

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 224

[Docket No. 100323162-0595-02]

RIN 0648-XV30

Endangered and Threatened Species; 12-month Finding on a Petition to Delist Coho

Salmon South of San Francisco Bay

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

ACTION: Proposed rule; 12-month petition finding; request for comments.

SUMMARY: We, the National Marine Fisheries Service (NMFS), are issuing a 12-month finding on a petition to delist coho salmon (*Oncorhynchus kisutch*) in coastal counties south of the ocean entrance to San Francisco Bay, California from the Federal List of Endangered and Threatened Wildlife under the Endangered Species Act (ESA) of 1973, as amended. Coho salmon populations in this region are currently listed under the ESA as part of the endangered Central California Coast (CCC) Evolutionarily Significant Unit (ESU). The petition was accepted on April 2, 2010, triggering a formal review of the petition and a status review of the listed ESU. A biological review team (BRT) was convened to assist in reviewing the petition and the status of the species. Based upon our review of the petitioned action and the status of the species, we conclude that the petitioned action is not warranted and that coho salmon populations south of San Francisco Bay are part of the endangered CCC coho salmon ESU. We further conclude

that the southern boundary of the CCC coho ESU should be extended southward from its current boundary at the San Lorenzo River to include Soquel and Aptos Creeks in Santa Cruz County, California, and are proposing this change in the ESU boundary. As a result of this proposal, we are also soliciting comments and any relevant scientific and commercial data concerning the proposed range extension.

**DATES:** Written comments, data and information relevant to the proposed range extension must be received no later than 5 p.m. local time on [insert date 60 days after date of publication in the FEDERAL REGISTER].

**ADDRESSES:** You may submit comments on the proposed range extension, identified by the RIN 0648-XV30, by any of the following methods:

- **Electronic Submissions:** Submit all electronic public comments via the Federal eRulemaking Portal <http://www.regulations.gov>. Follow the instructions for submitting comments.
- **Facsimile (fax):** 562-980-4027, Attn: Craig Wingert.
- **Mail:** Submit written comments to the Assistant Regional Administrator, Protected Resources Division, Attn: Craig Wingert, Southwest Region, National Marine Fisheries Service, 501 W. Ocean Blvd., Suite 5200, Long Beach, CA, 90802-4213.

**Instructions:** All comments received are a part of the public record and will generally be posted to <http://www.regulations.gov> without change. All personal identifying information (for example, name, address, etc.) voluntarily submitted by the commenter may be publically accessible. Do not submit confidential business information or otherwise sensitive or protected information. We will accept anonymous comments (if

you wish to remain anonymous enter N/A in the required fields). Attachments to electronic comments will be accepted in Microsoft Word, Excel, or Adobe PDF file formats only.

A copy of the petition and related documents, our 90-day finding, the BRT report, and other relevant information may be obtained by submitting a request to the Assistant Regional Administrator, Protected Resources Division, Attn: Craig Wingert, Southwest Region, National Marine Fisheries Service, 501 W. Ocean Blvd., Suite 5200, Long Beach, CA, 90802-4213 or from the internet at <http://swr.nmfs.noaa.gov/>.

FOR FURTHER INFORMATION CONTACT: Craig Wingert, NMFS, Southwest Region, (562) 980-4021; or Dwayne Meadows, NMFS, Office of Protected Resources, Silver Spring, MD, (301) 713-1401.

#### SUPPLEMENTARY INFORMATION:

##### Background

The Central California Coast (CCC) coho salmon Evolutionarily Significant Unit (ESU) was listed as a threatened species on October 31, 1996 (61 FR 56138), and subsequently reclassified as an endangered species on June 28, 2005 (70 FR 37160). Coho salmon in coastal streams of Santa Cruz and San Mateo counties south of the entrance to San Francisco Bay were found to be part of this ESU at the time of its original listing and subsequent reclassification. For more information on the status, biology, and habitat of this coho salmon ESU, see “Endangered and Threatened Species: Final Listing Determinations for 16 ESUs of West Coast Salmonids and Final 4(d) Protective Regulations for Threatened Salmonid ESUs; Final Rule” (70 FR 37160; June 28, 2005) and “Final Rule Endangered and Threatened Species; Threatened Status for

Central California Coast Coho Salmon Evolutionarily Significant Unit (ESU)” (61 FR 56138; October 31, 1996).

On November 25, 2003, we received a petition from Mr. Homer T. McCrary (Petitioner), a Santa Cruz County forestland owner, to redefine the southern extent of the CCC coho salmon ESU by excluding coastal populations of coho salmon south of the entrance to San Francisco Bay, California. An addendum to the petition was received on February 9, 2004, providing additional information to clarify the original petition and respond to new information regarding museum specimens of coho salmon from four coastal streams south of San Francisco Bay.

The ESA authorizes an interested person to petition for the listing or delisting of a species, subspecies, or Distinct Population Segment (DPS)(16 U.S.C.1533(b)(3)(A). Our ESU policy (November 20, 1991; 56 FR 58612) defines a valid ESU as a DPS under the ESA. The ESA implementing regulations contain the factors to consider for delisting a species (50 CFR 424.11(d)). A species may be delisted only after a review of the best scientific and commercial data substantiates that it is neither endangered nor threatened for one or more of the following reasons: (1) the species is extinct or has been extirpated from its previous range; (2) the species has recovered and is no longer endangered or threatened; or (3) investigations show the best scientific or commercial data available when the species was listed, or the interpretation of such data, were in error. The factors, singly or in combination, considered in making a delisting determination are: (1) the present or threatened destruction, modification, or curtailment of a species’ habitat or range; (2) overutilization for commercial, recreational, scientific, or educational

purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting a species' continued existence.

Section 4(b)(3)(A) of the ESA requires that, to the maximum extent practicable, within 90 days after receiving a petition, the Secretary shall make a finding whether the petition presents substantial scientific information indicating that the petitioned action may be warranted (90-day finding). Our ESA implementing regulations define “substantial information” as the amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted (50 CFR 424.14(b)(1)). If a positive 90-day finding is made, then we must conduct a status review of the species concerned and publish a finding indicating whether the petitioned action is or is not warranted (12-month finding) (50 CFR 424.14(b)(3)).

On March 23, 2006, we published a 90-day finding (71 FR 14683) stating that the petition submitted by petitioner did not present substantial information indicating that delisting coho salmon south of San Francisco Bay may be warranted. On March 31, 2006, the petitioner challenged that finding, alleging violations of the ESA and Administrative Procedure Act (Homer T. McCrary v. Carlos Gutierrez et al., No. 06-cv-86-MCE) (E.D. Cal.)). The venue for the case was subsequently transferred to the Northern District Court in San Jose, California as case No. C-08-01592-RMW (N.D. Cal.). On February 8, 2010, the court issued an order stating our decision to deny the petition was arbitrary and capricious. The court found that we failed to follow the proper statutory procedures for reviewing petitions under the ESA, by using information beyond the four corners of the petition, and in applying the 12-month standard of whether the petitioned action “is or is not warranted,” rather than the 90-day standard of whether the

petitioned action “may be warranted.” The court vacated our March 23, 2006, finding and remanded the petition to us for processing in accordance with 16 U.S.C.

1533(b)(3)(A).

On April 2, 2010, we published a new 90-day finding (75 FR 16745) in response to the February 8, 2010, U.S. District Court decision, accepting the petition, triggering its formal review and initiation of a status review. In the 90-day finding we solicited information from the public and other concerned stakeholders to ensure that the review was complete and based on the best available scientific and commercial information concerning the issues raised in the petition. The California Department of Fish and Game (DFG) provided the only public comment on the 90-day finding.

In July 2010, we convened a biological review team (BRT) composed of scientists from our Southwest and Northwest Fisheries Science Centers and fishery experts from the U.S. Forest Service and U.S. Geological Survey to specifically review the petitioned action, the information supporting the petitioned information, and other relevant information compiled by the Southwest Fisheries Science Center to assess the petition and its specific issue regarding the distribution of coho salmon south of San Francisco Bay. Following extensive review and discussion, the BRT addressed two key questions pertinent to the petitioned action: (1) does the available evidence support a southern boundary for CCC coho salmon that excludes streams south of the entrance to San Francisco Bay?, and (2) does the available evidence support a boundary different from the current boundary at the San Lorenzo River? The BRT’s review and findings are detailed in Spence et al. (2011). In its findings, the BRT concluded the best available scientific and historical information supports a southern boundary for this ESU that

includes populations inhabiting coastal streams south of the entrance to San Francisco Bay. Based on their review of the scientific and historical information, the BRT also recommended extending the southern boundary of the ESU from its current boundary at the San Lorenzo River southward to include populations found in Soquel and Aptos Creeks. Below we summarize and review the petition and the BRT's status report.

#### Overview of the Petition

The McCrary petition asserts that coho salmon were introduced into Santa Cruz County, California, in 1906 and until that time, aside from possible occasional strays, no self-sustaining native coho populations existed in the coastal streams south of the entrance to San Francisco Bay. The petition asserts the legal and factual criteria supporting the listing of coho salmon under the ESA were in error, as demonstrated by historical and scientific information presented in the petition. The petitioner also asserts that extant populations of coho salmon in the coastal streams south of the entrance to San Francisco Bay are most likely of non-native origin and only persist there due to ongoing artificial propagation efforts. As a consequence, the petitioner argues that these populations do not constitute an important component in the evolutionary legacy of the species. The petition also asserts coho salmon populations in these streams should be delisted because they are not evolutionarily significant populations and their inclusion in the CCC coho salmon ESU is inconsistent with NMFS' ESU policy for Pacific salmon (Waples, 1991). Based on this and other information detailed in the petition and addendums, the petitioner requested that we delist populations of coho salmon in coastal streams south of the entrance to San Francisco Bay and redefine the southern boundary of the CCC coho salmon ESU to an undetermined location north of San Francisco Bay.

Information used to support the petitioner's assertion that coho salmon are not native in coastal streams south of the entrance to San Francisco Bay, and therefore, should not be listed, included: (1) early scientific and historical accounts indicating that the entrance to San Francisco Bay was the southern boundary for coho salmon; (2) differences in environmental conditions (geology, climate, and hydrology) between regions north and south of San Francisco Bay; (3) information and historical accounts indicating that coho salmon from out of the area were artificially planted into the coastal streams south of the entrance to San Francisco Bay; and (4) the absence of coho salmon remains in the archeological record at sites south of the entrance to San Francisco Bay. Finally, the petitioner also argued that even if coho salmon populations south of the entrance to San Francisco Bay are of native origin they are likely ephemeral populations that contribute little to the evolutionary legacy of the species, and therefore, should not be listed under the ESA.

We considered all additional information provided by the petitioner and others that provided supplemental information on his behalf to be part of the petition. This supplemental information originated as a result of written communication and discussions between our Southwest Region office, the Southwest Fisheries Science Center and the petitioner in 2004 and 2005. We also considered information presented in Kaczynski and Alvarado (2006) which clarified and expanded on some of the information and arguments made by the petitioner.

#### Summary of BRT Findings

The following summary of the BRT's findings addresses the main points raised in the petition, supplemental information provided by the petitioner, and arguments made in



Kaczynski and Alvarado (2006). The summary addresses the following issues raised in the petition: (1) early scientific and historical accounts; (2) environmental conditions north and south of the entrance to San Francisco Bay; (3) human intervention as it relates to artificial propagation; (4) the archeological record for coho remains at sites south of the entrance to San Francisco Bay; and (5) the relationship of these southern populations to the overall CCC coho salmon ESU and their consideration in the context of our ESU policy.

1. Early scientific and historical accounts. The petitioner presented a review of early scientific and historical accounts that suggested coho salmon were not present in coastal streams south of the entrance to San Francisco Bay prior to hatchery planting efforts. In his review, the petitioner found no references to coho salmon in the area until after the initiation of hatchery outplanting efforts which began in 1906. Because the scientific literature prior to 1906 referenced coho salmon as occurring or being abundant north of San Francisco the petitioner concluded coho salmon were absent in coastal streams south of San Francisco. In response to the discovery of coho salmon museum specimens collected in 1895 from four streams south of the entrance to San Francisco Bay, information that was not presented in the original petition, the petitioner argued these specimens were not reliable evidence that coho salmon historically occurred south of San Francisco Bay and instead were likely the result of the fish straying southward because of unusually favorable ocean conditions or of undocumented non-native stock introductions.

The BRT reviewed all available information and concluded that the petitioner's assertions are not supported by the available scientific or historical evidence. The

historical record demonstrates that few faunal surveys had been conducted by early fishery scientists in coastal watersheds anywhere in California prior to 1895, and certainly not enough to precisely define the southern boundary of coho salmon in California.

In reviewing historical reports and other information regarding the range of coho salmon in California, the BRT found there was considerable uncertainty and confusion about the identification of the various species of Pacific salmon in the 1800s and into the early 1900s. This confusion raised the BRT's concerns over the reliability and accuracy of popular sources of information (e.g., newspapers) and early scientific accounts to establish freshwater range limits for coho salmon in California. This widespread confusion regarding species identification was due to several factors, including a poor understanding of salmonid life histories and life stages, the use of different common names (which sometimes varied between geographic localities) for the same species, and the use of the same common name for different species. These factors contributed to the frequent misidentification of salmon species and the resultant conflicting descriptions of the species' geographic range. After a careful review of the early literature, the BRT found evidence that coho salmon were likely misidentified as chum salmon (*O. keta*) or steelhead (*O. mykiss*) which led early fishery scientists to inaccurately describe the presence and/or distribution of coho salmon in California.

The BRT concluded that museum collections currently held at the California Academy of Sciences (CAS) provide direct evidence coho salmon were present in coastal streams south of the entrance to San Francisco Bay prior to 1906. The collection of these specimens represents the first known scientific effort to document the presence of

freshwater fish species, including salmonids, in coastal streams south of the entrance to San Francisco Bay. The petitioner contends these specimens are not reliable indicators of coho presence south of the entrance to San Francisco Bay for several reasons including: (1) the original misidentification of the specimens as species other than coho salmon; (2) the possibility that the collections were "contaminated" during the 1906 San Francisco earthquake where some specimen bottles in the original museum collection at Stanford University were broken; and (3) a "broken chain" of custody for the 1895 specimens. The petitioner also asserted even if these specimens were collected from local streams, they are not evidence of persistent populations south of San Francisco Bay, but rather may have been the result of unusually favorable ocean survival conditions in the early 1890s that led to an ephemeral colonization event in these streams by coho salmon.

The BRT was not persuaded by either of the first two arguments. The misidentification of species was commonplace in this era when there was substantial confusion surrounding the taxonomy and nomenclature of Pacific salmon and a poor understanding of the early life stages of these species. The correct identification of these fish as coho salmon was made sometime later, most likely before the Stanford collection was transferred to the CAS (D. Catania, CAS, pers. comm., 14 November, 2004, in Spence *et al.*, 2011). Further, the timing of these collections (June) and size of individuals (50-85 mm) is most consistent with coho salmon, which reside in fresh water for a full year. Three of the four lots were originally identified as chum salmon. However, chum salmon emigrate shortly after emergence in the spring at very small sizes (usually < 50 mm); thus, a June collection of fish > 50 mm would be highly unlikely. Thus, the most reasonable explanation is that the 1895 specimens collected by the Carmel

River Expedition were coho salmon that were misidentified. Adams et al. (2007) reached the same conclusion.

The BRT also concluded that the assertion that the museum specimens or labels were mixed up or “contaminated” after the 1906 San Francisco earthquake lacks support. The BRT noted that extensive efforts were made by museum staff after the earthquake to match specimens with the correct collection information and that all unmatched specimens were discarded. They also believed that the petitioner’s assertion that contamination had occurred would have necessitated several improbable events to have occurred, making that scenario highly unlikely.

The BRT did not specifically address the “chain of custody” argument made by the petitioner regarding these specimens, but as Adams et al. (2007) pointed out, this concept is normally applied to evidence handling in legal proceedings and not the handling of scientific museum specimens. We believe this is an inappropriate standard in a situation such as this and that few if any museum collections, even contemporary collections, could meet this legal evidence standard.

The BRT also found the petitioner’s argument that coho salmon colonized these streams in the 1890’s as a result of unusually favorable ocean conditions to be highly speculative and without a credible basis. The BRT concluded the collection of coho salmon in four different streams south of San Francisco Bay during a fairly brief field survey in 1895 strongly suggested their presence was not caused by a random colonization event resulting from favorable ocean conditions.

Finally, the BRT found clear evidence from multiple historical sources that coastal streams south of the entrance to San Francisco Bay supported at least two, if not

more, species of anadromous salmonids on a recurring basis in the late 1800s and early 1900s. One of the species was undoubtedly steelhead, which is still present in these coastal streams south of San Francisco Bay. Based on the known historical and current distributions of the five species of Pacific salmon, the second species could only be coho salmon or Chinook (O. tshawytscha) salmon. Given the different ecological requirements of these two species and the nature of local stream habitats, the BRT concluded that coho salmon rather than Chinook salmon is most likely to have been the other salmonid species regularly observed in the coastal streams south of the entrance to San Francisco Bay. To conclude otherwise, the BRT stated, would be inconsistent with all that is known about the comparative ecology and habitat requirements of the two species.

In summary, the BRT found clear evidence that coho salmon were present in the coastal streams south of San Francisco Bay prior to 1906. Evidence cited by the BRT includes museum specimens collected in 1895 and a large body of information indicating that at least two species of salmonids were present in the area, one of which was likely coho salmon. The BRT also found widespread confusion regarding the identification of salmonids in the early popular and scientific literature indicating that these sources of information could not be reliably used to define the southern freshwater range limit of coho salmon in California.

2. Environmental conditions. In the petition and other written correspondence the petitioner presented information contending that the environmental conditions in coastal streams south of the entrance to San Francisco Bay are too harsh or extreme to support persistent populations of coho salmon. Environmental factors identified by the petitioner

and Kaczynski and Alvarado (2006) were stream hydrology, precipitation, sedimentation, drought conditions, and stream access.

After reviewing the available information characterizing the environmental conditions in streams immediately north and south of San Francisco Bay, the BRT disagreed with the petitioner's contention. The BRT concluded that the relatively small differences in stream hydrology (baseflow and dynamic range) between the northern and southern watersheds were not biologically meaningful to coho salmon. The BRT also concluded that the petitioner's analysis of hydrology was flawed because it failed to account for the effects of regulated flow releases in Lagunitas Creek (Marin County, California) and major summer water diversions in Soquel Creek (Santa Cruz County, California), both of which alter the natural hydrograph in these streams.

The petitioner's arguments regarding the unsuitability of habitat south of San Francisco Bay were also discussed by Kaczynski and Alvarado (2006), who compared precipitation regimes in different watersheds and concluded that the frequency of extreme storms is significantly greater in Santa Cruz County than in Marin County. Adams *et al.* (2007) evaluated this analysis and concluded that the differences in extreme storm frequency were so slight that they were unlikely to be biologically significant to coho salmon. The BRT concurred with the Adams *et al.* (2007) assessment.

Kaczynski and Alvarado (2006) also contended that habitat conditions were significantly different in watersheds immediately north and south of San Francisco Bay. Specifically, they argued that drought conditions are more severe south of San Francisco Bay, freshwater temperatures are warmer south of San Francisco Bay, and that coho salmon may not be able to access spawning habitat during drought periods south of San

Francisco Bay. The BRT concluded that these conditions are not unique to streams south of San Francisco Bay, nor would they significantly hinder habitat availability or use by coho salmon in streams south of San Francisco Bay.

The petitioner noted that coastal streams south of the entrance to San Francisco Bay are subject to high amounts of fine sediment input which can make habitat unsuitable and deleterious to coho salmon. The BRT noted this problem is neither new nor unique to streams south of San Francisco Bay, and that coho salmon occupy streams such as the Eel River, Mad River, and Redwood Creek (in Humboldt County, California), which have some of the highest sediment yields in the United States (Milliman and Syvitski, 1992).

The petitioner and Kazcynski and Alvarado (2006) contended that some of the streams south of San Francisco are in excellent condition and cited a number of recent documents attesting to the difficulties that coho salmon have coping with environmental conditions in these streams. The BRT did not dispute the fact that coho salmon are significantly challenged by the current habitat conditions in these streams, but they strongly disagreed that some streams in Santa Cruz County are now in excellent condition. Based on their understanding of habitat conditions in streams south of San Francisco Bay and the history of anthropogenic disturbance in these watersheds, the BRT does not believe there is a single watershed that exhibits the pristine habitat complexity that existed prior to the 1800s when significant anthropogenic alteration of these watersheds first began. The BRT concluded that these anthropogenic disturbances are the major factor affecting coho salmon use of these watersheds rather than the inherent characteristics of the watersheds themselves.

In summary, the BRT found no compelling evidence that environmental conditions are appreciably different in coastal streams south of the entrance to San Francisco Bay compared with streams north of San Francisco Bay where the historical (and current) presence of coho salmon is not disputed.

3. Human intervention by artificial propagation. The petitioner contends coho salmon were first introduced into streams south of San Francisco Bay with the delivery of coho salmon eggs from Baker Lake, Washington, to the Brookdale hatchery on the San Lorenzo River in Santa Cruz County in 1906. According to the petition, this introduction was the beginning of an effort to establish a coho salmon fishery in the coastal streams south of San Francisco Bay. Petitioner then asserts that the first credible observation of coho salmon in the region did not occur until after the introductions began in 1906. The petitioner concludes that all subsequent observations of coho salmon in these streams were likely the result of the 1906 or later introductions.

The BRT reviewed and evaluated past coho salmon hatchery out-planting activities in streams south of San Francisco Bay to address three issues: (1) whether the substantial numbers of coho salmon that occurred in these streams were the result of the Baker Lake and subsequent introductions; (2) whether the CAS coho salmon specimens collected in 1895, prior to the start of hatchery out-planting, could have been the result of earlier hatchery activities; and (3) whether the current populations of coho salmon in streams south of the entrance to San Francisco Bay are the result of these and subsequent introductions of fish from watersheds north of San Francisco Bay.

The BRT concluded that it is highly unlikely that the introduction of modest numbers of coho salmon fry from Baker Lake could account for the substantial numbers



of coho salmon observed by Shapovalov and Taft (1954) in Waddell Creek by the 1930s. The BRT based this determination on several considerations including evidence indicating that all of these early coho salmon releases into streams south of San Francisco Bay consisted of fish at the fry life stage. The BRT indicated that fish released at the fry stage would be expected to have very low survival rates even with modern hatchery practices, let alone the practices used in the early 1900s. The BRT also noted the habitat characteristics of the streams south of the entrance to San Francisco Bay are substantially different from those in which the Baker Lake stock is found. The Baker Lake stock of coho salmon evolved in a cold, snowmelt-dominated watershed of the northern Cascade Range under environmental conditions vastly different from those found in streams on the central coast of California, which may have limited the success of any released fish. The most notable adaptation of coho salmon to the Baker Lake habitat conditions is the summer run timing (July-August) of returning adult spawners. This pattern contrasts significantly with the winter run timing of coho salmon in central California. Adult run timing of salmonids, including coho salmon, is under strong genetic control and the summer run timing of Baker Lake coho salmon would be extremely maladaptive for the coastal streams south of the entrance to San Francisco Bay since most stream entrances in this area become inaccessible due to sand bars during summer and are not accessible until late November or December in most years. Given the summer run timing of the Baker Lake stock and the inaccessibility of many stream mouths during the summer south of San Francisco Bay, returning Baker Lake coho would have had a very difficult time accessing these streams in order to spawn.

The BRT evaluated whether coho salmon observed prior to 1906 could have been the result of hatchery plantings. The petition addendum indicated such a possibility might exist due to information suggesting there were fish plantings from northern California and elsewhere into streams of the Santa Cruz Mountains occurring at least as early as 1878. The BRT found no credible evidence to support this point and substantial evidence to the contrary. Published records clearly demonstrate that neither Federal nor State-owned hatcheries produced or released coho salmon into waters south of San Francisco prior to the 1906 introduction of Baker Lake fish. While some small-scale privately owned hatcheries and rearing ponds operated in the state prior to 1906, the BRT found no evidence that any of these facilities reared or distributed coho salmon south of the entrance to San Francisco Bay.

Based on the limited production of coho salmon in hatcheries anywhere in the Pacific Northwest and the lack of any evidence that coho salmon were stocked into streams south of San Francisco Bay prior to 1906, the BRT determined that it is highly unlikely that the CAS collection of coho salmon from four Santa Cruz Mountain streams in 1895 by the Carmel River Expedition were the consequence of hatchery activities pre-dating these collections.

The BRT also investigated whether existing populations of coho salmon in coastal streams south of San Francisco Bay could be the result of introductions from other areas by reviewing several genetic datasets for coho salmon from throughout California and elsewhere in the species' range. Molecular genetic data are extensively used in fisheries research to provide inferences about population structure and the ancestry of populations and individual fish. If the coho salmon populations currently found in streams south of

San Francisco had been established using fish out-planted in the early 1900s from streams in the northern portion of the species range, we would expect these current populations south of San Francisco to have genetic characteristics similar to those of northern populations.

The genetic data reviewed by the BRT provided consistent results regarding the ancestry of coho salmon populations in the coastal streams south of San Francisco Bay. The Garza (manuscript in preparation) dataset discussed in Spence et al. (2011) is particularly relevant to the claim in the petition that these populations are non-native and derived from an out-of-ESU source. This dataset consists of molecular genetic data from coho salmon populations located throughout California, as well as from populations located throughout the rest of the species' range, including Canada, Alaska and Russia. This dataset also includes genetic data for coho salmon from the Samish River which is the watershed immediately north of the Skagit River in Puget Sound where the Baker Lake stock cited by the petitioner as the original source for coho salmon in 1906 originated. Analysis of these data show that coho salmon from populations in the southernmost portion of the range of the CCC coho salmon ESU are unambiguously similar to coho salmon populations elsewhere within the range of this ESU and not with populations from other ESUs located further north. This analysis clearly rules out the possibility that the genetic ancestry of coho salmon populations south of the entrance to San Francisco Bay is substantially derived from an out-of-ESU source (e.g., Baker Lake or 1980's imports from Washington and Oregon stocks). The analysis definitively establishes that fish from northern populations are not the primary contributors to the current populations south of San Francisco, nor were they established by out-planting of

fish from northern populations within the ESU or outside the ESU, including imports from the Noyo River.

Based on its review of hatchery out-planting in the streams south of the entrance to San Francisco Bay after 1906, hatchery and rearing pond efforts prior to 1895, and the available genetic information, the BRT concluded the available evidence did not support the petitioner's assertions. In fact, the available information strongly suggests that early hatchery out-planting efforts were unsuccessful at establishing new populations of coho salmon in the streams south of the entrance to San Francisco Bay. Although the available genetic information cannot rule out the possibility that coho salmon from streams in the northern portion of the ESU may have contributed to the genetic ancestry of current populations south of San Francisco, these data indicate that any such contribution was not large and that current populations are native to the area.

4. Archeological record. The petitioner cited the studies of Gobalet and Jones (1995) and Gobalet et al. (2004) that failed to identify the archeological remains of coho salmon from Indian middens in Santa Cruz and San Mateo counties as additional evidence that coho salmon were not native to the streams south of the entrance to San Francisco Bay.

The BRT concurred that archaeological studies can provide important evidence for the distribution of plant and animal species through their use by native inhabitants (Gobalet and Jones, 1995). A recent paper on this topic (Gobalet manuscript in press as cited in Spence et al., 2011) addresses the southern extent of coho salmon distribution in California specifically. Gobalet (manuscript in press) reports on findings from newly examined archeological material from five locations in coastal California south of the

entrance to San Francisco Bay, and from a re-examination of materials from Elkhorn Slough (near the historical mouth of the Salinas River) that had previously been identified as steelhead. From these materials Gobalet (manuscript in press) identified two, and possibly three, archaeological locations as having remains of coho salmon. Of the two locations where coho salmon remains were independently verified, one was from a historical home site in Santa Barbara (Santa Barbara County, California) and one was located at the Año Nuevo State Reserve in southern coastal San Mateo County. The third location was at Elkhorn Slough where three elements (vertebrae) were determined to be coho salmon. However, these elements will require confirmation by another specialist before a conclusion can be reached that coho salmon occurred as far south as Monterey County.

Based on its review, the BRT concluded that the identification of coho salmon archeological specimens from locations in coastal streams south of San Francisco Bay indicates coho salmon are native to this area. Based on the most recent archaeological evidence, the BRT concluded that: (1) archaeological evidence from the Año Nuevo site establishes the historical presence of coho salmon south of the entrance to San Francisco Bay; and (2) independent confirmation of vertebrae identified from the Elkhorn Slough site may extend the southern limit of historical coho salmon distribution to northern Monterey County.

5. Contribution of populations south of San Francisco to the overall CCC coho salmon ESU. The petitioner and his representatives questioned the basis for the federal listing of coho salmon in the streams south of the entrance to San Francisco Bay. The issues raised fall into three categories: (1) that coho salmon were introduced to the area in

question, and therefore, do not qualify for Federal listing; (2) listing of these southern populations conflicts with NMFS' ESU policy (56 FR 58612) and Waples (1991) regarding the issue of evolutionary legacy; and (3) the southern populations are ephemeral or sink populations, and therefore, do not contribute to the evolutionary legacy of the CCC coho salmon ESU. The BRT disagreed with the petitioner and his representatives on all three issues. The BRT concluded that the weight of the evidence indicates coho salmon are native to the area and do qualify for Federal listing. As stated in the BRT report (Spence et al., 2011), the CAS specimens and recent genetic information clearly demonstrate that coho salmon in the streams south of the entrance to San Francisco Bay are native.

The BRT concluded that the petitioner misinterpreted our ESU policy. The petitioner argued that the ESU policy requires a population by population analysis of reproductive isolation and evolutionary legacy. The BRT noted that the evolutionary legacy criterion in the policy applies to the ESU as a whole, and not to individual populations within an ESU. Our ESU policy has no requirement that each constituent population or group of populations within an ESU contribute uniquely to the evolutionary legacy of the species. In fact, if the southern coho salmon populations had been determined to be reproductively isolated and to constitute an important part of the evolutionary legacy of the species, they would have been considered a separate ESU.

The BRT did not believe there was compelling evidence that coho salmon populations south of the entrance to San Francisco Bay were ephemeral, at least not at the time scales implied by the petitioner. The petitioner's assertion directly contradicts the finding from NMFS' Technical Recovery Team (Spence et al., 2008) which concluded

that at least two independent coho salmon populations (Pescadero Creek in San Mateo County and San Lorenzo River in Santa Cruz County) likely existed in the region prior to the extensive habitat alteration that followed Euro-American settlement.

Finally, the BRT report (Spence et al., 2011) provided an expanded discussion on the relative roles of ephemeral and sink populations and the contribution these populations can make to the resiliency of a salmon ESU. Demographically, these populations increase overall metapopulation size, increase the size of the source populations, and extend the survival of a declining metapopulation. In contrast to arguments presented by the petitioner and his representatives regarding the importance of ephemeral and sink populations, the BRT noted these populations contribute to maintaining the evolutionary legacy of the ESU as a whole. The BRT concluded that the loss of populations at the edge of a species' range (such as coho salmon south of the entrance to San Francisco Bay) may have a relatively greater negative impact on ESU persistence than loss of populations occurring nearer to the center of the species' distribution. In addition to these demographic benefits, populations near the edge of a species' range provide potential genetic benefits by fostering evolution in a broader ecological niche for the ESU as a whole.

#### 12-month Finding on the McCrary Petition

We have reviewed the best scientific and commercial information available including the petition, the addendum to the petition, all other correspondence between the petitioner and NMFS, comments on the 90-day finding from DFG, and the BRT's detailed analysis and conclusions regarding the petitioned action (Spence et al., 2011). Based on this review, we conclude that the petitioned action is not warranted.

## New Information on Coho Salmon Distribution and Habitat Use South of the San Lorenzo River

The ESU boundaries for West Coast coho salmon ranging from southern British Columbia to Central California were first delineated in a 1994 status review (Weitkamp *et al.*, 1995). In delineating coho ESU boundaries, the 1994 status review evaluated a wide range of information pertaining to West Coast coho salmon, including geography, ecology, and coho salmon genetic characteristics and life history traits. In the proposed listing determination for the CCC coho salmon ESU (60 FR 38011; 25 July 1995), we stated that the current range of the ESU extended to the southernmost extent of the species range in California based on recent data. At that time, we believed the southern extent of the species range was the San Lorenzo River in Santa Cruz County.

For coho salmon in central California, the 1994 status review recognized that the rivers draining the Santa Cruz Mountains formed a cohesive group with respect to environmental conditions, and therefore, concluded that the Pajaro River, which is south of Aptos Creek, was likely the historical southern limit of coho salmon. In determining where the southern boundary of the Central California coast ESU should be placed, the 1994 status review relied heavily on information provided in a status review of coho salmon in Scott and Waddell Creeks (Bryant, 1994). The Bryant (1994) status review indicated there were no recent reports of coho salmon in rivers south of the San Lorenzo River. Faced with uncertainty of whether any coho salmon populations might be present south of San Lorenzo River and the uncertain origins of coho salmon in the San Lorenzo (native or hatchery influenced), the status review concluded that the San Lorenzo River should be the southern-most basin in the ESU. In reaching this conclusion, the 1994



status review and proposed and final listing determinations (60 FR 38011 and 61 FR 56138) stated that any coho salmon found spawning south of the San Lorenzo River that were not the result of stock transfers should be considered part of this ESU.

In reviewing the McCrary petition, the current BRT (Spence *et al.*, 2011) compiled new information about the distribution of coho salmon south of the entrance to San Francisco Bay. Based on a review of this new information, the BRT recommended that the southern boundary of the CCC coho salmon ESU be moved southward from the San Lorenzo River to include any coho salmon populations occurring in Soquel and Aptos Creeks. New information supporting this recommendation includes: (1) recent observations of coho salmon in Soquel Creek; (2) recent genetic information obtained from coho salmon observed in Soquel Creek; and (3) information indicating that freshwater habitat conditions and watershed processes in Soquel and Aptos Creeks are similar to those found in closely adjacent basins within the current range of the CCC coho salmon ESU.

During the summer of 2008, juvenile coho salmon were observed by our Southwest Fisheries Science Center (SWFSC) scientists in Soquel Creek for the first time in many years. Soquel Creek enters the Pacific Ocean about 6.5 km south of the current ESU boundary at the ocean mouth of the San Lorenzo River. A total of approximately 170 juvenile fish were observed in the East Branch of Soquel Creek and some were photographed. These observations demonstrate that suitable spawning and rearing habitat occurs in Soquel Creek for coho salmon. A total of 28 of these fish were captured for tissue sampling and subsequent genetic analysis.

Genetic analyses of the juvenile coho salmon from Soquel Creek used 18 microsatellite loci to genotype these fish and investigate the origins of their parents and the minimum number of reproductive events that contributed to the observed juveniles. Standard genetic stock identification techniques were used with a baseline reference database that included representative stocks from all regional California groups of coho salmon. The Soquel Creek fish were compared to a coho salmon reference population located south of San Francisco (Scott Creek) and it was determined, with very high confidence, that they were closely related. This comparison demonstrated that: (1) the juvenile fish observed in Soquel Creek were the progeny of locally produced adults returning to reproduce in nearby streams; and (2) they are native to streams draining the Santa Cruz Mountains south of the entrance to San Francisco Bay.

Genetic analysis of tissue samples from these juveniles (Garza et al., unpublished as cited in Spence et al., 2011) also revealed that they were produced by a minimum of two reproductive events in Soquel Creek rather than by a single pair of fish randomly straying into the watershed. The analysis only determined the minimum number of spawning parents so it is possible that additional reproductive events occurred in Soquel Creek in 2008. This information strongly supports our conclusion that coho salmon in this stream should be considered part of the CCC coho salmon ESU.

In reviewing the ecological conditions of streams south of San Francisco Bay that originate from the Santa Cruz Mountains, the BRT noted that a significant ecological transition occurs immediately south of the Santa Cruz Mountains, with the northern edge of the Salinas Valley marking the boundary between an area with cool, wet redwood forests to the north and an area with warm, drier chaparral landscapes to the south where

small relic redwood forests are primarily confined to riparian areas near the coast. The Soquel and Aptos Creek watersheds occur within the Coast Range Ecoregion which runs nearly continuously from the Oregon border to the southern boundary of the Santa Cruz Mountains (the northern edge of the Pajaro River basin) and includes all the streams originating from the Santa Cruz Mountains south of San Francisco. Soquel and Aptos Creeks exhibit ecological, climatic, and habitat attributes similar to streams historically occupied by coho salmon elsewhere in this Ecoregion indicating they are suitable for coho salmon.

#### Revised CCC Coho Salmon ESU

To qualify for listing as a threatened or endangered species, identified populations of coho salmon must be considered a “species” under the ESA. The ESA defines “species” to include “any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.” Our ESU policy describes how the agency applies the ESA definition of “species” to anadromous salmonid species. This policy provides that a salmonid population will be considered distinct, and hence a species under the ESA, if it represents an ESU of the biological species. A population must satisfy two criteria to be considered an ESU: (1) it must be reproductively isolated from other con-specific population units; and (2) it must represent an important component in the evolutionary legacy of the biological species. The first criterion, reproductive isolation, need not be absolute, but must be strong enough to permit evolutionarily important differences to accrue in different population units. The second criterion is met if the population contributes substantially to the ecological/genetic diversity of the species as a whole. Guidance on

the application of this policy is contained in Waples (1991). The genetic, ecological, and life history characteristics that we assessed to identify the number and geographic extent of coho salmon ESUs in accordance with this policy, including the CCC coho salmon ESU, are discussed in detail in Weitkamp *et al.* (1995) and in the July 25, 1995, proposed listing determination for three coho salmon ESUs (60 FR 38011). Additional information is presented in the original threatened listing determination for the CCC coho ESU in 1996 (61 FR 56138).

As described in the 2005 final listing determination that reclassified the CCC coho salmon ESU as endangered (70 FR 37160), the ESU consists of naturally and hatchery spawned populations of coho salmon in rivers and streams from Punta Gorda in southern Humboldt County, California, to the southern extent of the species' range which was identified as the San Lorenzo River in Santa Cruz County, California (inclusive). The ESU also includes populations from several San Francisco Bay tributaries. The four listed hatchery stocks are those propagated by the Don Clausen Fish Hatchery Captive Broodstock Program, Scott Creek/King Fisher Flats Conservation Program, the Scott Creek Captive Broodstock Program, and the Noyo River Fish Station egg-take Program. The Noyo River program was discontinued after the 2005 listing.

The recent information compiled by the BRT clearly indicates that adult coho salmon entered Soquel Creek and successfully spawned during the 2007-2008 winter period. The juvenile progeny of those spawning adults were observed by a SWFSC scientist during the summer of 2008. The genetic information collected from these fish clearly indicate they are closely related to other coho salmon in the Santa Cruz Mountains Diversity Stratum and not the result of strays from outside the ESU or streams to the

north of the entrance to San Francisco Bay. Since there had been no recent evidence of coho salmon presence in Soquel Creek prior to 2008, it is likely that the adult coho salmon which successfully spawned during the winter of 2007-2008 were strays from nearby watersheds within the Santa Cruz Mountains Diversity Stratum.

Aptos Creek, like Soquel Creek, is part of Coast Range Ecoregion and is believed to have historically supported a coho salmon population (Anderson 1995). NMFS biologists familiar with the habitat requirements of coho salmon have determined that Aptos Creek has freshwater habitat suitable for successful spawning and rearing of coho salmon. Because Aptos Creek has suitable habitat for coho salmon and is in close proximity to Soquel Creek and other streams that support coho salmon, the BRT recommends that any coho found in Aptos Creek be considered part of the ESU. Although there is no current information indicating coho salmon occur in Aptos Creek, this may be the result of limited survey efforts in the watershed.

While the BRT believes that Pajaro River tributaries draining the Santa Cruz Mountains (e.g., Corralitos Creek and perhaps others) may have also supported coho salmon in the past, the lack of historical or recent evidence of naturally occurring coho salmon in this watershed makes inclusion of these streams within the ESU more difficult to justify. The BRT concludes, however, that any coho salmon found spawning in Santa Cruz Mountain streams south of Aptos Creek should be considered part of this ESU unless they are non-native stock transfers.

#### Status of CCC Coho Salmon ESU

Status reviews by Weitkamp et al. (1995) and Good et al. (2005) both concluded that the CCC coho salmon ESU was in danger of extinction. We listed the CCC coho

salmon ESU as threatened in 1996 (61 FR 56138) and reclassified its status as endangered in 2005 (71 FR 834). Both status reviews cited concerns over low abundance and long-term downward trends in abundance throughout the ESU, as well as extirpation or near extirpation of populations across most of the southern two-thirds of the ESU's historical range including several major river basins. They further cited as risk factors the potential loss of genetic diversity associated with range reductions or loss of one or more brood lineages, coupled with the historical influence of hatchery fish (Good et al., 2005).

As part of a 5-year status review update, the SWFSC has updated the biological status of the coho salmon populations in this ESU (Spence and Williams, 2011). This review concluded that despite the lack of long-term data on coho salmon abundance, available evidence from recent shorter-term research and monitoring efforts demonstrates that the status of coho populations in this ESU have worsened since the Good et al. (2005) review. For all available time series, recent population trends have been downward, in many cases significantly so, with particularly poor adult returns from 2006 to 2010. Based on population viability criteria developed to support recovery planning efforts for this ESU (Bjorkstedt et al., 2005; Spence et al., 2008), all of the independent populations are well below low-risk abundance targets (e.g., Ten Mile River, Noyo River, Albion River), and several are, if not extinct, below high-risk depensation thresholds (e.g., San Lorenzo River, Pescadero Creek, Russian River, Gualala River). Though population-level estimates of abundance for most independent populations are lacking, it does not appear that any of the five diversity strata identified by Bjorkstedt et al. (2005) currently support a single viable coho salmon population based on viability criteria that have been established by Spence et al. (2008). Based on a consideration of the updated

biological status information for this ESU, including the status of the newly discovered coho salmon population in Soquel Creek, we conclude that the CCC coho salmon ESU continues to be in danger of extinction.

#### Summary of Factors Affecting the Revised CCC Coho Salmon ESU including Soquel and Aptos Creeks

##### A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat and Range

Our review of factors affecting the CCC coho salmon ESU concluded that logging, agriculture and mining activities, urbanization, stream channelization, dams, wetland loss, and water withdrawals and unscreened diversions have contributed to the decline of the CCC coho salmon ESU. Land-use activities associated with logging, road construction, urban development, mining, agriculture, and recreation have significantly altered coho salmon habitat quantity and quality (61 FR 56138; 31 October 1996 and 70 FR 37160; 28 June 2005). Impacts of these activities include alteration of streambank and channel morphology, alteration of ambient stream water temperatures, elimination of spawning and rearing habitat, fragmentation of available habitats, elimination of downstream recruitment of spawning gravels and large woody debris, removal of riparian vegetation resulting in increased stream bank erosion, and degradation of water quality (61 FR 56138; 31 October 1996 and 70 FR 37160; 28 June 2005).

Land-use and extraction activities leading to habitat modification can have significant direct and indirect impacts to coho salmon populations. Land-use activities associated with residential and commercial development, road construction, use and maintenance, recreation, and logging have significantly altered coho salmon freshwater

habitat quantity and quality throughout this ESU as well as in the Aptos and Soquel watersheds. Associated impacts of these activities include; alteration of streambank and channel morphology; alteration of ambient stream water temperatures; degradation of water quality; elimination of spawning and rearing habitats; elimination of recruitment of large woody debris; removal of instream large woody debris which forms pool habitats and overwintering refugia; removal of riparian vegetation resulting in increased bank erosion; loss of floodplain habitats and associated refugia; and increased sedimentation input into spawning and rearing areas resulting in the loss of channel complexity, pool habitat, suitable gravel substrate, and large woody debris.

The loss and degradation of habitats and flow conditions were identified as a threat to coho salmon in Soquel and Aptos Creeks in the draft recovery plan for this ESU (NMFS, 2010). Although many historically harmful practices have been halted, particularly removal of large woody debris by Santa Cruz County, much of the historical damage to habitats limiting coho salmon in these watersheds remains to be addressed. Habitat restoration activities and threat abatement actions will likely require more focused effort and time to stabilize and improve habitat conditions in order to improve the survival of coho salmon in these watersheds. Additionally, in some watersheds, land-use practices such as quarrying and road maintenance practices continue to pose risks to the survival of local coho salmon populations.

#### B. Overutilization for Commercial, Recreational, Scientific, or Education Purposes

Previous reviews (61 FR 56138; 31 October 96 and 70 FR 37160; 28 June 2005) concluded that ocean and recreational fisheries had adversely impacted coho salmon populations throughout its range on the west coast and contributed to their decline.



Commercial and recreational fisheries have been closed since the mid 1990s for coho salmon in California; however, the coho salmon in this ESU as well as Soquel Creek can still be impacted from fisheries as a result of incidental bycatch. In recent years, ocean fisheries for salmon have been severely constrained; however, incidental bycatch on coho salmon is poorly understood and could potentially be significant for this ESU in watersheds where populations are in low abundance. Recreational fishing for steelhead is still allowed in some portions of this ESU, including Soquel and Aptos Creeks, and therefore, coho salmon, when present, may be unintentionally caught by steelhead anglers. The risk of unintentional capture is believed to be higher in these watersheds than in many other coastal streams because of current fishing regulations that allow catch and release for steelhead based on a calendar dates regardless of river flow. Fishing during low flow periods may expose coho salmon adults to increased rates of incidental capture and injury.

At the time the CCC coho salmon ESU was listed in 1996, collection for scientific research and educational programs were believed to have little or no impact on California coho salmon populations. In California, most of the scientific collection permits are issued by DFG and NMFS to environmental consultants, Federal resource agencies, and educational institutions. Regulation of take is controlled by imposing conditions on individual permits (61 FR 56138). Given the extremely low population levels throughout the ESU, but especially south of the entrance to San Francisco Bay, any collections can have significant impacts on local populations and need to be monitored. In Soquel and Aptos Creeks, two researchers are currently sampling juvenile salmonid populations using electrofishing as part of their methodology. Only one researcher is authorized to

capture coho salmon and the other must stop collections if juvenile coho salmon are detected.

### C. Disease or Predation

Relative to the effects of fishing, habitat degradation, and hatchery practices, disease and predation are not believed to have been major factors contributing to the decline of West Coast coho salmon populations or this ESU. However, disease and predation may have substantial adverse impacts in localized areas. Specific diseases known to be present in and affect salmonids are listed in 69 FR 33102 (14 June 2004). No current or historical information exists to quantify changes in infection levels and mortality rates attributable to these diseases for coho salmon, including coho salmon populations in Soquel and Aptos Creeks.

Habitat conditions such as low water flows and high water temperatures can exacerbate susceptibility to infectious diseases (69 FR 33102; 14 June 2004). The large quantity of water diverted from Soquel Creek which results in decrease summer flows may increase the susceptibility of rearing coho salmon to disease and predation. Avian predators have been shown to impact some juvenile salmonids in freshwater and near shore environments. In nearby Scott Creek, a SWFSC scientist (Hayes, pers. comm.) has documented substantial predation impacts on outmigrating smolts based on the discovery of pit tags in gull nesting areas. Predation may significantly influence salmonid abundance in some local populations when other prey are absent and physical conditions lead to the concentration of adults and juveniles (Cooper and Johnson, 1992). Low flow conditions in these watersheds may enhance predation opportunities, particularly in streams where adult coho may congregate at the mouth of streams waiting for high flows

for access (DFG, 1995). These type of conditions could lead to significant predation in Soquel Creek because of the low abundance of coho salmon. Marine predation is a concern in some areas (i.e., seal and sea lions) given the dwindling abundance of coho salmon across the range of this ESU; however, it is generally considered by most investigators to be an insignificant contributor to the population declines that have been observed in Central California.

#### D. Inadequacy of Existing Regulatory Mechanisms

At the time of listing, most Federal and non-Federal regulatory efforts were not found to adequately protect coho salmon in this ESU due to a variety of factors. Detailed information on these regulatory mechanisms and protective efforts is provided in NMFS' Draft Proposed Recovery Plan for CCC Coho Salmon (NMFS, 2010) and in the 1996 (61 FR 56138) and 2005 (70 FR 37160) final listing determinations. Since the listing, these Federal and non-Federal regulatory efforts have not been significantly improved or implemented differently to reduce threats to this species. A variety of State and Federal regulatory mechanisms exist to protect coho salmon habitat and address the factors causing the decline of this ESU, but they have not been adequately implemented (61 FR 56138; NMFS, 2010).

In Soquel and Aptos Creeks, the only significant program change has been the curtailed funding and implementation of the Santa Cruz County's large instream wood removal program in 2009. Curtailment of this program is anticipated to result in eventual improvement to coho salmon summer and winter rearing habitats during the freshwater lifestage. Other regulatory efforts, including lack of oversight and enforcement of State

water law pertaining to permitted and unpermitted diversions are a significant concern in Soquel and Aptos Creeks.

#### E. Other Natural or Human-made Factors Affecting Continued Existence

Long-term trends in rainfall and marine productivity associated with atmospheric conditions in the North Pacific Ocean have a major influence on coho salmon production. Natural climatic conditions may have exacerbated or mitigated the problems associated with degraded and altered riverine and estuarine habitats (69 FR 33102). Detailed discussions on these factors can be found the 1996 and 2005 listing determinations (61 FR 56138 and 70 FR 37160). No significant changes to this factor have occurred since listing and the threats remain for the ESU and Soquel and Aptos Creeks.

The best available scientific information indicates that the Earth's climate is warming, driven by the accumulation of greenhouse gasses in the atmosphere (Oreskes, 2004; Battin, et al. 2007; Lindley et al., 2007). Because coho salmon depend upon freshwater streams and the ocean during all stages of their life history cycle, the populations in this ESU are likely to be significantly impacted by climate change in the decades ahead, including populations in Soquel and Aptos Creeks.

#### Protective Efforts

At the time of its reclassification in 2005, existing protective efforts for this ESU were not considered sufficiently certain in terms of their implementation or effectiveness to ameliorate its extinction risk (70 FR 37160; 28 June 2005). Extinction risk of this ESU has increased since 2005 (Spence, 2011) and we continue to believe that there are insufficient protective efforts for ESU as a whole to ameliorate its extinction risk.

#### Proposed Determination

Based on a careful consideration of all available information, including new information on the presence of coho salmon in Soquel Creek and the similarity of habitat in Aptos Creek we propose to extend the southern boundary of the CCC coho salmon ESU southward to include Soquel and Aptos Creeks in Santa Cruz County, California. Based on an updated assessment of coho salmon populations throughout the range of the ESU, including the newly discovered population in Soquel Creek, and a consideration of the factors affecting this species throughout the range of the ESU, we propose to list the redefined ESU as endangered.

#### Section 9 Take Prohibitions

The CCC coho salmon ESU is listed as an endangered species. Section 9 of the ESA prohibits certain activities that directly or indirectly affect endangered species. These section 9(a) prohibitions apply to all individuals, organizations, and agencies subject to U.S. jurisdiction. If this proposed rule is finalized and the southern boundary of the ESU is moved southward to include populations of coho salmon in Soquel and Aptos Creeks, then the section 9 take prohibitions will apply to all naturally produced coho salmon in these watersheds. Depending on their activities, some individuals, organizations and agencies in Soquel and Aptos Creeks may be subject to these take prohibitions if this proposed rule is finalized.

#### Other Protections

Section 7(a)(2) of the ESA and the NMFS-U.S. Fish and Wildlife Service (USFWS) joint implementing regulations require Federal agencies to confer with us on actions likely to jeopardize the continued existence of species proposed for listing or to result in the destruction or adverse modification of proposed critical habitat. If a

proposed species is ultimately listed, Federal agencies must consult on any action they authorize, fund, or carry out if those actions may affect the listed species or critical habitat. Federal agencies carrying out such actions in Soquel and Aptos Creeks may be subject to these requirements.

#### Peer Review

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for peer review establishing minimum peer review standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Bulletin, implemented under the Information Quality Act, is intended to enhance the quality and credibility of the Federal Government's scientific information, and applies to influential or highly influential scientific information disseminated on or after June 16, 2005.

On July 1, 1994, the NMFS and USFWS published a series of policies regarding listings under the ESA, including a policy for peer review of scientific data (59 FR 34270). The intent of the peer review policy is to ensure that listings are based on the best scientific and commercial data available. To satisfy our obligations under the OMB Bulletin, we obtained independent peer review of the BRT report (Spence et al., 2011) which supports this 12-month finding and proposed rule to extend the southern boundary of the CCC coho salmon ESU. Both peer reviewers strongly supported the BRT's findings, analyses, and conclusions. Minor technical and other comments from the peer reviewers will be addressed prior to dissemination of the final BRT report.

#### Critical Habitat

Critical habitat is defined in section 3 of the ESA as: “(i) the specific areas within the geographic area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical and biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species” (16 U.S.C. 1532(5)(A)). Conservation means the use of all methods and procedures needed to bring the species to the point at which listing under the ESA is no longer necessary. Section 4(a)(3)(A) of the ESA requires that, to the maximum extent prudent and determinable, critical habitat be designated concurrently with the listing of a species. If critical habitat is not then determinable, however, section 4(b)(6)(C)(ii) allows for a one-year extension. Section 4(b)(2) requires that designation of critical habitat be based on the best scientific data available, after taking into consideration the economic, national security, and other relevant impacts of specifying any particular area as critical habitat.

Once critical habitat is designated, section 7 of the ESA requires Federal agencies to ensure that they do not fund, authorize, or carry out any actions that are likely to destroy or adversely modify that habitat. This requirement is in addition to the section 7 requirement that Federal agencies ensure that their actions do not jeopardize the continued existence of the listed species.

Critical habitat was designated for the CCC coho salmon ESU in 1999 (64 FR 24049) and includes all accessible reaches of rivers between Punta Gorda and the San

Lorenzo River, which is the current southern boundary of the ESU. Within this area, the critical habitat includes all waterways, substrate and adjacent riparian habitat below longstanding, natural impassable barriers and some specific dams. Critical habitat is not presently being proposed for designation in the Soquel and Aptos Creek watersheds as it is not now determinable. We are seeking public input and information to assist in gathering and analyzing the best available scientific data to support the possible designation of critical habitat in Soquel and Aptos Creeks. After considering all the available information, we may initiate rulemaking by publishing a proposed rule in the Federal Register to designate critical habitat in these watersheds. Any proposed rule will provide an opportunity for public comments and a public hearing, if requested.

#### Public Comments Solicited

To ensure that the proposed range extension of the CCC coho salmon ESU is based on the best available information and will be as accurate as possible, we solicit comments and suggestions from the public, other governmental agencies, the scientific community, industry, environmental groups, and any other interested party (See Dates and Addresses for submitting comments). Specifically, we are interested in the following information for Soquel and Aptos Creeks: (1) historical and any recent information, including photographs, regarding the presence and run size of coho salmon in these streams; (2) information on the current suitability of habitat in these streams to support coho salmon spawning, rearing and migration, as well as threats to these habitat features; (3) biological or other relevant information concerning any current or planned activities that may threatened coho salmon or its habitat in these streams; (4) efforts being made to



protect coho salmon in these streams; and (5) potential economic costs or other impacts of designating critical habitat in these streams.

## References

A complete list of all references cited herein is available upon request (see Addresses section).

## Classification

### National Environmental Policy Act

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in Pacific Legal Foundation v. Andrus, 675 F. 2<sup>nd</sup> 829 (6<sup>th</sup> Cir. 1981), we have concluded that ESA listing actions are not subject to the environmental assessment requirements of the National Environmental Policy Act (See NOAA Administrative Order 216-6).

### Executive Order 12866, Regulatory Flexibility Act, and Paperwork Reduction Act

As noted in the Conference Report on the 1982 Amendments to the ESA, economic impacts may not be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the ESA listing process. In addition, this proposed rule is exempt from review under Executive Order 12866. This proposed rule does not contain a collection-of-information requirement for the purposes of the Paperwork Reduction Act.

### Federalism

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific consultation directives for situations

where a regulation will preempt state law, or impose substantial direct compliance costs on state and local governments (unless required by statute). In keeping with the intent of the Administration and Congress to provide continuing and meaningful dialogue on issues of mutual State and Federal interest, this proposed rule will be given to the State of California and the relevant State agencies for their review and comment. We have consulted with the State of California through CDFG regarding the issue of coho salmon populations south of San Francisco Bay and considered their comments. CDFG also commented on the 90-day finding for the petition in question and we have considered their comments in reviewing the petition and this proposed rule. As we proceed with this rulemaking, we intend to continue engagement with the State and relevant agencies, as well as local government entities, to ensure we provide them ample opportunity to comment on the proposal and fully consider their comments.

List of Subjects in 50 CFR Part 224

Endangered marine and anadromous species.

Dated: January 31, 2011.

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Eric C. Schwaab,

Assistant Administrator for Fisheries,

National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 224 is proposed to be amended as follows:

**PART 224 – ENDANGERED MARINE AND ANADROMOUS SPECIES**

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

Authority: 12 U.S.C. 1531-1543 and 16 U.S.C. 1361 et seq.

2. Revise the entry for “Central California Coast coho,” in § 224.101(a) to read as follows:

§ 224.101 Enumeration of endangered marine and anadromous species.

\* \* \* \* \*

(a) \* \* \*

Species <sup>1</sup>		Where Listed	Citation (s) for Listing Determinations	Citations (s) for Critical Habitat Designations
Common name	Scientific name			
* * * * *				
Central California Coast coho	<u>Oncorhynchus</u> kitsutch	U.S.A. , CA, including all naturally spawning populations of coho salmon from Punta Gorda in northern California South to and including Aptos Creek in central California, as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system, as well as three artificial propagation programs: the Don Clausen Fish Hatchery Captive Broodstock Program, Scott Creek/King Fisher Flats Conservation Program, and the Scott Creek Captive Broodstock Program	[INSERT FR CITATION & DATE WHEN PUBLISHED AS A FINAL RULE]	[INSERT FR CITATION & DATE WHEN PUBLISHED AS A FINAL RULE]
* * * * *				

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

[FR Doc. 2011-2537 Filed 02/03/2011 at 8:45 am; Publication Date: 02/04/2011]