservation Planning under section 10 of the ESA addresses species protection on non-Federal lands. HCPs are particularly important since about 37 percent of the habitat in the range of the KMP steelhead ESU is in non-Federal ownership. The intent of the HCP process is to reduce conflicts between listed species and economic development activities and to provide a framework that encourages creative partnerships between the public and private sectors and state, municipal, and Federal agencies in the interests of endangered and threatened species and habitat conservation.

To date, two HCPs are under development within the range of KMP steelhead, one by Simpson Timber Company and the other by the Grants Pass Irrigation District (GPID). However, only the latter has been formally submitted to NMFS. GPID has requested an Incidental Take Permit (Permit) regarding the operation of Savage Rapids Dam in Josephine and Jackson Counties, OR, and has prepared an HCP designed to minimize and mitigate incidental take of endangered and threatened species. Fish passage has been an issue at Savage Rapids Dam since GPID constructed the dam in 1921. GPID proposes to operate Savage Rapids Dam consistent with conservation measures developed during 1998-2000 to reduce take, with

further operational modifications based on the timing of fish runs. Activities proposed for inclusion in the GPID Permit include: all aspects of operating the dam, including opening and closing the radial gates, installing and removing the stoplogs, and operating the fish ladders, the turbine and the screens, and the diversion facilities. The Permit and HCP would also cover monitoring activities and related scientific experiments in the HCP area.

The proposed Permit would authorize the incidental take of SONCC coho salmon, but GPID also sought coverage for KMP steelhead (in the event this ESU was listed). The duration of the proposed Permit and HCP is 1 year. NMFS very recently announced the availability of the HCP and a draft Environmental Assessment for review (66 FR 15080, March 15, 2001) and expects to make a final Permit decision after April 16, 2001. In addition, during the 1-year implementation period, GPID will continue to pursue Federal authorization and funding for dam removal. Within that time period, more information regarding the likelihood and timing of dam removal will be available, and a new proposed action can be identified.

Listing Determination

Section 3 of the ESA defines an endangered species as any species in danger of extinction throughout all or a significant portion of its range, and a threatened species as any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Section 4(b)(1)(A) of the ESA requires that the listing determination be based solely on the best scientific and commercial data available, after conducting a review of the status of the species and after taking into account those efforts being made by any state or foreign nation to protect such species.

As described previously in this document, the NMFS steelhead BRT reviewed updated abundance and trend information available for this ESU (NMFS, 2001) and the majority of BRT

scientists concluded that the ESU was not in danger of extinction nor likely to become so in the foreseeable future. The change since 1998 in the BRT's overall risk assessment can primarily be attributed to new information that affected the interpretation of two major factors:

1. Current information indicates that the proportion of naturally spawning hatchery fish, at least in Oregon, is much lower than indicated by data available for the initial steelhead status review (NMFS, 1994), and somewhat lower than the revised estimates available at the time of the last assessment (NMFS, 1997a; NMFS, 1998a). The new information reduced concerns of the BRT for genetic risks associated with artificial propagation and increased confidence that naturally sustaining populations are more widely distributed throughout this ESU than previously thought.

2. Although solid estimates of overall abundance in this ESU are still not available, new information provided reason to believe that abundance of natural fish in this ESU is probably at least 50,000 adults and may exceed 100,000. Natural production in this ESU may exceed that of any other steelhead ESU considered in the coastwide status review.

These findings, coupled with the agency's conclusion that existing conservation efforts are collectively benefitting steelhead in this ESU, form the basis for NMFS' decision that the KMP steelhead ESU does not warrant listing under the ESA at this time.

References

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

Dated: March 28, 2001.

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[FR Doc. 01-8166 Filed 4-3-01; 8:45 am]

BILLING CODE 3510-22-S