E 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 260217-0048]

RTID 0648-XR129

Endangered and Threatened Wildlife and Plants; Notice of 12-Month Finding on a Petition to List the Washington Coast Chinook Salmon Evolutionarily Significant Unit as Threatened or Endangered Under the Endangered Species Act

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

ACTION: Notice of 12-month petition finding.

SUMMARY: NMFS has completed a comprehensive status review of the Washington Coast (WC) Chinook salmon (*Oncorhynchus tshawytscha*) Evolutionarily Significant Unit (ESU) in response to a petition to list this species as threatened or endangered under the Endangered Species Act (ESA) and to designate critical habitat concurrently with the listing. Based on the best scientific and commercial information available, including the status review report, and after considering efforts being made to protect the species, NMFS has determined that the WC Chinook salmon ESU does not warrant listing.

DATES: This finding was made available on [*insert date of publication in the* ***FEDERAL REGISTER***].

ADDRESSES: The petition, status review report, **Federal Register** notices, and the list of references can be accessed electronically online at: *https://www.fisheries.noaa.gov/action/petition-list-washington-coast-chinook-salmon-threatened-or-endangered-under-esa*. The peer review report is available online at: *https://www.noaa.gov/organization/information-technology/peer-review-plans*.

FOR FURTHER INFORMATION CONTACT: Shivonne Nesbit, NMFS West Coast Region, at *shivonne.nesbit@noaa.gov*, (503) 231-6741; or Jennifer Schultz, NMFS Office of Protected Resources, at *jennifer.schultz@noaa.gov*, (301) 427-8443.

SUPPLEMENTARY INFORMATION:

Background

On July 17, 2023, the Secretary of Commerce received a petition from the Center for Biological Diversity and Pacific Rivers (hereafter, the Petitioners) to list spring-run Chinook salmon on the WC as a threatened or endangered ESU under the ESA or, alternatively, list WC Chinook salmon (inclusive of all run types) as a threatened or endangered ESU. The Petitioners also requested the designation of critical habitat concurrent with ESA listing. On December 7, 2023, NMFS published a positive 90-day finding (88 FR 85178) announcing that the petition presented substantial scientific and commercial information indicating the petitioned action to list the WC Chinook salmon ESU may be warranted. NMFS also announced the initiation of a status review of the species, as required by section 4(b)(3)(A) of the ESA, and requested information to inform the agency's decision on whether the species warrants listing as threatened or endangered under the ESA. NMFS received information from the public in response to the 90-day finding and incorporated that information into both the status review report and this 12-month finding. This information complemented NMFS's thorough review of the best available scientific and commercial data for the species (*see Status Review* below).

Listing Determinations Under the ESA

NMFS is responsible for determining whether species under its jurisdiction are threatened or endangered under the ESA (16 U.S.C. 1531 *et seq*.). To make a determination whether a species meets the definition of threatened or endangered under the ESA, NMFS first considers whether the species constitutes a "species" as defined under section 3 of the ESA, then whether the status of the species qualifies it for listing as either threatened or endangered. Section 3 of 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" (16 U.S.C. 1532(16)). In 1991, NMFS 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). Under the ESU Policy, a Pacific salmon population is a distinct population segment (DPS), and hence a species under the ESA, if it represents an ESU of the biological species. The ESU Policy identifies two criteria for making ESU determinations: (1) the population must be substantially reproductively isolated from other conspecific population units and (2) it must represent an important component in the evolutionary legacy of the 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. A population would meet the second criterion if it contributes substantially to the ecological and genetic diversity of the species as a whole.

NMFS uses the ESU Policy exclusively for delineating DPS 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 was consistent with the DPS Policy and that NMFS would continue to use the ESU Policy for Pacific salmon.

Section 3 of the ESA further defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range" and a threatened species as one "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532(6), (20)). Thus, NMFS interprets an "endangered species" to be one that is presently in danger of extinction. A "threatened species," on the other hand, is not presently in danger of extinction, but is likely to become so in the foreseeable future.

In determining whether a species qualifies as a threatened species, the Services must analyze whether the species is likely to become an endangered species within the "foreseeable future." As indicated in 50 CFR 424.11(d), the foreseeable future extends as far into the future as the Services can make reasonably reliable predictions about the threats to the species and the species' responses to those threats. The Services describe the foreseeable future on a case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat-projection timeframes, and environmental variability. The Services need not identify the foreseeable future in terms of a specific period of time.

Section 4(a)(1) of the ESA requires NMFS to determine whether any species is endangered or threatened as a result of any one or a combination of the following factors: (A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence (16 U.S.C. 1533(a)(1)). Section 4(b)(1)(A) of the ESA requires NMFS to make listing determinations solely on the basis of the best scientific and commercial data available after conducting a review of the status of the species and after taking into account efforts, if any, being made by any state or foreign nation or political subdivision thereof to protect the species (16 U.S.C. 1533(b)(1)(A)). In evaluating the efficacy of existing domestic conservation efforts that have yet to be implemented or demonstrate effectiveness, NMFS relies on the Services' joint Policy for Evaluation of Conservation Efforts When Making Listing Decisions ("PECE"; 68 FR 15100, March 28, 2003).

Life History of Chinook Salmon

The largest of the Pacific salmon, Chinook salmon (*Oncorhynchus tshawytscha*) are in the Salmonidae subfamily, which consists of six genera of trout and salmon (Nelson *et al.*, 2016). Chinook salmon are anadromous and semelparous (*i.e.*, individuals die after spawning). Their life history involves incubation, hatching, and emergence in freshwater, migration to the ocean, and subsequent return to freshwater for completion of maturation and spawning. Within this general life history strategy, however, Chinook salmon display considerable variation with respect to age at outmigration from freshwater, ocean distribution and migratory patterns, length of residence in the ocean, and time of year in which they return to freshwater and spawn.

WC Chinook salmon typically express an ocean-type life history strategy. As defined by Healey (1983), this strategy is characterized by a predominately subyearling juvenile emigration to salt water and a coastal-oriented marine migration pattern. The northern portion of its range (north of the Quinault River) contains rivers that drain to productive, albeit small estuaries and coastal areas used as juvenile rearing habitat. The limited basin size of many coastal watersheds mandates the reliance on extended estuarine or coastal rearing by juveniles. The southern rivers of the WC contain numerous large estuarine areas, especially in Grays Harbor and Willapa Bay. Ocean-type Chinook salmon tend to have much larger eggs than stream-type populations, which more commonly occur in inland areas (Nicholas and Hankin 1989). Larger eggs result in larger juveniles and may enable an earlier and more successful emigration to marine rearing habitat (Kreeger 1995).

Duration of ocean residence and migration patterns are highly variable for Chinook salmon. Some fish rear in the ocean for less than one year, returning to freshwater as age-2 fish and are almost all males (known as “jacks”). Other fish may rear in the ocean from 2 to 6 years. WC Chinook salmon generally mature at 3, 4, and 5 years old and migrate in a northerly direction to coastal waters off British Columbia and Alaska (Myers *et al.*, 1998).

Chinook salmon may return to their natal river during almost any month of the year (Healey 1991). Temporal "runs" of Chinook salmon are identified by the time of year in which adult salmon return to freshwater to spawn. Although the timing of the run is the focus, distinct runs also differ in the degree of maturation at the time of river entry and actual time of spawning (Myers *et al.* 1998). For example, spring-run Chinook salmon tend to enter freshwater as immature or "bright" fish, migrate farther upriver, and finally spawn in the late summer and early fall. In contrast, fall-run Chinook salmon generally enter freshwater at a more advanced stage of maturity, move rapidly to their spawning areas on the mainstem or lower tributaries of the rivers, and spawn within a few days or weeks of freshwater entry (Myers *et al.* 1998). WC Chinook salmon includes spring-, summer- and fall-run timings. Rivers in the WC tend to be shorter with low gradients near the coast. These low gradient areas are preferred spawning sites for fall-run Chinook salmon, and fall-run Chinook salmon predominate in most WC river systems.

Previous ESA Status Reviews

In 1998, NMFS conducted a comprehensive status review of West Coast Chinook salmon populations in California, Oregon, Washington, and Idaho (Myers *et al.*, 1998). NMFS convened an expert panel of scientists from NMFS' Northwest and Southwest Fisheries Science Centers, NMFS' Northwest and Southwest Regional Offices, and a representative of the National Biological Survey to (1) identify WC Chinook salmon ESUs and (2) evaluate their risk of extinction. During the 1998 review, NMFS determined that the WC Chinook salmon ESU is composed of coastal populations of spring-, summer- and fall-run Chinook salmon spawning north of the Columbia River and west of the Elwha River. Following the identification of the WC Chinook salmon

ESU, the 1998 status review assessment concluded that most populations had a long-term upward trend; however, several smaller populations were experiencing sharply downward trends (Myers *et al.*, 1998). Fall-run populations were predominant and tended to be at a lower risk than spring- or summer-run populations. Hatchery production was described as significant in the southern portion of this ESU, whereas the majority of the populations in the northern portion had minimal hatchery influence. The 1998 status review team unanimously concluded that Chinook salmon in the WC ESU were not in danger of extinction nor were they likely to become so in the foreseeable future (Myers *et al.*, 1998). NMFS did not propose to list the WC ESU, concluding that the ESU is distributed among a relatively large number of populations, most of which are large enough to avoid serious genetic and demographic risks associated with small populations. Thus, NMFS made the determination at that time that the ESU was neither in danger of extinction nor likely to become endangered in the foreseeable future (63 FR 11482, 11494, March 9, 1998; 63 FR 14308, March 24, 1999).

Updated Status Review of WC Chinook Salmon ESU

To help ensure that the updated status review was based on the best available and most recent scientific information, NMFS solicited information during a 60-day public comment period regarding the WC ESU structure and extinction risk of the species, along with any relevant protective efforts (88 FR 85178, December 7, 2023). NMFS also convened a Status Review Team (SRT) to review the best available scientific and commercial data regarding the ESU structure and extinction risk of WC Chinook salmon, consistent with the scope of the listing petition. Specifically, the SRT addressed (1) whether the geographic extent of the previously identified ESU warranted redelineation or refinement, (2) the relationship to the defined ESU of hatchery programs propagating Chinook salmon, (3) current threats faced by the ESU, and (4) the level of extinction risk of the ESU throughout all or a significant portion of its range. The 2025 status review report (SRT 2025) summarizes the best available data regarding the status of WC Chinook salmon and presents the SRT's professional judgement of the extinction risk facing the WC Chinook salmon ESU but makes no recommendation as to the listing status of the species. The status review report (SRT 2025) is available electronically (*see* **ADDRESSES**).

The status review report was subject to independent peer review pursuant to the Office of Management and Budget Final Information Quality Bulletin for Peer Review (M–05–03; December 16, 2004). The status review was peer reviewed by three independent scientists selected by the Center for Independent Experts (CIE) with expertise in salmonid biology, conservation, and management and specific knowledge of Chinook salmon. The SRT asked peer reviewers to evaluate the adequacy, appropriateness, and application of data used in the status review report, as well as the findings made in the ''Risk Assessment'' section of the report. The SRT addressed all peer reviewer comments prior to finalizing the status review report. The peer review report is available electronically (*see* **ADDRESSES**).

NMFS subsequently reviewed the status review report, its cited references, and peer review comments and concluded that the status review report, upon which this 12-month finding is based, provides the best available scientific and commercial information on the WC Chinook salmon ESU. Much of the information discussed below on the ESU configuration, demographics, threats, and extinction risk is attributable to the status review report. NMFS has applied the statutory provisions of the ESA, including evaluation of the factors set forth in section 4(a)(1)(A)–(E), NMFS's regulations regarding listing determinations, and relevant policies identified herein in publishing this 12-month finding. In the sections below, NMFS provides information from the status review report regarding threats to and the status of the WC Chinook salmon ESU.

Review of ESU Delineations

As discussed above, NMFS initially identified the WC Chinook salmon ESU in the late 1990s as part of the coastwide status review process undertaken by the agency. Factors considered included patterns of juvenile and adult life-history variation, freshwater ecological features, patterns in ocean distribution, and patterns of genetic variation. Myers *et al.* (1998) identified the populations with shared genetic, life history, and ecological habitat characteristics that would constitute the WC ESU. Coastal populations spawning north of the Columbia River and west of the Elwha River were included in this ESU. These populations were distinguished from those in Puget Sound by their older age at maturity and more northerly ocean distribution. Allozyme data also indicated geographical differences between populations from this area and those in Puget Sound, the Columbia River, and the Oregon coast ESUs. Populations within this ESU were ocean-type Chinook salmon and generally matured at ages 3, 4, and 5. Ocean distribution for these fish were more northerly than that for the Puget Sound and Lower Columbia River ESUs. The ESU lies within the Coastal Ecoregion, which is strongly influenced by the marine environment: high precipitation, moderate temperatures, and easy migration access (Myers *et al*., 1998).

The SRT reviewed the analysis that identified the WC Chinook salmon ESU configuration (Myers *et al.*, 1998) and concurred with the conclusion. In particular, patterns of genetic variation indicate that the WC Chinook salmon ESU is substantially reproductively isolated from other Chinook salmon ESUs, and patterns of life-history, genetic, and ecological variation indicate that the WC Chinook salmon ESU forms an important component of the evolutionary legacy of the species.

Most of the new information related to ESU configuration consists of genetic studies published since 1998. The SRT reviewed all the available information and concluded that the WC ESU configuration was unchanged from that identified by Myers *et al.* (1998).

The SRT also considered the Petitioners' request to consider partitioning WC Chinook salmon ESU based on run-timing and the underlying genetic polymorphism (Prince *et al.*, 2017; Thompson *et al.*, 2020; Thompson 2019; Waples *et al.*, 2022). In general, populations with different run times in the same basin are more genetically similar than similar run times in different basins (Moran *et al.*, 2013; Waples *et al.*, 2004). The SRT concluded, and NMFS agrees, that spring-run Chinook salmon in the WC ESU do not meet either prong of the NMFS ESU Policy (Waples 1991): spring-run populations are not substantially reproductively isolated from the other portions of WC Chinook including WC fall-run populations, and WC spring-run populations are not a significant component of the evolutionary legacy of the species as a whole (SRT 2025). Therefore, NMFS determined the WC Chinook salmon ESU should not be partitioned based on run timing.

ESU Membership of Hatchery-origin Chinook Salmon

In 2005, NMFS issued a policy for considering hatchery-origin fish in ESA-listing determinations ("Hatchery Listing Policy"; 70 FR 37204, June 28, 2005). This policy states that "In delineating an ESU to be considered for listing, NMFS will identify all components of the ESU, including populations of natural fish (natural populations) and hatchery stocks that are part of the ESU. Hatchery stocks with a level of genetic divergence relative to the local natural population(s) that is no more than what occurs within the ESU: (a) are considered part of the ESU; (b) will be considered in determining whether an ESU should be listed under the ESA; and (c) will be included in any listing of the ESU" (70 FR 37215, June 28, 2005). NMFS recognizes that there are a number of ways to compute and compare genetic divergence and that it is not possible to sample all fish within the ESU to precisely determine the range of genetic diversity within an ESU.

In factoring artificial propagation into the extinction risk assessment for an ESU, NMFS evaluates potential risks to the naturally-spawned components of the ESU posed by hatchery programs determined not to be part of the ESU and look at the potential benefits and risks to the naturally-spawned components of the ESU posed by hatchery programs determined to be part of the ESU.

Below, NMFS summarizes information on the current hatchery practices and the source broodstock for the hatcheries. NMFS consider hatchery programs for Pacific salmon and steelhead to be either "integrated" or "segregated" based on the genetic management goals and protocols for propagating a hatchery broodstock. NMFS would consider a hatchery program to be genetically integrated if a principal goal is to minimize potential genetic divergence between the hatchery broodstock and a naturally-spawning population. Genetically integrated programs systematically include natural-origin fish in the broodstock each year or generation. NMFS would consider hatchery programs to be genetically segregated if the principal goal is to produce a reproductively distinct population primarily, if not exclusively, from adult returns back to the hatchery. In segregated programs, little or no gene flow occurs from a naturally spawning population to the hatchery broodstock.

The use of hatcheries to supplement Chinook salmon natural production began in WC rivers at the turn of the previous century. Initial hatchery production in the WC was predominantly in the Grays Harbor, Willapa Bay, and Quinault River basins (Cobb 1930). Much of the early salmon hatchery production focused on the release of unfed or fed fry and the success of these releases, although numerically large, was likely negligible (Myers *et al.*, 1998). Fry releases from WC hatcheries continued until 1940, when extended hatchery rearing and better hatchery feeds became available (Wendler and Deschamps 1955). To some extent, early (pre-1940) programs likely reduced natural Chinook salmon production and depressed natural run sizes by removing returning natural-origin adults for use as broodstock and outplanting fry that had a low fry to adult survival rate. An additional consequence of these early hatchery programs was the importation of Chinook salmon from distant areas, predominantly from hatcheries on the Lower Columbia River, to supplement coastal hatchery egg collection shortfalls. The importation of out-of-ESU hatchery stocks continued into the late 20th Century, most notably the establishment of a Cowlitz (Lower Columbia River ESU) x Umpqua (Oregon Coast ESU) hybrid spring-run at the Sol Duc Hatchery, and the importation of Lower Columbia River ESU and Puget Sound ESU fall-run hatchery stocks into Grays Harbor and Willapa Bay (Myers *et al*. 1998). The majority of the out-of-ESU introductions were terminated in the 1980s, but the Sol Duc Hatchery spring-run Chinook salmon program was not discontinued until 2006.

Presently, hatcheries in the WC Chinook salmon ESU are operated by a variety of entities: the USFWS, Washington Department of Fish and Wildlife (WDFW), Tribes, and non-profits. Hatchery production trends over the last 15 years have focused on larger fall-run programs that are able to collect sufficient numbers of returning adults to meet production goals. Out-of-ESU introductions have been eliminated, and exchanges among hatcheries are limited to within basin or within Water Resource Inventory Areas (WRIA). WRIA is a designation established by the Washington Department of Ecology to delineate major watersheds within the state. A WRIA is typically the size of a major watershed and larger than the subbasins it contains, but it can be smaller than a state’s largest river systems such as the Chehalis, which is split into multiple WRIAs. All the hatcheries are operated for harvest goals, except the Bingham Creek Hatchery which is a conservation hatchery (Anderson *et al.*, 2020). Hatchery production across the ESU is focused on the release of subyearling fall-run Chinook salmon, with projected annual releases of 14.2 million juveniles. The release target for summer-run Chinook salmon from the Sol Duc Hatchery (fish are also reared at Lonesome Creek Hatchery and Bear

Springs Hatchery prior to release at Sol Duc Hatchery) is 1.5 million juveniles, though recent releases have totaled 1.14 million juveniles. The majority of these releases are marked with a clipped adipose fin, and in most cases a portion of each hatchery release is coded-wire tagged. External marking allows the identification of the origin of fish in fisheries, thus allowing for selective harvest, such that broodstock composition goals can be reached. Marking also allows for estimation of the proportion of hatchery fish spawning naturally. The majority of WC Chinook salmon ESU hatcheries are operated as integrated programs (WDFW 2024). For the integrated hatcheries, WDFW reported that 10 to 30 percent of the broodstock utilized was of natural origin (Anderson *et al.*, 2020). While the SRT noted that four hatcheries (Queets, Quinault, Sol Duc, and Nemah) are operated as segregated programs—meaning they do not incorporate natural-origin broodstock—the SRT concluded that these four hatchery programs meet the criteria to be considered part of the WC Chinook salmon ESU.

Based on the elimination of out-of-ESU introductions, exchanges among hatcheries being limited to within-basin or within-WRIA, and the use of local origin broodstock for integrated hatchery programs, the SRT concluded, and NMFS agrees, that the 13 WC Chinook salmon hatchery stocks exhibit a level of genetic divergence relative to the local natural populations that is no more than what occurs within the ESU and meet the criteria to be considered part of the WC Chinook salmon ESU.

Determination of Species

Based on the information above, NMFS concludes that the WC Chinook salmon ESU constitutes a species under the ESA and includes coastal populations of spring-, summer-, and fall-run Chinook salmon spawning north of the Columbia River and west of the Elwha River. This includes the fall-run artificial propagation programs in the Hoko, Waatch, Tsoo-Yess, Quillayute, Queets, Quinault, Wynoochee, Humptulips, Satsop, Willapa, Naselle rivers, and the summer-run program in the Sol Duc River.

Assessment of Extinction Risk

The SRT synthesized the best scientific and commercial information data available regarding the ESU status, which includes information regarding life history, demographic trends, and susceptibility to threats, and evaluated the extinction risk for the WC Chinook salmon ESU. The SRT included in its assessment an evaluation of the likely effects of hatchery-origin fish on the viability of the ESU. The SRT's extinction risk assessment reflects the SRT's professional scientific judgment, guided by the analysis of the demographic risk and threats.

Demographic Risk Analysis

The SRT assessed demographic risk using four key viability criteria: abundance, productivity, spatial structure, and diversity. A summary of NMFS's evaluation follows, with a detailed discussion of the demographic risk analysis available in SRT (2025). In the demographic analysis, populations are defined by both river and run timing, based on the State and Tribal Salmon and Steelhead Stock Inventory (SASSI) naming system with spring-, spring/summer-, summer- and fall-run timings represented in the ESU. The SASSI inventory uses spring/summer-run timing for populations whose run timing falls between the defined spring and summer windows, or where all redds (*i.e.*, shallow nest for incubating eggs) constructed prior to a specific date (*e.g.*, October 15th) are classified as early-run spawners. In practice, salmon managers use the combined "spring/summer" label because in many Washington coastal rivers, there is a continuous spectrum of spawning activity from late August through early October. Because it is often difficult to distinguish a "late spring" fish from an "early summer" fish on the spawning grounds, the October 15th date serves as the standard management boundary to separate these "early" life histories from the dominant fall runs.

For the abundance analysis, the SRT used escapement data from the WDFW salmon population indicators database (*http://wdfw.wa.gov/score*) and the corresponding population definitions with two exceptions. The SRT combined two pairs of populations in Willapa Bay (Nemah-Palix and Naselle-Bear) based on basin size and proximity and to be consistent with groupings in other data provided by WDFW and Tribes. The SRT also did not include the Cook Creek population in this analysis due to the lack of any recent data. This resulted in a total of 27 populations, with 18 fall populations and 9 spring/summer populations with abundance time series data. The SRT grouped all populations identified with spring, summer, or spring/summer timing into a single "spring/summer aggregate" to provide structure for abundance trend analyses and summaries. The SRT's analysis compared current abundance to historical abundance and evaluated recent trends in abundance. The SRT calculated average abundance as a 5-year geometric mean and population trends over 15-year windows. The SRT included the Hoko River population in its abundance analysis but did not report on its trends or statistics due to high variability and hatchery influence.

The SRT also assessed the status of the natural-origin component of the different populations. In general, the risk assessment for an ESU is based on the status of the natural-origin salmon, and hatchery-origin salmon are rarely included regardless of the broodstock origin. Focusing the analysis on natural-origin salmon required breaking escapement into natural- and hatchery-origin values in basins where hatchery- and natural-origin spawners co-occurred. The SRT reviewed the WDFW escapement database, which included 28 populations (Nemah-Palix and Naselle-Bear were assessed separately). The SRT identified 15 populations where escapement was assumed to be predominantly of natural origin, 8 populations where hatchery and natural escapement was counted separately, and 5 populations where escapement was a mix with both natural and hatchery fish counted together. For the abundance analyses, NMFS used natural escapement where known and mixed counts of hatchery and natural fish when separate counts were not available.

The abundance analysis indicated that the WC Chinook salmon ESU is composed predominantly of fall-run Chinook salmon. Spring/summer-run contribute a smaller but potentially important number of individuals to a subset of WC rivers. Recent information on fall-run Chinook salmon abundance showed that 19 monitored populations had relatively stable abundances over the 15-year period evaluated (2007-2021). Total returns for fall-run fish averaged 30,000-40,000 fish per year, whereas spring/summer-run fish returns were in the 5,000-7,000 range. WC Chinook salmon abundance trends have remained stable despite declining age-at- return and relatively high harvest rates. Based on the abundance analysis, the SRT concluded that abundance presents a low risk to the viability of the ESU.

The SRT grouped the 28 populations into 3 aggregates for trend analysis to provide a structured way to manage the complexity of the data and summarize findings across the ESU: a North-Fall aggregate extending down to and including the Quinault River populations; a South-Fall aggregate that includes all Grays Harbor and Willapa Bay populations; and a Spring/Summer aggregate that includes all populations in the ESU with spring, spring/summer or summer run timing. Most North-Fall populations show relatively stable trends with the exception of a peak in the late 1980s. The South-Fall populations did not display a consistent overall trend, with some populations declining (*e.g.*, Hoquiam), others stable (*e.g.*, Humptulips), and one increasing (Nemah/Palix). Many South-Fall populations also exhibited the late 1980s peak seen in the North-Fall populations, as well as two additional peaks around 1997 and 2004. The Spring/Summer aggregate natural escapement values tended to be relatively stable over the last few decades with the exception of the same late 1980s peak shared with the Fall aggregate populations. There is some indication that the Clearwater spring/summer and Satsop summer populations may have declined in abundance since the early 1980s. Total trends for the three aggregates reflect some of the same patterns seen in the individual populations with larger escapements in the late 1980s and less pronounced increases around 2004 and 2010, with relatively stable populations since the 1990s.

The SRT also evaluated the productivity of WC populations. Productivity is measured by the ability of natural-origin fish to replace themselves in the next generation (recruits per spawner). A ratio of 1.0 recruit per spawner (one spawner producing one adult in the next generation) means the population is stable; values above 1.0 indicate growth, while values below 1.0 indicate that a population is declining. The median productivity estimate for WC populations was 3.05 recruits per spawner (SRT 2025). Based on this high productivity, the SRT concluded that productivity is a low risk but noted a concerning regional trend of declining average age and size in spawning adults. The SRT noted that these shifts in age structure can lead to reduced fecundity and may affect productivity in the future; however, as noted above, abundance trends have remained relatively stable since the 1990s despite such shifts.

In terms of spatial structure, WC Chinook salmon populations are well-distributed across the geographic range of the ESU. Most populations are considered naturally sustaining and occupy independent river basins that provide a robust framework for long-term viability. WC Chinook salmon still occupy nearly their entire historical range because the region lacks major dams, although numerous smaller culverts and road crossings can impair tributary access. While these barriers may reduce spatial structure locally, they generally affect relatively small areas and are not considered a limitation on spatial structure.

The SRT also found the ESU exhibits considerable phenotypic diversity, characterized by a wide range of run and spawn timings and varied ages at maturity. Furthermore, natural-origin fish and diverse life-history types remain well-distributed across numerous watersheds throughout the WC ESU.

Overall, the average viable salmon population (abundance, productivity, spatial structure and diversity) category scores indicated that most of the populations were considered by the SRT to be at low risk. Exceptions included the Wynoochee River spring-run population, which is believed to be extirpated; the Sol Duc River spring-run population, which is considered to have been established by non-native hatchery introductions; the Tsoo-Yess River fall-run population, which may not represent a historical population and largely consists of hatchery-origin fish; and the Hoko River fall-run population, which has a large hatchery-origin spawner component. Primary considerations supporting the SRT's conclusions about demographic risks included: WC Chinook salmon abundance trends have remained stable despite declining age-at-return and relatively high harvest rates; the WC ESU consists of numerous, well-distributed spawning populations, indicating that there is low risk associated with spatial structure; the presence of spring- and summer-run fish distributed throughout many of the basins indicates that the ESU as a whole contains considerable life-history diversity; and the high total harvest rates (discussed below) are also evidence of relatively high productivity because the populations are maintaining their abundance despite high harvest rates.

Analysis of Section 4(a)(1) Factors

As described above, section 4(a)(1) of the ESA and NMFS' implementing regulations (50 CFR 424.11(c)) state that NMFS must determine whether a species is endangered or threatened because of any one or a combination of the following factors: the present or threatened destruction, modification, or curtailment of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; the inadequacy of existing regulatory mechanisms; or other natural or manmade factors affecting its continued existence. NMFS evaluated whether and the extent to which each of the foregoing factors contributes to the overall extinction risk of the WC Chinook salmon ESU. See the status review report (SRT 2025) for a detailed discussion of the ESA section 4(a)(1) factors. A summary of NMFS's evaluation follows.

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

The complex life cycle of Chinook salmon gives rise to complex habitat needs, particularly during the freshwater phase (Bjornn and Reiser 1991; Spence *et al.*, 1996; Quinn 2018). Spawning gravels must be of a certain size and free of sediment to allow successful incubation of the eggs. Eggs require cool, clean, and well-oxygenated waters for proper development. Juveniles need abundant food sources, including insects, crustaceans, and other small fish. Juveniles need places to hide from predators (mostly birds and bigger fish), such as under logs, root wads and boulders in the stream, and places to seek refuge from periodic high flows (side channels and off channel areas) and from warm summer water temperatures (cold water springs and deep pools). Returning adults generally do not feed in fresh water but instead rely on limited energy stores to migrate, mature, and spawn. Like juveniles, adults also require cool water and places to rest and hide from predators. Salmon require cool water that is free of contaminants during all life stages. They also require rearing and migration corridors with adequate passage conditions (water quality and quantity available at specific times) to allow access to the various habitats required to complete their life cycle.

NMFS's previous **Federal Register** Notices and reports (NMFS 1996, 1997, 1998), as well as numerous other reports and assessments, have reviewed in detail the effects of historical and ongoing land-management practices that have altered WC salmon habitat (State of Our Watersheds reports from the Northwest Indian Fisheries Commission (2016, 2020) and WRIAs limiting factor analysis reports (Smith 1999a, Smith 1999b, Smith 2000, Smith and Caldwell 2001, Smith and Wenger 2001, Smith 2005)).

A major determinant of trends in salmon abundance is the condition of the freshwater, estuarine, and ocean habitats on which salmon depend. While NMFS rarely has sufficient information to predict the population-scale effects of habitat loss or degradation with precision, it is clear that habitat availability imposes an upper limit on the production of salmon, and reduction in habitat area or quality reduces potential production. Below, NMFS summarizes the land use practices (forestry, agriculture, urbanization) that have altered or in some cases eliminated habitat(s) for WC Chinook salmon.

Many of the basins in the WC are forested and managed for timber. Landownership includes the Olympic National Park (ONP), Olympic National Forest, Washington State Parks Department, Washington Department of Natural Resources, Quinault Indian Nation, private timber companies and privately-owned lands. Large portions of the ESU are located in the ONP. The majority of ONP forests have never been logged and are characterized as temperate rainforest of coniferous old-growth forests. Historically, forestry practices in the WC ESU areas outside the ONP were very permissive and altered watershed processes resulting in degradation of water quality, water quantity, stream stability and stream channel complexity (Cederholm *et al.*, 1980; NWIFC 2020; Smith 2005). While timber harvest activity has decreased since its peak over 50 years ago and timber harvest practices and forest management have improved, the effects of past timber harvest practices and road building continue, and future timber harvest may pose a threat to Chinook salmon. Although efforts are underway to address the legacy effects from historical logging practices, it may take decades for habitat to recover (Martens *et al.*, 2019). Even with ~25 years of more protective timber harvest regulations related to riparian zones, important salmonid habitat components such as instream wood and pools have not recovered through natural recruitment of wood (Martens and Devine 2022). The estimated timeline for recovery of these remaining degradations could range from 100 to 225 years (Devine *et al.*, 2022). The WC ESU habitat is still considered relatively good and intact despite many areas being subjected to both historic and current forest harvest practices largely due to significant portions of high-quality habitat being protected within the ONP and other federal and state forest lands. The threat from current and future timber harvest will depend partly on the Federal, state and tribal forest practices. This topic is explored in the *Inadequacy of Existing Regulatory Mechanisms* section below.

Agriculture activities result in similar impacts to salmonid habitat though the magnitude of impact will vary because of the land conversion that typically occurs with agriculture. Agricultural lands reflect the practices that began in the late 1800s with the removal of trees and clearing of lowland forests (NWIFC 2020). Diking soon followed, with lower estuaries being diked to protect the new farmland and to increase agriculture productivity. Agricultural impacts include loss or modification of wetland, estuaries and floodplain habitats; channelization and loss of stream complexity; riparian removal; reduction of large woody debris recruitment; reduced bank stability and sedimentation; reduced streamflow; elevated water temperatures; and water quality problems stemming from agricultural runoff (*e.g.*, nutrients and pesticides). The most intensive agricultural land use coincides with broad alluvial valleys and the low-lying areas (often former floodplains) of most watersheds. Because of the land clearings, agricultural practices are partially responsible for the significant decrease in large woody debris recruitment in the lower basin. Though grazing occurs routinely on private lands and by permit on some federally administered lands (Myers *et al.*, 1998), WC Chinook salmon predominantly follow an ocean-type life history, meaning juveniles spend only weeks to a few months rearing in freshwater before migrating to the marine environment, unlike stream-type juveniles that remain in freshwater for at least one full year. This limits their exposure to the most severe agricultural impacts, which occur mostly during the summer in lowland and floodplain areas (*e.g.*, elevated temperatures, low flows, and contaminants).

Urbanization has led to degraded habitat through stream channelization, floodplain drainage, and riparian removal (Botkin *et al.*, 1995). As human populations grow, so does the demand for water, the risks of increases in peak flow, increases in sediment inputs, riparian vegetation removal, increased bank protection and water contamination. High population densities lead to large amounts of impervious surfaces (roads, parking lots, infrastructure such as houses and buildings) that negatively impact the local watersheds and can result in loss of salmon habitat. Paved roads, parking lots, rooftops, or other surfaces that do not absorb rainfall tend to send much more water to streams, elevating peak flows and contributing pollution to streams (Booth and Jackson 1997). Although this has not been documented within the WC ESU, an acute regional example of this phenomenon is that toxic storm water runoff is leading to high pre-spawn mortality of adult coho salmon in tributaries to Washington's Puget Sound (Booth and Steinemann 2006; Peter *et al.*, 2022). As the human population increases, additional urbanization and habitat modification are likely to occur. Based on Census Bureau data from 2010-2022, county populations on the WC have increased 5.8 to 15.5 percent *(https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/)*. Habitat degradation is more common in the southern portion of the ESU (Grays Harbor and Willapa Bay), where residential and agricultural land development is more extensive. The urbanization level and growth within the WC ESU are relatively small compared to other areas in Washington State, particularly the major urban centers of the Puget Sound region. While urbanization on the WC still causes habitat degradation in local areas, the higher degree of protection in surrounding public lands like the ONP mitigates the overall rangewide threat compared to the highly developed areas like the Puget Sound region.

The WC Chinook salmon life stages most affected by agricultural practices and urbanization are juveniles and smolts that spend weeks to months rearing in the affected floodplain and estuarine areas, where they are susceptible to water contaminants and poor habitat quality. As noted above, because WC Chinook salmon predominantly follow an ocean-type life history, juveniles' exposure to the most severe agricultural impacts is limited. There has been a long history of land-use practices leading to habitat degradation, but freshwater habitat has been improving slowly over the past several decades due to stricter land-use regulations compared to the early 20th century.

The SRT concluded, and NMFS agrees, that this factor presents a low risk to the rangewide viability of the WC Chinook salmon ESU, now and for the foreseeable future. The SRT observed that the ESU's populations remain stable and productive despite historical and ongoing degradation from forestry, agriculture, and urbanization in some areas. The SRT noted that freshwater habitat conditions are considered relatively good, particularly because the headwaters of many northern populations are protected within the ONP and other public forest lands. Furthermore, improved land-use regulations since the early 20th century are contributing to slow habitat recovery.

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

WC Chinook salmon are harvested in commercial, recreational, and tribal fisheries in the ocean and fresh water. Federal, state, and tribal agencies use harvest restrictions to reduce impacts, with the intent of ensuring enough adult fish return to spawn and maintain healthy run sizes. In ocean fisheries, Chinook salmon populations co-mingle, and non-selective harvest tends to disproportionately impact less productive stocks. Harvest type, timing, and location can also alter size, age structure, and migration timing for both smolts and adults.

Fisheries off Washington are planned via complex processes involving NMFS, the Pacific Fishery Management Council, the states of Washington and Oregon, Tribes, and other stakeholders. Ocean fisheries are conducted in accordance with legal obligations under the Pacific Salmon Treaty (PST); treaties; court decisions between Tribes, the United States, and states; and conservation measures of the ESA and Magnuson–Stevens Fishery Conservation and Management Act (MSA). Fishery managers rely on stock assessment methods and models developed by the Pacific Salmon Commission's Chinook Technical Committee (CTC), which operates under the PST to determine sustainable harvest levels. The PST and the CTC provide a structured assessment process that includes the use of "indicator stocks" (such as the Queets River fall run) to precisely estimate survival, exploitation, and total escapement.

Harvest rates for WC fall-run Chinook salmon have been consistent and relatively high for the past 40 years (SRT 2025). Harvest reduces the total adult fall-run size by approximately 50 percent for each return year. There is no clear temporal trend in total mortality in either ocean or terminal (generally in-estuary or in-river harvest) fisheries over that period (SRT 2025). The SRT noted that high total harvest rates, although a source of some concern, are also evidence of relatively high productivity, because the populations are maintaining their abundance despite high harvest rates.

There is limited information about the ocean exploitation of spring/summer run stocks (SRT 2025). However, based on the timing of Chinook salmon returning to freshwater to spawn, it is believed that spring-run salmon return before the majority of ocean fisheries target them in their spawning year. The available information indicates that the overall harvest mortality for spring-run Chinook salmon is less than for fall-run, but the magnitude of the difference cannot be determined quantitatively with available data (SRT 2025).

The WC ESU's stable abundance under harvest rates often exceeding 50 percent suggests its populations have the productivity to withstand these exploitation levels. The SRT observed that the ESU's populations remain stable and productive despite these rates. The SRT also noted changes to harvest management including a shift from historical overutilization to a more scientific and collaborative management framework including rigorous annual planning to ensure conservation goals are met. Improvements in external marking (adipose fin clipping) and coded-wire tagging allow managers to identify fish origin in real-time. This enables selective harvest, allowing for higher fishing opportunities on hatchery fish while protecting natural-origin spawners.

The SRT concluded, and NMFS agrees, that overutilization presents a low risk to the rangewide viability of the WC Chinook salmon ESU, now and for the foreseeable future.

Disease

Chinook salmon are exposed to numerous bacterial, protozoan, viral, and parasitic organisms in spawning and rearing areas, hatcheries, migratory routes, and the marine environment. Increased physiological stress and physical injury in migrating salmonids may increase their susceptibility to pathogens (Matthews *et al.*, 1986, Maule *et al.*, 1988). The presence of adequate water quantity and quality during late summer is a critical factor in controlling disease epidemics for salmonids. As water quantity and quality diminish and freshwater habitat becomes more degraded, many previously infected salmonid populations may experience large mortalities because added physiological stress can trigger the onset of disease. These factors (common in various rivers and streams) may increase anadromous salmonid susceptibility and exposure to disease (Holt *et al.*, 1975; Wood and WDFW 1979).

Common diseases that affect Chinook salmon on the WC include amoebic gill disease, bacterial coldwater disease, bacterial kidney disease, columnaris, furunculosis, Ich, and trichodiniasis. Fish hatcheries are commonly associated with fish diseases, in part because of the high densities and rearing conditions they subject salmon to, but also because hatcheries, in contrast to natural systems, are actively monitored for pathogens.

Fish hatcheries in WC operate following “The Salmonid Disease Control Policy of the Fisheries Co-Managers of Washington State” (revised July 2006). This policy is designed to protect fish populations from management activities that could cause the importation, dissemination, and amplification of pathogens known to adversely affect salmonids. Additionally, the Northwest Indian Fisheries Commission (NWIFC) member tribes created a “Tribal Fish Health Program” (1988) to meet the growing fish health needs of their salmon enhancement and supplementation programs. The program’s goal is to assist tribes in rearing and releasing healthy fish that will help to sustain tribal fisheries and/or restore wild populations.

The SRT concluded that disease prevalence in the WC ESU remains within naturally expected levels. Although several diseases were identified, the SRT found no evidence of population-level impacts; consequently, disease was categorized as a low-level threat to the ESU. Consistent with the SRT’s assessment, NMFS concludes that disease poses a low risk to the WC Chinook salmon ESU, now and in the foreseeable future.

Predation

Depending on the life history stage, salmon are prey for other fishes, birds, and marine mammals. The four common marine mammal predators are harbor seals, fish-eating killer whales, California sea lions, and Steller sea lions. The Marine Mammal Protection Act (MMPA) of 1972 has led to the recovery and increase in populations of harbor seals, Steller sea lions, and California sea lions in the northeastern Pacific. Research suggests that predation pressure on salmon and steelhead from seals, sea lions, and killer whales has been increasing in the Northeast Pacific Ocean over the past few decades (Chasco *et al.*, 2017). A recent study along the coast of Washington investigated Stellar sea lion consumption of ocean age-0 Chinook salmon and reported increased consumption suggesting Steller sea lions contribute to low early marine survival rates of

Chinook salmon at a higher rate than previously thought (Lewis *et al.*, 2025). Studies indicate that pinnipeds (seals and sea lions) prey on a wide variety of fish species, and salmonids appear to be a minor part of their diet. Fish-eating killer whales (*Orcinus orca*) consume a wide variety of fish and squid, but salmon are their primary prey (Ford *et al.*, 1998, 2000, Ford and Ellis 2006; Ford *et al.*, 2016; Hanson *et al.*, 2021). Ford *et al.* (2016) found that most of the salmon consumed by the whales were Chinook salmon (nearly 80 percent).

Freshwater predators of salmon include fishes, birds, and mammals, representing both native and non-native species (Sanderson *et al.*, 2009). Of particular concern is the introduction of warm-water fishes, which were introduced to provide recreational fishing opportunities. In the Chehalis River, smallmouth bass are distributed throughout the main-stem and occupy tributary habitat, including the Skookumchuck, Newaukum, and South Fork Chehalis Rivers. These areas are where most spring-run Chinook spawn, and smallmouth bass are known to prey on young salmonids, especially Chinook salmon (Carey *et al.*, 2011; Fritts and Pearsons 2008).

Although introduced smallmouth bass are present in the Chehalis River, NMFS found no evidence to indicate that freshwater predation is a rangewide concern for the viability of the WC Chinook salmon ESU. The relative impacts of marine predation on individual anadromous salmonid populations are not well understood. However, anadromous salmonids have historically coexisted with both marine and freshwater predators. Studies focused on pinniped predation of WC salmonids suggest salmonids are a minor component of their diet. While farther-ranging salmonids like WC Chinook are at greater risk of killer whale predation, the available information led the SRT to conclude that predation is a low risk for the ESU.

Given that the WC Chinook salmon populations lack large dams or barriers and exhibit relatively stable abundance trends, it is unlikely that predation levels have increased significantly since the last status review. The SRT concluded, and NMFS agrees, that marine and freshwater predation pose a low risk to the rangewide viability of the WC Chinook salmon ESU, now and for the foreseeable future.

Inadequacy of Existing Regulatory Mechanisms

A variety of Federal, state, tribal, and local laws, regulations, treaties, and measures affect the abundance and survival of the WC Chinook salmon ESU and the quality of their habitat. NMFS (1998) found that the serious depletion of some salmonids was an indication that existing regulatory mechanisms had largely failed to prevent the depletion. The SRT reviewed existing regulatory mechanisms as part of the status review report and noted the implementation of several programs that have substantially reduced historical risks to the WC Chinook salmon ESU and prevented depletion.

For example, as described under the habitat factor (section 4(a)(1)(A); *see The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range* section below), most of the basins in the WC are forested and managed for timber. Currently, the Northwest Forest Plan (NWFP) guides the management of Federal forest lands in the Pacific Northwest, along with the Aquatic Conservation Strategy that includes components that collectively ensure that Federal land management actions achieve a set of objectives, which includes salmon habitat conservation. The Olympic National Forest Plan guides the natural resource management activities in the Forest and establishes management standards including the long-term maintenance of late successional forest habitat and an emphasis on riparian habitat, fish habitat and water quality. The rules that govern forest management on non-Federal lands include the Washington State Forest Practices Act and the Washington State Forest Practices Rules (Title 222 WAC) that provide rules and guidelines for lands to be managed consistent with sound policies of natural resource protection. These rules are designed to protect public resources such as water quality and fish habitat while maintaining a viable timber industry.

Additionally, WC tribes each manage their trust resources for environmental, cultural, and economic benefits. The tribes work with the tribal councils to develop tribal ordinances and regulations, carry out resource management, and design and implement habitat management, protection, and restoration. The NWIFC is a natural resources management organization that provides service support for 20 treaty Indian tribes in western Washington. The role of the NWIFC is to assist member tribes as natural resources co-managers, including support in biometrics, fish health and salmon management.

The State of Washington established salmon recovery regions to develop salmon habitat recovery strategies and to recruit organizations to conduct habitat restoration and protection projects. In 2007, the WC Sustainable Salmon Partnership (WCSSP) was formed and, unlike other regions in Washington, the organization's genesis was not in response to ESA listings but rather in an effort to prevent the need for future listings. The State of Washington describes their approach to salmon recovery as the "Washington Way," emphasizing local expertise, collaboration, and a bottom-up approach to habitat restoration and management. This approach involves working with tribal, local, state, Federal, and non-profit partners to address the complex challenges facing salmon populations. The focus is on improving salmon habitat, including removing barriers, restoring wetlands and estuaries, and managing water quality and temperature.

In summary, conservation efforts for the WC ESU are driven by a collaborative framework involving Federal, state, and tribal entities, alongside local and non-profit partners. Federal efforts, like the NWFP and its Aquatic Conservation Strategy, guide management on Federal lands, emphasizing riparian and water quality protection. At the state level, Washington has implemented the Forest Practices Act and established salmon recovery regions, leading to the formation of the Coast Salmon Partnership that develops and implements habitat recovery strategies. Concurrently, tribes play an active role as co-managers, undertaking essential habitat management, protection, and restoration projects. These collective efforts focus on a variety of actions, including removing fish passage barriers, restoring floodplain and estuarine habitat, reforming hatchery practices to prioritize conservation, and continually improving regulatory mechanisms to ensure the WC ESU's long-term sustainability.

The SRT concluded, and NMFS agrees, that the inadequacy of existing regulatory mechanisms poses a low risk to the rangewide viability of the WC Chinook salmon ESUs. In the range of WC Chinook salmon, the regulation of some activities and land uses will alter past harmful practices, resulting in habitat improvements. Similarly, existing regulations governing Chinook salmon harvest have improved the WC ESU's likelihood of persistence (SRT 2025). The PST and the CTC provide a structured assessment process to estimate survival, exploitation, and total escapement. Advances in external marking and coded-wire tagging enable managers to identify a fish's origin facilitating selective harvest strategies. These selective fisheries maximize harvest opportunities for hatchery-origin fish while protecting natural-origin spawners.

Other Natural or Manmade Factors Affecting Its Continued Existence

Proposed Dam

In general, the WC ESU is unencumbered by large manmade barriers (*e.g.*, dams); however, the Chehalis River Basin Flood Control Zone District (FCZD) has proposed a new flood retention dam and temporary reservoir (Proposed Project) on the mainstem of the Chehalis River. The Proposed Project is designed to store floodwater during major floods and then slowly release the water. When not operated for floodwater retention, the Chehalis River would flow through the structure's low-level outlet at its normal rate of flow and volume and allow fish to pass upstream and downstream.

The proposed temporary reservoir would inundate an area that overlaps with historical spring-run Chinook salmon spawning habitat. Redds in the temporary reservoir would be subject to deep-water inundation leading to decreased dissolved oxygen levels and egg loss. The WDFW conducted redd surveys for several years within the upper Chehalis River mainstem and tributaries, including the reservoir inundation area, and reported that between 1 and 24 spring-run Chinook salmon redds were observed within the temporary inundation area.

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers determined that the Proposed Project may have significant impacts on the environment and released a draft environmental impact statement (EIS) on the Proposed Project in 2020. In response to the draft EIS, FCZD made numerous changes to the Proposed Project design including site realignment, volitional fish passage during dam construction, reduction of the inundation zone, addition of a conduit design for fish passage during reservoir drawdown, and the addition of vegetative management plan. Additionally, FCZD developed a draft mitigation plan in 2022 that identified mitigation actions to offset potential impacts to salmon and to improve currently degraded habitat conditions.

Based on the improved Proposed Project described above and the SRT's analysis, NMFS concludes that the Proposed Project poses a low risk to the WC Chinook salmon ESU.

Environmental Variation

Pacific salmon depend on a sequential series of freshwater, estuarine, and marine habitats as they complete their complex life cycles, all of which are being affected by environmental variation. Changes in the ecosystem are predicted to impact Pacific salmon by a variety of mechanisms throughout their life cycle, and these impacts are complex and vary among species, ESUs, and habitats (Crozier *et al.*, 2008, 2019; Crozier and Siegel 2023). For U.S. West Coast salmon and steelhead, expected changes to freshwater habitats include increased air and stream temperatures and changes in seasonal (but not necessarily annual mean) rainfall patterns, with larger and more extreme storms and droughts. These increased temperatures will result in more winter precipitation falling as rain than snow at intermediate elevations, which alters both seasonal streamflow and water temperatures. Within the range of WC Chinook salmon, experts predict stream temperatures to rise, winter flows to increase, and summer flows to decrease compared to current patterns. Additionally, the loss of glaciers in the Olympic Mountains is impacting the region's hydrology. Between 1900 and 2015, the mountains lost roughly half of their glacial and snowfield coverage (Fountain *et al.*, 2022). Modeling based on climate projections suggests that glaciers in the Olympic Mountains will largely disappear by 2070 due to rising air temperatures (Fountain *et al.*, 2022). The loss of glacial melt, combined with decreased summer precipitation, has caused a decline in summer flows in local rivers. In marine habitats, NMFS expects the food webs that support salmon to change in response to factors including increased temperatures, acidification, and the strength and timing of wind-driven upwelling, although how these changes will affect salmon growth and survival is difficult to predict.

Crozier *et al.* (2019) undertook a comprehensive climate vulnerability assessment for Pacific salmon and steelhead along the U.S. West Coast, focusing on ESUs that have received or are candidates for protection under the ESA. Crozier *et al.* (2019) reported that Chinook salmon populations with subyearling life histories (like WC Chinook salmon) produced relatively low vulnerability scores during the early life history and juvenile freshwater stages due to limited rearing in freshwater in summer, when thermal impacts, hydrologic regime shifts, and low-flow impacts are expected to be highest. The WC Chinook salmon ESU was not included in the Crozier *et al.* (2019) assessment, so the SRT evaluated the WC ESU vulnerability to changing environmental conditions using results for ESUs that had similar life histories, geographic ranges, and human land use activities (*e.g.*, extensive forestry and limited urban areas). For early life history, estuary, and adult freshwater life stages, the SRT used listed Chinook salmon ESUs that had overlapping adult river entry timing (spring and fall runs), fall spawn timing, limited freshwater residency and extended estuarine residency in the larger estuaries and predicted low-moderate sensitivity for these attributes (early life history, estuary, and adult freshwater stages) for the WC Chinook salmon ESU. For the marine stage sensitivity, the SRT compared the WC ESU to other Chinook salmon ESUs with overlapping marine distribution and found their diets, length of ocean residency, and factors affecting mortality are expected to be comparable; thus, the WC ESU scored similarly for marine stage sensitivity (low-moderate). The SRT ranked the cumulative life cycle effects for the WC ESU as low-moderate vulnerability.

The SRT was concerned that rising stream temperatures and lower flows during summer would be detrimental to the spring-run life history, since juveniles and adults spend some or all of the summer in freshwater systems that are predicted to be exposed to higher temperatures and lower stream flows. Populations characterized by late-summer/early-fall smolt outmigration may also be more vulnerable than those with early-summer outmigration. The SRT concluded that although portions of the ESU will be negatively impacted by increased summer stream temperatures and low stream flows, the ESU as a whole is buffered against these predicted changes, in part because juveniles predominately (>90%) exhibit an ocean-type life history strategy and therefore will have limited exposure to changes in summer stream conditions. The SRT also noted that the ESU consists of 28 major populations and additional smaller populations that are distributed among multiple coastal streams, many of which are predicted to remain at appropriate temperatures for salmon even in the face of changing environmental conditions.

The SRT also noted that a major difficulty in evaluating the WC ESU is the large heterogeneity in topography, land use, and hatchery production and how to weigh this variation across the entire ESU. For example, the new Coast Salmon Partnership climate resilience index online tool (Adams and Zimmerman 2024) indicates that most basins on the north WC (north of the Chehalis basin) have high climate resilience, while those in the Chehalis and Willapa Bay basins are much lower. At smaller spatial scales, Beechie *et al.* (2021) showed that although the Chehalis River drainage had lost or degraded beaver pond, side channel and floodplain habits, it varied greatly by sub-basin. The SRT also noted that there remains considerable uncertainty about the localized effects of environmental variation on the WC ESU and predicted future stream temperatures in many of the coastal streams should remain within suitable ranges for salmon. In other words, it is difficult to predict with much certainty how widespread stream temperature changes will be in these coastal ESUs, how long and to what extent thermal refugia will persist, and how the species might respond to the predicted effects of environmental variation on freshwater habitats.

In marine habitats, the effects of sea level rise are largely restricted to estuarine environments, but changes in sea surface temperature, upwelling, currents, and ocean acidification, all of which influence salmon productivity, are expected in estuarine and ocean habitats. Crozier *et al.* (2019) reported that high levels of projected changes in sea surface temperature and ocean acidification will be compounded by regional variations in sea level rise, flooding, and changes in upwelling. Crozier *et al.* (2019) noted that, while coastal areas may benefit from oceanic buffering effects that can reduce extreme climate impacts, the complexity of marine food webs and inconsistencies in projections for ocean currents and upwelling add considerable uncertainty to predicting the full biological consequences on salmon growth and survival. Prolonged periods of poor ocean survival observed during warm decades suggest that rising ocean temperatures could lead to negative impacts for salmon populations (Crozier *et al.*, 2019).

The SRT concluded that the effects of future predicted environmental conditions may pose a moderate risk to WC Chinook salmon ESU. However, the SRT utilized surrogate species to assess environmental vulnerability, categorizing the sensitivity of overall, juvenile, and adult life stages as low-to-moderate. The team also noted that there remains considerable uncertainty about the localized effects of environmental variation and how it might affect WC Chinook salmon survival. Additionally, the SRT noted that the ESU consists of 28 major populations and additional smaller populations that are distributed among multiple coastal streams, many of which are predicted to remain at appropriate temperatures for salmon even in the face of changing environmental conditions. NMFS concludes that the effects of future predicted environmental conditions fall within the lower bounds of a moderate risk to WC Chinook salmon ESU.

Hatcheries

Hatcheries are another factor identified as a threat in the coastwide Chinook salmon status review (Myers *et al*., 1998). In general, hatchery programs can provide demographic benefits to salmon and steelhead, such as increases in abundance during periods of low natural abundance (*e.g.*, Berejikian *et al.*, 2009; Janowitz-Koch *et al.*, 2019; Koch *et al.*, 2022). Hatcheries may also help preserve genetic resources until limiting factors can be addressed (*e.g.*, Flagg *et al.*, 1995; Kalinowski *et al.*, 2012). However, these reviews have also concluded that long-term use of artificial propagation poses risks to natural productivity and diversity. Hatchery programs can affect natural-origin populations of salmon and steelhead in a variety of ways, including competition (for spawning sites and food) and predation effects, disease effects, genetic effects (*e.g.*, domestication selection or introgression due to stock transfers), and facility effects (*e.g.*, water withdrawals, effluent discharge). The magnitude and type of risk depend on the status of affected populations and on specific practices in the hatchery program.

Current hatchery practices on the WC include using local origin broodstock, the elimination of out-of-ESU introductions, and exchanges among hatcheries being limited to within-basin or within-WRIA. In Washington, there are two types of hatchery programs – integrated and segregated (Harbison *et al.*, 2022).

In general, segregated hatchery programs are harvest oriented and not intended to interact (spawn) with natural-origin populations in the hatchery or on the spawning grounds. Within the WC, there are a few segregated hatchery programs. Two of the segregated programs, the Lake Quinault Tribal Hatchery and the Salmon River Fish Culture Facility, are owned and operated by the Quinault Indian Nation. Multiple stocks were used to begin the Lake Quinault Tribal Hatchery fall Chinook salmon program including Quinault, Queets, and Hoh River stocks, as well as introductions from Puget Sound, so this hatchery is managed as a segregated program. Originally established with non-native stocks in the 1970s and 1980s, the Salmon River Fish Culture Facility has transitioned to an integrated management strategy. The program now collects 60–65 pairs of local adults annually using gill nets in the mainstem Queets and Clearwater Rivers. The Sol Duc Chinook salmon summer-run hatchery programs (including Lonesome Creek and Bear Springs) are a cooperative effort between the Quileute Tribe and the WDFW and use aspects of both segregated and integrated hatchery practices. The goal of the program is to enhance the summer-run Chinook population in the Sol Duc River through artificial production while also supporting natural escapement and providing fishing opportunities. The long-term goal of the program is to become a fully integrated program, where the hatchery fish are as similar as possible to the wild fish. Nemah Hatchery is owned and operated by WDFW and consists of a mixed composite stock comprised of native fish and introductions from numerous out-of-basin sources. Transfers of hatchery stocks from out of the basin have been curtailed in the last few decades. The genetic legacy of non-native introductions has not been determined but could be considerable. The program is run as a segregated program.

The majority of hatcheries on the WC are integrated programs designed to maintain a close genetic relationship with the naturally-spawning population. To reduce risks from hatchery programs, the WDFW Anadromous Salmon and Steelhead Hatchery Policy (2021) has thresholds of allowable levels of proportion of hatchery origin spawners for segregated programs (the proportion of hatchery-origin fish spawning naturally), as well as proportion of natural influence for integrated programs (the proportion of natural-origin fish utilized in the hatchery broodstock). For these integrated hatcheries, WDFW reported that 10-30 percent of the broodstock utilized were of natural origin (Anderson *et al.*, 2020). The influence of hatchery-origin adults spawning naturally has been monitored to a limited extent. In general, the proportion of hatchery-origin spawners is higher in rivers in Willapa Bay, which contains the largest hatchery programs in the ESU.

Based on the design and operation of the WC ESU Chinook hatchery programs, the SRT concluded that hatcheries pose a low risk to WC populations except for in Willapa Bay where hatcheries pose a moderate risk. The SRT concluded, and NMFS agrees, that hatcheries pose a low risk to the rangewide viability of the WC Chinook salmon ESU now and for the foreseeable future.

Rangewide Risk of Extinction

The SRT's determination of rangewide extinction risk to the WC Chinook salmon ESU used the categories of high, moderate, and low risk of extinction. The risk levels are defined as:

(1) High risk: A species or ESU with a high risk of extinction is at or near a level of abundance, productivity, diversity, and/or spatial structure that places its continued

existence in question. The demographics of a species or ESU at such a high level of risk may be highly uncertain and strongly influenced by stochastic and/or depensatory processes. Similarly, a species or ESU may be at high risk of extinction if it faces clear and present threats (*e.g.*, confinement to a small geographic area; imminent destruction, modification, or curtailment of its habitat; disease epidemic) that are likely to create such imminent demographic risks.

(2) Moderate risk: A species or ESU is at moderate risk of extinction if it exhibits a trajectory indicating that it is more likely than not to reach a high level of extinction risk in the foreseeable future. A species or ESU may be at moderate risk of extinction due to projected threats and/or declining trends in abundance, productivity, spatial structure, or diversity. The appropriate time horizon for evaluating whether a species or DPS is more likely than not to become at high risk in the future depends on various case- and species-specific factors. For example, the time horizon may reflect certain life-history characteristics (*e.g.*, long generation time or late age-at-maturity) and may also reflect the timeframe or rate over which identified threats are likely to impact the biological status of the species or ESU (*e.g.*, rate of disease spread). The appropriate time horizon is not limited to the period that status can be quantitatively modeled or predicted within predetermined limits of statistical confidence.

(3) Low risk: A species or ESU is at low risk if it is not at moderate or high risk of extinction.

The SRT considered the foreseeable future for the WC Chinook salmon ESU to extend over a time period of 30 to 80 years. The shorter end of this time period corresponds to approximately 10 Chinook salmon generations, which the SRT concluded was a reasonable time period over which to consider current demographic trends. The SRT considered the longer end of this time period (80 years) a timeframe over which scientific studies of the impacts of changing environmental conditions on salmonid freshwater and ocean habitat are available. For example, the SRT utilized analyses of predicted future stream temperatures and stream flow that ranged from approximately 40 to 80 years in the future.

The SRT unanimously concluded, and NMFS agrees, that the WC Chinook salmon ESU is at low risk of extinction now and over the foreseeable future. The primary factors leading to this conclusion include a large overall annual natural-origin spawner abundance of >30,000 spawners with stable abundance trends in diverse geographic groupings. The high total harvest rates (often exceeding 50 percent for most populations), although a source of some concern, are also evidence of relatively high productivity because the populations are maintaining their abundance despite high harvest rates. The presence of spring- and summer-run fish distributed throughout many of the basins indicates that the ESU as a whole contains considerable life-history diversity. An analysis of the spatial structure and diversity factors also indicates low risk.

In its evaluation of the factors identified in section 4(a)(1) of the ESA, NMFS finds that, overall, the factors contribute to a low extinction risk rangewide now and in the foreseeable future. For the habitat factor (section 4(a)(1)(A)), there is a long history of land-use practices leading to habitat degradation, but freshwater habitat appears to be improving due to restoration efforts and stricter land-use regulations compared to the 20th century (*see Inadequacy of Existing Regulatory Mechanisms* section). Despite considerable changes to the landscape due to forestry, agriculture, and urbanization, habitat conditions are relatively good. The SRT concluded, and NMFS agrees, that the threat from habitat loss and modification poses a low risk to the rangewide viability of the WC Chinook ESU now and in the foreseeable future.

For the overutilization factor (section 4(a)(1)(B)), although some SRT members were concerned about harvest rates that occasionally exceed 50 percent for some populations, NMFS finds that fishery management has responded to changes in status of individual populations and reduced harvest rates as necessary to maintain the number of adults escaping to spawning grounds.

For the disease and predation factor (section 4(a)(1)(C)), the SRT concluded that disease prevalence in the WC ESU remains within naturally expected levels. The SRT identified predation by nonnative small-mouth bass as a factor potentially limiting the viability of the Chehalis River population, but otherwise predation by nonnative species poses a low risk to the ESU rangewide. Despite concerns over marine mammal predation, the SRT determined that stable abundance trends and the absence of large dams mitigate this threat. NMFS agrees with their conclusion that disease and predation pose a low risk to the WC ESU.

For the inadequacy of existing regulatory mechanisms factor (section 4(a)(1)(D)), the SRT noted that regulatory protection of streams and riparian habitat has improved since the previous 1998 status review. The SRT concluded, and NMFS agrees, that current Federal, state, and tribal management plans and state-led recovery strategies provide a robust framework that collectively addresses historical threats and concluded that the inadequacy of existing regulatory mechanisms poses a low risk.

For other natural and manmade factors (section 4(a)(1)(E)), the SRT concluded, and NMFS agrees, that the proposed flood control dam and hatchery programs pose a low risk to the rangewide viability of the WC Chinook salmon ESU. For environmental variation, the SRT noted that portions of the ESU will be negatively impacted by increased summer stream temperatures and low flows but that there remains considerable uncertainty about the localized effects. Additionally, the SRT noted that the ESU consists of 28 populations that are distributed among multiple coastal streams, many of which are predicted to remain at appropriate temperatures for salmon even in the face of environmental variation. The SRT also considered the effects of environmental variation on marine ecosystems and concluded that the WC Chinook salmon ESU is predicted to have a moderate sensitivity to marine climate effects, but noted the complexity of ocean food webs and their response to changing conditions, as well as the indirect nature of impacts through prey availability and predator distribution, make direct predictions of salmon survival difficult. On balance, although the SRT concluded that portions of the ESU will be negatively impacted by changing environmental conditions, the ESU as a whole is likely buffered against these predicted changes for the foreseeable future. Although there are concerns about environmental variation, the risk associated with environmental variability alone is insufficient to support a finding that the ESU is at moderate or high risk of extinction.

Altogether, considering the analysis of the viability of the ESU and the factors identified in section 4(a)(1) of the ESA, NMFS finds that the WC Chinook salmon ESU is at a low risk of extinction rangewide now and in the foreseeable future.

Significant Portion of Its Range Analysis

As noted in the introduction above, the definitions in section 3 of the ESA of both “threatened species” and “endangered species” contain the phrase “significant portion of its range” (SPR). This phrase provides an independent basis for listing: A species may be endangered or threatened throughout all of its range or a species may be endangered or threatened throughout only an SPR. Thus, in construing the statutory definitions of threatened and endangered species, NMFS is required to give some independent meaning to the SPR phrase to avoid rendering it superfluous to the “throughout all” language (*see Defenders of Wildlife* v. *Norton*, 258 F.3d 1136 (9th Cir. 2001)).

The range of a species is considered to be the general geographical area within which that species can be found. Under the 2014 Policy regarding the interpretation of the phrase “significant portion of its range” (“SPR Policy”; 79 FR 37578, July 1, 2014), which was issued jointly by NMFS and USFWS, a species’ range includes those areas used throughout all or part of the species' life cycle, even if they are not used regularly (*e.g.*, seasonal habitats).

If NMFS finds that a species is facing low extinction risk throughout its range (*i.e.*, not warranted for listing), NMFS must consider whether the species may have a higher risk of extinction in a SPR. In addition, if NMFS finds that a species is threatened rangewide, NMFS must also consider whether the species may be endangered in an SPR, which would result in the higher-level listing of the species as endangered (*see CBD* v. *Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020)).

Having concluded that the WC Chinook salmon ESU is at low risk of extinction now and in the foreseeable future throughout all of its range, NMFS requested that the SRT conduct an assessment to determine whether the ESU may be at greater risk of extinction now or in the foreseeable future in any identified SPR. The SRT's SPR analysis consisted of identifying and evaluating portions of the range where members of the ESU are both potentially at moderate or high risk of extinction and are important to the overall ESU's long-term viability, yet not so important as to be determinative of its overall current or foreseeable status. In other words, the goal of the SPR evaluation was to determine if there are biologically important portions of the range that are currently at high or moderate risk but that are not so important that their status would lead to the entire ESU being at high or moderate risk.

Because a species' range can theoretically be divided into an infinite number of portions, the SRT first discussed and identified populations or geographic areas that had a reasonable likelihood of being at moderate or high risk of extinction and a reasonable likelihood of being biologically significant to the species. Unless a population or geographic area met both of these conditions, the SRT did not consider it further in the analysis as they could not form the basis for a proposed listing. The SRT then discussed and evaluated multiple scenarios for these higher-risk portions based on both geography and the range of biological (life-history) types. In evaluating whether a portion was biologically significant, the SRT considered whether the species within that portion was important to the ESU's long-term viability but not so important that their status would drive current or foreseeable ESU-wide extinction risk. The team identified four areas with a reasonable likelihood of being somewhat higher risk than the ESU rangewide and biologically significant to the ESU:

1) The northern coast and Strait of Juan de Fuca. Populations within this portion of the range are characterized by small population sizes, small watershed spawning areas, and substantial hatchery influence, factors that all indicate that these populations are at somewhat higher risk than the ESU as a whole. These small watersheds likely depend on a combination of hatchery production and strays from other populations within the WC ESU to sustain their long-term abundance, meaning the survival of these smaller populations is dependent on the other populations within the ESU, and therefore this population would not be deemed important to the long-term viability of the ESU. The SRT concluded, and NMFS agrees, that the northern coast and Strait of Juan de Fuca populations are not biologically significant so are not considered to be an SPR.
2) Southern coastal areas of the ESU, including Willapa Bay. These areas are characterized by lower gradient streams that are likely more susceptible to warming temperatures predicted by future environmental variation. They are largely in private land ownership, with greater potential for development and habitat degradation compared to areas protected in ONP or other public lands. Populations in the Willapa Bay area either have a high proportion of hatchery fish on the spawning grounds (>50 percent in recent returns) or have an unknown hatchery contribution. Such conditions led to greater risk scores than in other portions of the ESU. However, despite these threats, the overall fall-run Chinook

salmon population abundance (~2,000 spawners) in this area has been relatively stable. The contribution of natural-origin spawners to the overall ESU abundance from Southern coastal areas of the ESU, including Willapa Bay, are also relatively minor. The SRT concluded, and NMFS agrees, that these populations are not biologically significant so are not considered to be an SPR.

3) The upper Chehalis Basin (upstream of the cities of Chehalis and Centralia) includes both spring- and fall-run populations of Chinook salmon. In contrast to other basins in the range of the ESU, the upper Chehalis River drains the lower elevation Willapa Hills rather than the Olympic Mountains. As such, this basin is more vulnerable to changing environmental conditions (*e.g.*, rising stream temperatures and lower flows during summer), especially the spring-run population. Further, the flood control dam proposed for the upper Chehalis River will likely have a negative impact on spring-run spawning habitat (*see* Proposed Dam section). The SRT noted that there are multiple spring-run populations in the ESU, some nearly as abundant as those in the upper Chehalis River. The SRT's consensus was that Chinook salmon in the upper Chehalis, especially the spring-run population, are at somewhat higher risk from habitat degradation and environmental variation, but given the abundance, productivity, and genetic information currently available, the SRT concluded, and NMFS agrees, that the upper Chehalis basin populations are ultimately at low risk of extinction.

4) Early-returning (spring- and summer-run) populations throughout the ESU were also considered to be at somewhat higher risk than the entire ESU. The abundance of early-run Chinook salmon in each river, and collectively among all the rivers, is considerably lower than that of fall-run. Only the Hoh and Chehalis rivers typically have more than 1,000 early-run spawners. The SRT considered that early-returning life history exposes returning adults to increased summer

temperatures and decreased summer flows during their extended holding in freshwater during the summer, especially with changing environmental conditions observed over the last few decades and the changes predicted for the future. The SRT also noted that early-run habitat is distributed across many watersheds in the ESU. Many of these areas are on protected federal lands and, due to higher elevations and forest cover, are expected to be less vulnerable to rising temperatures caused by environmental variation. Additionally, trends in early-run abundance are mostly stable to positive, and overall early-run abundance is similar to what it was before the initial ESA status review in the late 1990s. The SRT also found that the risks from threats to early-run Chinook salmon were very similar to the ESU as a whole and ultimately concluded that WC Chinook in this portion are at low risk of extinction. Additionally, a review of spawning and rearing habitat utilized by spring- and summer-run Chinook salmon, mainly found in ONP and Upper Chehalis River, indicated that very little habitat was used solely by summer- or spring-run Chinook salmon. In other words, the majority of summer- and spring-run geography is shared with fall-run fish. Consistent with the ESA, the 2014 SPR Policy defines “range” in geographic terms, and the selection of portions for consideration should be premised at least in part on a geographically oriented rationale. Although run timing might provide an appropriate basis for delineating portions under certain circumstances, here, the early-returning populations lack sufficient spatial segregation from the late-returning populations to be considered a valid portion for the purposes of SPR analysis under the ESA.

The SRT did not identify any other potential portions for analysis that had a likelihood of being at somewhat higher risk than the ESU rangewide and biologically significant to the ESU. Given the best available information, the SRT concluded, and

NMFS concurs, that there are no portions of the WC Chinook salmon ESU that are both biologically significant to the long-term viability of the ESU and facing higher extinction risk than the ESU rangewide. Therefore, NMFS concludes that Chinook salmon in this ESU are not presently in danger of extinction nor are they likely to become endangered in the foreseeable future.

Final Determination

Section 4(b)(1) of the ESA requires that NMFS make listing determinations based solely on the best scientific and commercial data available after conducting a review of the status of the species and taking into account those efforts, if any, being made by any state or foreign nation, or political subdivisions thereof, to protect and conserve the species. NMFS has independently reviewed the best available scientific and commercial information including the petition, public comments submitted on the 90-day findings (88 FR 85178, December 7, 2023), the WC status review report, and other published and unpublished information, and have consulted with species experts and individuals familiar with the WC Chinook salmon ESU.

The determination set forth here is based on a synthesis and integration of the foregoing information. Based on all of the above, NMFS concludes that Chinook salmon spring-run populations on the WC do not meet the definition of a species. NMFS also concludes that Chinook salmon in this ESU, inclusive of all run types, are not presently in danger of extinction nor are they likely to become endangered in the foreseeable future throughout all or significant portion of their range. NMFS did not find any portion of the range where members of the ESU were both significant to the ESU and in danger of extinction presently or in the foreseeable future. Consequently, the WC ESU does not warrant listing under the ESA.

This is a final action, and, therefore, NMFS is not soliciting public comments.

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: February 17, 2026.

Sarah Malloy,

Acting Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

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