



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 210308-0048; RTID 0648-XW032]

Endangered and Threatened Wildlife; 90-day Finding on a Petition to List Southern Oregon and Northern California Coastal Spring-run Chinook Salmon as Threatened or Endangered Under the Endangered Species Act

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

ACTION: 90-day petition finding, request for information, and initiation of status review.

SUMMARY: We, NMFS, announce a 90-day finding on a petition to list Southern Oregon and Northern California Coastal (SONCC) spring-run Chinook salmon (*Oncorhynchus tshawytscha*) as a threatened or endangered Evolutionarily Significant Unit (ESU) under the Endangered Species Act (ESA) and to designate critical habitat concurrently with the listing. We find that the petition presents substantial scientific and commercial information indicating the petitioned action may be warranted. We will conduct a status review of SONCC spring-run Chinook salmon to determine whether the petitioned action is warranted. To ensure that the status review is comprehensive, we are soliciting scientific and commercial information pertaining to this species from any interested party.

DATES: Scientific and commercial information pertinent to the petitioned action must be received by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit data and information relevant to our review of the status of Southern Oregon and Northern California Coastal spring-run Chinook salmon, identified by NOAA-NMFS-2020-0079, by either of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal eRulemaking Portal. Go to <https://www.regulations.gov> and enter NOAA-NMFS-2020-0079 in the Search box. Click on the “Comment” icon, complete the required fields, and enter or attach your comments.
- *Mail or hand-delivery:* Protected Resources Division, West Coast Region, NMFS, 1201 NE Lloyd Blvd., Suite #1100, Portland, OR 97232. Attn: Gary Rule.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on <https://www.regulations.gov> without change. All personal identifying information (*e.g.*, name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter "N/A" in the required fields if you wish to remain anonymous).

Electronic copies of the petition and other materials are available from the NMFS website at www.fisheries.noaa.gov/rules-and-regulations.

FOR FURTHER INFORMATION CONTACT: Gary Rule, NMFS West Coast Region, at gary.rule@noaa.gov, (503) 230-5424; or Heather Austin, NMFS Office of Protected Resources, at heather.austin@noaa.gov, (301) 427-8422.

SUPPLEMENTARY INFORMATION:

Background

On May 4, 2020, the Secretary of Commerce received a petition from Richard K. Nawa (hereafter, the Petitioner) to identify SONCC spring-run Chinook salmon as a

separate ESU and list the ESU as threatened or endangered under the ESA. Previously, in 1999, we identified the SONCC Chinook salmon ESU as including both spring-run and fall-run Chinook salmon and determined that the ESU did not warrant listing as threatened or endangered under the ESA (64 FR 50394; September 16, 1999). The Petitioner is requesting that SONCC spring-run Chinook salmon be considered as a separate ESU and listed as threatened or endangered. The Petitioner asserts that new research into the genomic basis for premature migration in salmonids demonstrates that significant genetic differences underlie the spring- and fall-run life history types, and that the unique evolutionary lineage of spring-run Chinook salmon warrants their listing as a separate ESU. The Petitioner also requests the designation of critical habitat for SONCC spring-run Chinook salmon concurrent with ESA listing. The petition includes an overview of new research into the genomic basis for premature migration in salmonids, as well as general biological information about SONCC spring-run Chinook salmon including their distribution and range, life history characteristics, habitat requirements, as well as basin-level population status and trends and factors contributing to the populations' status. Copies of the petition are available as described above (see **ADDRESSES**, above).

ESA Statutory, Regulatory, and Policy Provisions, and Evaluation Framework

Section 4(b)(3)(A) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*), requires, to the maximum extent practicable, that within 90 days of receipt of a petition to list a species as threatened or endangered, the Secretary of Commerce make a finding on whether that petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted, and to promptly publish such finding in the **Federal Register** (16 U.S.C. 1533(b)(3)(A)). When it is found that substantial scientific or commercial information in a petition indicates the petitioned action may be warranted (a “positive 90-day finding”), we are required to promptly commence a review of the

status of the species concerned during which we will conduct a comprehensive review of the best available scientific and commercial information. In such cases, we conclude the review with a finding as to whether, in fact, the petitioned action is warranted within 12 months of receipt of the petition. Because the finding at the 12-month stage is based on a more thorough review of the available information, as compared to the narrow scope of review at the 90-day stage, a positive 90-day finding does not prejudice the outcome of the status review.

Under the ESA, a listing determination may address a species, which is defined to also include subspecies and, for any vertebrate species, any distinct population segment (DPS) that interbreeds when mature (16 U.S.C. 1532(16)). In 1991, we issued the Policy on Applying the Definition of Species Under the Endangered Species Act to Pacific Salmon (ESU Policy; 56 FR 58612; November 20, 1991), which explains that Pacific salmon populations will be considered a DPS, and hence a “species” under the ESA, if it represents an “evolutionarily significant unit” of the biological species. The two criteria for delineating an ESU are: 1) It is substantially reproductively isolated from other conspecific populations, and 2) it represents an important component in the evolutionary legacy of the species. The ESU Policy was used to define the SONCC Chinook salmon ESU in 1999 (64 FR 50394; September 16, 1999), and we use it exclusively for defining distinct population segments of Pacific salmon. A joint NMFS–U.S. Fish and Wildlife Service (USFWS) (jointly, “the Services”) policy clarifies the Services’ interpretation of the phrase “distinct population segment” for the purposes of listing, delisting, and reclassifying a species under the ESA (DPS Policy; 61 FR 4722; February 7, 1996). In announcing this policy, the Services indicated that the ESU Policy for Pacific salmon was consistent with the DPS Policy and that NMFS would continue to use the ESU Policy for Pacific salmon.

A species, subspecies, or DPS is “endangered” if it is in danger of extinction throughout all or a significant portion of its range, and “threatened” if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (ESA sections 3(6) and 3(20), respectively, 16 U.S.C. 1532(6) and (20)). Pursuant to the ESA and our implementing regulations, we determine whether species are threatened or endangered based on any one or a combination of the following five section 4(a)(1) factors: the present or threatened destruction, modification, or curtailment of habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; inadequacy of existing regulatory mechanisms to address identified threats; or any other natural or manmade factors affecting the species’ existence (16 U.S.C. 1533(a)(1), 50 CFR 424.11(c)).

ESA-implementing regulations issued jointly by NMFS and USFWS (50 CFR 424.14(h)(1)(i)) define “substantial scientific or commercial information” in the context of reviewing a petition to list, delist, or reclassify a species as “credible scientific or commercial information in support of the petition’s claims such that a reasonable person conducting an impartial scientific review would conclude that the action proposed in the petition may be warranted.” Conclusions drawn in the petition without the support of credible scientific or commercial information will not be considered “substantial information.” In reaching the initial (90-day) finding on the petition, we will consider the information described in sections 50 CFR 424.14(c), (d), and (g) (if applicable).

Our determination as to whether the petition provides substantial scientific or commercial information indicating that the petitioned action may be warranted will depend in part on the degree to which the petition includes the following types of information: (1) Information on current population status and trends and estimates of current population sizes and distributions, both in captivity and the wild, if available; (2) identification of the factors under section 4(a)(1) of the ESA that may affect the species

and where these factors are acting upon the species; (3) whether and to what extent any or all of the factors alone or in combination identified in section 4(a)(1) of the ESA may cause the species to be an endangered species or threatened species (*i.e.*, the species is currently in danger of extinction or is likely to become so within the foreseeable future), and, if so, how high in magnitude and how imminent the threats to the species and its habitat are; (4) information on adequacy of regulatory protections and effectiveness of conservation activities by states as well as other parties, that have been initiated or that are ongoing, that may protect the species or its habitat; and (5) a complete, balanced representation of the relevant facts, including information that may contradict claims in the petition. *See* 50 CFR 424.14(d).

If the petitioner provides supplemental information before the initial finding is made and states that it is part of the petition, the new information, along with the previously submitted information, is treated as a new petition that supersedes the original petition, and the statutory timeframes will begin when such supplemental information is received. *See* 50 CFR 424.14(g).

We may also consider information readily available at the time the determination is made. We are not required to consider any supporting materials cited by the petitioner if the petitioner does not provide electronic or hard copies, to the extent permitted by U.S. copyright law, or appropriate excerpts or quotations from those materials (*e.g.*, publications, maps, reports, letters from authorities). *See* 50 CFR 424.14(c)(6).

The “substantial scientific or commercial information” standard must be applied in light of any prior reviews or findings we have made on the listing status of the species that is the subject of the petition. Where we have already conducted a finding on, or review of, the listing status of that species (whether in response to a petition or on our own initiative), we will evaluate any petition received thereafter seeking to list, delist, or reclassify that species to determine whether a reasonable person conducting an impartial

scientific review would conclude that the action proposed in the petition may be warranted despite the previous review or finding. Where the prior review resulted in a final agency action – such as a final listing determination, 90-day not-substantial finding, or 12-month not-warranted finding – a petitioned action will generally not be considered to present substantial scientific and commercial information indicating that the action may be warranted unless the petition provides new information or analyses not previously considered.

At the 90-day finding stage, we do not conduct additional research, and we do not solicit information from parties outside the agency to help us in evaluating the petition. We will accept the petitioner's sources and characterizations of the information presented if they appear to be based on accepted scientific principles, unless we have specific information in our files that indicates the petition's information is incorrect, unreliable, obsolete, or otherwise irrelevant to the requested action. Information that is susceptible to more than one interpretation or that is contradicted by other available information will not be dismissed at the 90-day finding stage, so long as it is reliable and a reasonable person conducting an impartial scientific review would conclude it supports the petitioner's assertions. In other words, conclusive information indicating that the species may meet the ESA's requirements for listing is not required to make a positive 90-day finding. We will not conclude that a lack of specific information alone necessitates a negative 90-day finding if a reasonable person conducting an impartial scientific review would conclude that the unknown information itself suggests the species may be at risk of extinction presently or within the foreseeable future.

To make a 90-day finding on a petition to list a species, we evaluate whether the petition presents substantial scientific or commercial information indicating the subject species may be either threatened or endangered, as defined by the ESA. First, we evaluate whether the information presented in the petition, in light of the information readily

available in our files, indicates that the petitioned entity constitutes a “species” eligible for listing under the ESA. Next, we evaluate whether the information indicates that the species faces an extinction risk such that listing, delisting, or reclassification may be warranted; this may be indicated in information expressly discussing the species’ status and trends, or in information describing impacts and threats to the species. We evaluate any information on specific demographic factors pertinent to evaluating extinction risk for the species (*e.g.*, population abundance and trends, productivity, spatial structure, age structure, sex ratio, diversity, current and historical range, habitat integrity or fragmentation), and the potential contribution of identified demographic risks to extinction risk for the species. We then evaluate the potential links between these demographic risks and the causative impacts and threats identified in section 4(a)(1).

Information presented on impacts or threats should be specific to the species and should reasonably suggest that one or more of these factors may be operative threats that act or have acted on the species to the point that it may warrant protection under the ESA. Broad statements about generalized threats to the species, or identification of factors that could negatively impact a species, alone, do not constitute substantial information indicating that listing may be warranted. We look for information indicating that not only is the particular species exposed to a factor, but that the species may be responding in a negative fashion; then we assess the potential significance of that negative response.

Many petitions identify risk classifications made by nongovernmental organizations, such as the International Union on the Conservation of Nature (IUCN), the American Fisheries Society, or NatureServe, as evidence of extinction risk for a species. Risk classifications by such organizations or made under other Federal or state statutes may be informative, but such classification alone may not provide the rationale for a positive 90-day finding under the ESA. For example, as explained by NatureServe, their assessments of a species’ conservation status do “not constitute a recommendation by

NatureServe for listing under the U.S. Endangered Species Act” because NatureServe assessments “have different criteria, evidence requirements, purposes and taxonomic coverage than government lists of endangered and threatened species, and therefore these two types of lists should not be expected to coincide”

(<https://explorer.natureserve.org/AboutTheData/DataTypes/ConservationStatusCategories>). Additionally, species classifications under IUCN and the ESA are not equivalent; data standards, criteria used to evaluate species, and treatment of uncertainty are also not necessarily the same. Thus, when a petition cites such classifications, we will evaluate the source of information that the classification is based upon in light of the standards on extinction risk and impacts or threats discussed above.

Previous Federal Actions

On September 16, 1999, following completion of a status review of west coast Chinook salmon (*O. tshawytscha*) populations in Washington, Oregon, Idaho, and California, and an updated status review for four Chinook salmon ESUs, NMFS published a final rule to list two Chinook salmon ESUs as threatened under the Endangered Species Act (ESA) (64 FR 50394). In that final rule, NMFS identified the SONCC Chinook salmon ESU as composed of coastal populations of spring- and fall-run Chinook salmon from Euchre Creek, Oregon, through the Lower Klamath River, California (inclusive) (64 FR 50394). After assessing information concerning Chinook salmon abundance, distribution, population trends, and risks, and after considering efforts being made to protect Chinook salmon, NMFS determined in that final rule that the Southern Oregon and Northern California Coastal ESU of Chinook salmon did not warrant listing under the ESA.

Evaluation of Petition and Information Readily Available in NMFS’ Files

The petition contains information and assertions in support of designating and listing the spring-run component of the SONCC Chinook salmon ESU as threatened or

endangered under the ESA. As discussed above, based on biological, genetic, and ecological information compiled and reviewed as part of the previous status review of Chinook salmon (*O. tshawytscha*) populations in Washington, Oregon, Idaho, and California (Myers *et al.*, 1998) and the status review update for deferred ESUs of West Coast Chinook Salmon (NMFS, 1999), we included all spring-run and fall-run Chinook salmon populations from Euchre Creek, Oregon, through the Lower Klamath River, California, in the SONCC Chinook salmon ESU (64 FR 50394; September 16, 1999). While run-timing was recognized as having a heritable basis, review of genetic data at that time did not identify clear sub-groups associated with migration timing within the SONCC Chinook salmon ESU. Spring- and fall-run Chinook salmon were found to be separate ESUs in other areas (*e.g.*, in the upper Columbia River, Snake River, and Sacramento River drainages). However, in coastal areas life-history and genetic differences between runs were found to be relatively modest, with spring- and fall-run fish exhibiting similar ocean distribution patterns and genetic characteristics (Myers *et al.*, 1998; NMFS, 1999).

The Petitioner asserts that spring-run Chinook salmon in the SONCC Chinook salmon ESU have been sufficiently isolated from fall-run Chinook salmon for evolutionarily important differences to have arisen and been maintained. The Petitioner presents new genetic evidence to suggest the SONCC spring-run Chinook salmon populations may qualify as a separate ESU from the fall-run populations. The Petitioner asserts that findings from recently published articles on the evolutionary basis of premature migration in Pacific salmon (Prince *et al.*, 2017; Davis *et al.*, 2017; Narum *et al.*, 2018; and Thompson *et al.*, 2019) indicate that spring-run Chinook salmon in the SONCC ESU should be considered a separate ESU. Prince *et al.* (2017) reported on a survey of genetic variation between mature- and premature-migrating populations of steelhead and Chinook salmon from California, Oregon, and Washington. Narum *et al.*

(2018) replicated analysis of loci identified by Prince *et al.* (2017) as associated with premature and mature migratory phenotypes. Davis *et al.* (2017) genotyped Chinook salmon within the Siletz River using multiple genetic markers, including neutral markers and adaptive loci associated with migratory timing. Thompson *et al.* (2019) provide additional information about genetic differentiation between mature- and premature-migrating Chinook salmon in the Rogue River, Oregon, and in the Klamath River, California, particularly in response to anthropogenic changes. The Petitioner suggests that the results of these studies indicate that premature migration (*e.g.*, spring-run Chinook salmon) arose from a single evolutionary event within the species and, if lost, is not likely to re-evolve in time frames relevant to conservation planning.

The Petitioner also asserts that the Chinook salmon spring-run life history represents an important component of the evolutionary legacy of the species. In support of this assertion, the Petitioner describes specific ecological and evolutionary benefits of the life history variation provided by spring-run stocks within the SONCC Chinook salmon ESU. The Petitioner describes how spring-run Chinook salmon tend to spawn higher up in the watershed than fall-run and how this adds to the spatial distribution of the species. The Petitioner notes that the presence of spring-run Chinook salmon in the headwaters could protect SONCC Chinook salmon from large mortality events due to disease outbreaks, interspecific competition for food and habitat, warm temperatures and low flow regimes due to climate change, and temporal unfavorable conditions in the marine environment. The Petitioner asserts that diversity in run timing contributes to the resiliency and stability of salmon populations.

At the 90-day finding stage, we also consider information readily available in our files. We are currently processing another petition that cites the same scientific research in support of a request to identify and list a new coastal spring-run Chinook salmon ESU. On September 24, 2019, the Secretary of Commerce received a petition from the Native

Fish Society, Center for Biological Diversity, and Umpqua Watersheds to identify Oregon Coast spring-run Chinook salmon as a separate ESU and list the ESU as threatened or endangered under the ESA. In the Oregon Coast spring-run Chinook salmon petition, the petitioners similarly asserted that findings from recently published articles on the evolutionary basis of premature migration in Pacific salmon (Prince *et al.*, 2017; Davis *et al.*, 2017; Narum *et al.*, 2018; and Thompson *et al.*, 2019) indicate that spring-run Chinook salmon in the Oregon Coast ESU should be considered a separate ESU. On April 13, 2020, we published notice of a positive 90-day finding on the petition to list Oregon Coast spring-run Chinook salmon (85 FR 20476) and announced our intent to conduct a status review.

We have reviewed the new genetic information and the information presented by the Petitioner about the evolutionary legacy of spring-run Chinook salmon in the SONCC ESU. Based on information provided by the Petitioner, as well as information readily available in our files, we find that a reasonable person would conclude that SONCC spring-run Chinook salmon may qualify as an ESU pursuant to our ESU Policy.

SONCC Spring-Run Chinook Salmon Status and Trends

The Petitioner asserts that spring-run Chinook salmon populations in the SONCC ESU have suffered significant declines in numbers from historical abundance. The Petitioner cited findings by Nicholas and Hankin (1989) that all spring-run Chinook salmon populations on the Oregon coast are smaller than fall-run populations and are depressed from historical population sizes. The Petitioner presents data from the Oregon Department of Fish and Wildlife (ODFW) that indicate a 25-year decline in abundance of spring-run Chinook salmon on the Rogue River (1981-2006) (ODFW 2019). During a 10-year period (1970-1979) that spans the construction of the William Jess Dam (1977) on the Rogue River, an average of 28,052 adult spring-run Chinook salmon were counted

annually. ODFW (2019) estimated that there were 10,240 adult spring-run Chinook salmon in 2017 and that the annual average for the years 2008-2017 was 9,663.

The Petitioner notes that following ODFW's adoption of the Rogue Spring Chinook Conservation Plan in 2007, the average annual abundance of natural-origin adult spring-run Chinook salmon increased from 7,596 to 9,663 in 2017. The Petitioner asserts that this increase of spring-run Chinook salmon in the Rogue River was likely a result of the removal of the Gold Hill, Savage Rapids, and Gold Ray dams, which allowed heterozygous and homozygous fall-run Chinook salmon to ascend upriver rapidly and spawn with homozygous spring-run Chinook. In the Final Rogue Spring Chinook Salmon Conservation Plan Comprehensive Assessment and Update, ODFW found that while the status of spring-run Chinook salmon improved over the past decade the ten year average is below the desired threshold of 15,000 naturally produced adult spring-run Chinook salmon returning to the Rogue River annually (ODFW, 2019). The Petitioner also calls attention to the Cole M. Rivers Hatchery and Genetic Management Plan that reports the smolt to adult return rate of Cole M. Rivers Hatchery spring-run Chinook salmon in the Rogue River has been below 1 percent since 2002 (ODFW, 2016). The Petitioner asserts that the smolt to adult return rate for natural fish is also likely low.

The Petitioner further asserts that the abundance of spring-run Chinook salmon in the Rogue River may actually be lower than reported. Hess *et al.* (2016), Prince *et al.* (2017) and Thompson *et al.* (2019) have studied the relationship between genetic material from a portion of the genome that includes the Greb1L gene (otherwise referred to as the Greb1L region of the genome) and run-timing in Chinook salmon and steelhead. The authors characterized the Greb1L region as two alleles (different forms) and three genotypes (different combinations of the alleles): Individuals with two early run-timing alleles (early-run homozygotes), individuals with two late run-timing alleles (late-run homozygotes), and individuals with one allele for the early and one for the late run-

timing (heterozygotes). Thompson *et al.* (2019) asserted that there is a considerable amount of interbreeding between spring-run and fall-run Chinook salmon in the Rogue River as a result of dam construction. Thompson *et al.* (2019) analyzed samples from 2004 and reported that many of the spring-run Chinook salmon counted at Gold Ray dam were in fact heterozygotes.

The Petitioner also calls attention to a declining trend in abundance of adult spring-run Chinook salmon in the Smith River. The Petitioner cites data from snorkel surveys of spring-run Chinook salmon in the South Fork, Middle Fork, and North Fork of the Smith River from 1982 to 2018 (Hanson, 2018). Hanson (2018) found that the number of adult spring-run Chinook salmon counted per mile (density) has been declining since survey counts peaked in 1996 at a density of 2.5 salmon per mile. Hanson (2018) reported that adult spring-run Chinook salmon densities have remained at less than 0.3 salmon per mile since 2007 (Hanson, 2018). The Petitioner asserts that this decline in spring-run Chinook salmon indicates that the population within the Smith River is threatened with extinction.

Based on information provided by the Petitioner, as well as information readily available in our files, we find that a reasonable person would conclude current demographic risks indicate that SONCC spring-run Chinook salmon populations may be at risk of extinction and thus warrant further investigation.

Analysis of ESA Section 4(a)(1) Factors

The Petitioner asserts that all five ESA section 4(a)(1) factors contribute to the need to list the SONCC spring-run Chinook salmon as a threatened or endangered ESU. Each of these factors is discussed in further detail below.

The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

The Petitioner asserts that SONCC spring-run Chinook salmon face numerous threats to suitable habitat, including impacts from dams, logging practices, road building, and mining operations. The Army Corps of Engineers completed construction of William Jess Dam/Lost Creek Reservoir on the upper Rogue River in 1977. The Petitioner cites the Rogue Spring Chinook Salmon Conservation Plan Comprehensive Assessment and Update (ODFW, 2019) in support of their assertion that artificially enhanced summer stream flows from Lost Creek Reservoir are adversely affecting spring-run Chinook salmon. ODFW (2019) found that enhanced summer stream flows allow fall-run Chinook salmon to spawn upstream in habitat that historically was utilized primarily by spring-run Chinook salmon.

The Petitioner asserts that artificially augmented high flows in August and September in the Rogue River may reduce egg to fry survival of spring-run Chinook salmon. If spring-run Chinook salmon spawn during high river flows in September, redds may be dewatered and embryos desiccated when releases from the Lost Creek Reservoir decrease during the reservoir fill season, which begins in January (ODFW, 2019). ODFW (2019) states that egg to fry survival has likely decreased as a result of redds being dewatered.

The Petitioner also asserts that other anthropogenic disturbances have degraded spring-run Chinook salmon spawning habitat in the Rogue and Smith Rivers. Specifically, the Petitioner asserts that increased fine sediments due to logging, road building, and mining have adversely affected spawning habitat which is supported by similar conclusions in NMFS' 1997 final rule listing the SONCC coho salmon ESU under the ESA (62 FR 24588; May 6, 1997), describing habitat that is co-extensive with the range of SONCC spring-run Chinook salmon.

NMFS' most recent SONCC coho salmon status review (NMFS, 2016) evaluated the status of habitat threats over an area that includes the range of SONCC spring-run

Chinook salmon and concluded that degraded habitat conditions in this area continue to be of concern, particularly with regard to insufficient instream flow, unsuitable water temperatures, and insufficient rearing habitat due to a lack of floodplain and channel structure. While restoration and regulatory actions have been made to improve freshwater and estuary habitat conditions in the SONCC coho salmon ESU, habitat concerns remain throughout the range of the ESU particularly in regards to water quality, water quantity, and rearing habitat.

Based on information provided by the Petitioner, as well as information readily available in our files, we find that a reasonable person would conclude that habitat destruction and curtailment of their range may pose a threat to the continued existence of SONCC spring-run Chinook salmon.

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The Petitioner asserts that harvest of SONCC spring-run Chinook salmon for commercial and recreational fisheries in the ocean and freshwater may be a threat. The Petitioner notes that the fisheries off the coast of Oregon and California are not managed to minimize impacts on SONCC spring-run Chinook. The Petitioner notes that the Rogue Spring Chinook Salmon Conservation Plan assumes the average harvest rate of naturally produced spring-run Chinook salmon is 15 percent (ODFW, 2007). The Petitioner does not specifically assert that the harvest rates of SONCC spring-run Chinook are too high.

The Petitioner additionally summarizes the freshwater angling regulations put in place in 2008 to protect spring-run Chinook salmon from direct harvest in the Rogue River. The Petitioner does not provide an explanation for why freshwater angling regulations may be inadequate. ODFW (2019) states that from January through May, anglers may only keep adipose fin-clipped hatchery spring-run Chinook Salmon on the Rogue River. Wild harvest opens at various sections of the Rogue River after the early-run fish have passed. ODFW also states that the fishery does not open to wild harvest

upstream of Dodge Bridge, where early-run fish occupy deep pools during the spring and summer. ODFW (2019) found that following implementation of the freshwater angling regulations, there were immediate reductions in freshwater harvest and increased spawner escapement (2008 - 2011). As a result, adult returns of naturally produced spring-run Chinook salmon began to improve in 2012. The Petitioner notes that while the estimated harvest rates of natural spring-run Chinook salmon are low, spring-run Chinook salmon are not meeting the escapement goal and homozygous spring-run Chinook salmon are likely declining.

Based on information provided by the Petitioner, as well as information readily available in our files, we find that there is inadequate information for a reasonable person to determine if overutilization poses a threat to the continued existence of SONCC spring-run Chinook salmon.

Disease or Predation

The Petitioner asserts that disease poses a risk to naturally produced spring-run Chinook in the Rogue River. ODFW (2019) found that under certain conditions disease, primarily caused by the bacterium *Flexibacter columnaris*, can spread quickly in Rogue River Chinook salmon. Downstream of Gold Ray Dam, extensive mortalities of adults were documented in 1977, 1987, 1992, and 1994 due to disease (ODFW, 2007). Estimates of mortality rates during those years ranged between 28 percent and 70 percent of the spring-run Chinook salmon that entered the Rogue River (ODFW, 2007). The Petitioner cites the Rogue Spring Chinook Salmon Conservation Plan that states that disease is known to be a primary factor that affects the abundance of spring-run Chinook salmon (ODFW, 2007). The Rogue Spring Chinook Salmon Conservation Plan also notes that spring-run Chinook salmon in the Rogue River are exposed annually to high water temperatures that increase the mortality rates of infected juvenile Chinook salmon (ODFW, 2007). The Petitioner notes that ODFW, the Oregon Water Resources

Department, and the U.S. Army Corps of Engineers now release water from the Lost Creek Reservoir to minimize pre-spawning mortality of adult Chinook salmon due to disease (ODFW, 2019). The Rogue Spring Chinook Salmon Conservation Plan Comprehensive Assessment and Update (ODFW, 2019) states that during the 2013 - 2015 drought, careful reservoir management resulted in no significant loss of fish due to disease on the Rogue.

The Petitioner also asserts that hatchery produced coho salmon and steelhead prey upon natural origin spring-run Chinook salmon fry. Surveys conducted during 1979-81 indicated that both of these species prey upon the fry of spring-run Chinook salmon (ODFW, 2007). The Petitioner cites estimations made by Evenson *et al.* (1981) that hatchery origin steelhead consume between 134,000 to 218,000 spring-run Chinook salmon fry and that hatchery origin coho salmon are estimated to consume between 29,000 to 57,000 spring-run Chinook salmon fry. In the Rogue Spring Chinook Salmon Conservation Plan, ODFW reported that if these estimates are accurate, hatchery origin salmonids consume 3-7 percent of the natural origin spring-run Chinook salmon fry produced annually in the Rogue River (ODFW, 2007). ODFW (2007) noted that the rate of predation by juvenile steelhead and coho salmon from Cole M. Rivers Hatchery is highly dependent on the duration of time that hatchery fish reside in the river, and on the proportion of the release groups that fail to migrate downstream. ODFW (2007) also found that predation is likely not a primary factor contributing to the decline of spring-run Chinook salmon in the Rogue River.

Based on information provided by the Petitioner, as well as information readily available in our files, we find that there is inadequate information for a reasonable person to determine if disease or predation pose a threat to the continued existence of SONCC spring-run Chinook salmon.

Inadequacy of Existing Regulatory Mechanisms

The Petitioner asserts that existing federal and state regulatory mechanisms are not sufficient to protect and recover SONCC spring-run Chinook salmon and their habitat. The Petitioner states that the Oregon Native Fish Conservation Policy, The Rogue Spring Chinook Salmon Conservation Plan, and the Coles M. Rivers Hatchery and Genetic Management Plan do not provide safeguards to stabilize or reverse increases in Chinook salmon heterozygous for run timing. The Petitioner asserts that insufficient measures have been taken to prevent the interbreeding between naturally produced spring-run Chinook salmon and hatchery produced spring-run Chinook salmon from the Cole M. Rivers Hatchery. The Petitioner further asserts that the Rogue Fall Chinook Conservation Plan (ODFW, 2007) does not adequately address the risks of interbreeding with spring-run fish as a result of artificially augmented summer flows (ODFW, 2013).

The Petitioner notes that spring-run Chinook salmon on the Rogue River are not listed as threatened or endangered under the Oregon state Endangered Species Act. The Petitioner asserts that while the Rogue Spring Chinook Species Management Unit/SONCC ESU is on the Oregon Sensitive Species List, the designation does not provide regulatory protection for SONCC Chinook salmon.

Consistent with the petition received to list an ESU of Oregon Coast spring-run Chinook salmon under the ESA, the Petitioner here asserts that the Oregon Forest Practices Act and Forest Practice Rules do not provide adequate habitat protections for spring-run Chinook salmon. For reasons previously described in the 90-day finding for that petition (85 FR 20476; April 13, 2020) the petitioner asserts that it is unlikely that the Oregon Forest Practices Act adequately protects the habitat of spring-run Chinook salmon in the Rogue River.

NMFS' most recent SONCC coho salmon status review (NMFS 2016) evaluated the inadequacy of existing regulatory mechanisms over an area in large part co-extensive with the range of SONCC spring-run Chinook salmon and concluded that the Oregon

Forest Practices Act does not provide adequate protection for SONCC coho salmon. NMFS (2016) noted that particular areas of concern include: (1) whether the widths of riparian management areas (RMAs) are sufficient to fully protect riparian functions and stream habitats; (2) whether operations allowed within RMAs will degrade stream habitats; (3) operations on high-risk landslide sites; and (4) watershed-scale effects. NMFS (2016) similarly expressed concerns with the adequacy of California's forest practice rules to provide protection for SONCC coho salmon. Specifically, NMFS recommended the addition of the following standards to California's forest practice rules: (1) provide Class II-S (standard) streams with the same protections afforded Class II-L (large) streams, (2) include provisions to ensure hydrologic disconnection between logging roads and streams, and (3) include provisions to avoid hauling logs on hydrologically connected streams during winter periods. Furthermore, NMFS concluded that the effects of past and present timber harvest activities in California continue to be an ongoing threat to the SONCC coho salmon ESU.

Based on information provided by the Petitioner, as well as information readily available in our files, we find that a reasonable person would conclude that the inadequacy of existing regulatory mechanisms may pose a threat to the continued existence of SONCC spring-run Chinook salmon.

Other Natural or Manmade Factors Affecting Its Continued Existence

Hatcheries

The Petitioner asserts that the Cole M. Rivers Hatchery threatens the future viability of spring-run Chinook salmon in the Rogue River. The Petitioner asserts that operation of the Cole M. Rivers Hatchery poses a risk to natural origin spring-run Chinook salmon due to multiple factors including competition, predation, disease, and interbreeding. The Petitioner asserts that the release of an average of 1.6 million spring-run Chinook salmon annually from the Cole M. Rivers Hatchery results in increased

competition between naturally produced spring-run Chinook salmon and the more abundant artificially produced salmonids. As previously mentioned the Petitioner asserts that hatchery produced coho salmon and steelhead prey upon natural origin spring-run Chinook salmon fry. The Petitioner further notes that the hatchery is a known source of disease in Chinook salmon. Amandi *et al.* (1982) found that spring-run Chinook salmon in the Cole M. Rivers Hatchery were found to be infected with *F. columnaris* and that pathogen concentrations in the outflow from the hatchery were greater than concentrations from the other water bodies sampled. ODFW (2019) reported that it is unknown if the infected salmon were infected with *F. columnaris* before entering the hatchery or if the salmon contracted *F. columnaris* after entering the hatchery.

Climate Change and Ocean Conditions

The Petitioner also asserts that ongoing threats of poor ocean conditions and climate change are likely to threaten the continued existence of SONCC spring-run Chinook salmon. As described in NMFS' Oregon Coast Chinook salmon status reviews (NMFS, 2011; Stout *et al.*, 2012), variability in ocean conditions in the Pacific Northwest is a concern for the persistence of coastal Oregon Chinook salmon. The Petitioner also cites NMFS (2011) and Stout *et al.* (2012) in support of assertions that predicted effects of climate change are expected to negatively affect coastal Oregon salmonids through many different factors. The Petitioner cites the Oregon Coastal Management Plan (ODFW, 2014) in support of his assertion that regional changes in climate and weather patterns will negatively impact SONCC coastal aquatic ecosystems and salmonids. The Petitioner cites Reiman and Isaaks (2010) to support his assertion that variable weather and warming events will become more frequent in the Pacific Northwest and continue to threaten SONCC Chinook salmon.

Based on information provided by the Petitioner, as well as information readily available in our files, we find that a reasonable person would conclude that hatcheries and

climate change may pose threats to the continued existence of SONCC spring-run Chinook salmon.

Petition Finding

After reviewing the information contained in the petition, as well as information readily available in our files, we conclude the petition presents substantial scientific information indicating that the petitioned action to delineate the SONCC spring-run Chinook salmon ESU and list it as threatened or endangered under the ESA may be warranted. Therefore, in accordance with section 4(b)(3)(A) of the ESA and NMFS' implementing regulations (50 CFR 424.14(h)(2)), we will commence a status review to determine whether the spring-run populations of SONCC Chinook salmon constitute an ESU, and, if so, whether that SONCC spring-run Chinook salmon ESU is in danger of extinction throughout all or a significant portion of its range, or likely to become so within the foreseeable future throughout all or a significant portion of its range. After the conclusion of the status review, we will make a finding as to whether listing the SONCC spring-run Chinook salmon ESU as endangered or threatened is warranted as required by section 4(b)(3)(B) of the ESA.

Information Solicited

To ensure that our status review is informed by the best available scientific and commercial data, we are opening a 60-day public comment period to solicit information on spring-run Chinook salmon in the SONCC Chinook salmon ESU. We request information from the public, concerned governmental agencies, Native American tribes, the scientific community, agricultural and forestry groups, conservation groups, fishing groups, industry, or any other interested parties concerning the current and/or historical status of spring-run Chinook salmon in the SONCC Chinook salmon ESU. Specifically, we request information regarding: (1) species abundance; (2) species productivity; (3) species distribution or population spatial structure; (4) patterns of phenotypic, genotypic,

and life history diversity; (5) habitat conditions and associated limiting factors and threats; (6) ongoing or planned efforts to protect and restore the species and their habitats; (7) information on the adequacy of existing regulatory mechanisms, whether protections are being implemented, and whether they are proving effective in conserving the species; (8) data concerning the status and trends of identified limiting factors or threats; (9) information on targeted harvest (commercial and recreational) and bycatch of the species; (10) other new information, data, or corrections including, but not limited to, taxonomic or nomenclatural changes; and (11) information concerning the impacts of environmental variability and climate change on survival, recruitment, distribution, and/or extinction risk.

We request that all information be accompanied by: (1) supporting documentation such as maps, bibliographic references, or reprints of pertinent publications; and (2) the submitter's name, address, and any association, institution, or business that the person represents.

References

A complete list of all references cited herein is available upon request (See **FOR FURTHER INFORMATION CONTACT**).

Authority: The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: March 10, 2021.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.