



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric**  
**Administration NATIONAL MARINE FISHERIES**  
**SERVICE**  
West Coast Region  
1201 NE Lloyd Boulevard, Suite 1100  
PORTLAND, OREGON 97232

Agenda Item E.4.b  
Supplemental NMFS Report 1  
March 2021

February 26, 2021

Via Electronic Mail

Mr. Marc Gorelnik, Chair  
Pacific Fishery Management Council  
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Dear Chair Gorelnik:

The Pacific Coast Salmon Fishery Management Plan (FMP) requires that the Pacific Fishery Management Council (Council) develop management recommendations for salmon fisheries under the FMP consistent with consultation standards analyzed and/or described in biological opinions on the fishery developed by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) to protect species listed as threatened or endangered under the Endangered Species Act (ESA). This letter summarizes the consultation standards for salmon, steelhead, and Southern Resident killer whales (SRKW), and provides NMFS' preliminary guidance regarding their implementation for the 2021 ocean salmon fishing season.

We also use this opportunity to comment on other subjects of general interest and provide additional recommendations for non-ESA-listed salmon stocks of particular relevance to Council salmon fisheries. For the 2021 salmon fishing season, these other subjects include: recommendations for fisheries affecting Sacramento River fall-run Chinook salmon and Klamath River fall-run Chinook salmon, and a proposal for genetic sampling in closed areas. In this letter, we first address the topics of general interest and non-ESA-listed salmon stocks, followed by guidance related to consultation standards on ESA-listed species.

We would also like to reiterate our appreciation for the collaboration and assistance by the Council and its advisory bodies, agency and tribal staff, and the public over the past two years as the ad hoc SRKW Workgroup completed its work. We thank the Council for their time and thoughtful consideration this past November of a range of management alternatives and final adoption of the preferred alternative to address the effect of Council-area ocean salmon fisheries on the Chinook salmon prey base of SRKWs. The preferred alternative informed our guidance for SRKW in 2021 as discussed later in the letter.



## **Non-ESA related topics**

### **Genetic Stock Identification (GSI) Sampling**

**Background:** The West Coast Salmon Genetic Stock Identification (WCGSI) collaboration is a partnership of west coast fishermen’s organizations, universities, states, and NMFS that was formed in 2006 to explore potential uses of GSI for West Coast salmon fisheries management. Various levels of at-sea tissue sampling have occurred since the inception of the WCGSI, both in open fisheries and in times and areas closed to salmon fishing.

In 2021, WCGSI partners intend to conduct sampling of Chinook salmon off the coast of California to examine fine scale ocean distribution patterns of Klamath River Chinook salmon compared to other stocks of interest, including ESA-listed California Coastal Chinook salmon. A proposal for the 2021 sampling plan has been submitted to the Council for its consideration. The proposed sampling scheme incorporates GSI sampling of Chinook salmon caught in commercial fisheries and non-retention GSI sampling of Chinook salmon in times and areas closed to salmon fishing.

**Recommendation:** We recommend the Council consider the relative merits of implementing the non-retention GSI sampling portion of the project in 2021 and evaluate the proposal through the Council’s usual fishery planning process. Impacts associated with hook-and-release mortality in non-retention GSI sampling should be accounted for in the Salmon Technical Team’s analysis of fisheries impacts. We encourage communication between scientists, advisory committees, and the Council in considering the proposal and to help direct development of GSI technologies that can best serve salmon management over the long term.

To implement the 2021 proposal, NMFS’ West Coast Region anticipates issuing scientific research permit authorizing non-retention sampling of Chinook salmon in times and areas closed to commercial harvest. Funding for this project through a Saltonstall-Kennedy Grant has been extended for 2021.

### **Sacramento River Fall-run Chinook Salmon (SRFC)**

**Background:** SRFC abundance declined in recent years to the point that in 2018 the three-year geometric mean of hatchery and natural area adult spawners was lower than the minimum stock size threshold, thereby resulting in an overfished status determination for this stock. The Council adopted a rebuilding plan in 2019. NMFS published a final rule approving this rebuilding plan in November 2020.<sup>1</sup> The Council’s recommended rebuilding strategy includes using the current SRFC harvest control rule to set maximum allowable exploitation rates and minimum escapement values based on forecast abundance.

Escapement of SRFC in 2020 was estimated to be 137,907 hatchery and natural area adults, exceeding the maximum sustainable yield escapement ( $S_{MSY}$ ) of 122,000 adults. The three-year geometric mean of spawners is 133,549 (2018-2020), which exceeds  $S_{MSY}$  and, therefore, SRFC meets the criteria for rebuilt status. However, post-season exploitation rates continue to be consistently higher than projected exploitation rates and post-season estimates of escapement have been well below preseason expectations in most years (Table 1). These patterns are a function of both fishery implementation and forecast performance.

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<sup>1</sup> Final rule approving the Council’s rebuilding plans for SRFC and KRFC (85 FR 613575920, November 27, 2020). Available: <https://www.federalregister.gov/documents/2020/11/27/2020-26042/fisheries-off-west-coast-states-west-coast-salmon-fisheries-rebuilding-chinook-salmon-stocks> (website accessed January 29, 2021).

The harvest control rule in the FMP specifies an exploitation rate that produces an expected escapement of 122,000 adults, corresponding to  $S_{MSY}$ . The conservation objective for SRFC in the FMP specifies a range of 122,000-180,000 adult spawners.

Table 1. SRFC preseason abundance, escapement, and exploitation rate forecasts for 2015-2019, and comparison to post-season estimates.

Year	Sacramento Index Forecast	Preseason Forecasted Spawning escapement	Preseason Exploitation Rate	Sacramento Index Post Season	Post-Season Spawning escapement	Post-Season Exploitation Rate
2015	651,985	341,017	48%	254,240	112,947	56%
2016	299,609	151,128	50%	205,289	89,674	56%
2017	230,700	133,242	42%	135,500	44,574	68%
2018	229,432	151,000	34%	223,900	105,739	53%
2019	379,632	160,159	58%	505,535	162,532	68%
2020	473,183	233,174	51%	-	137,907	-

**Recommendation:** The 2021 Sacramento Index forecast is 270,958 adults. Applying this forecast abundance to the control rule results in a maximum allowable exploitation rate of 55 percent and a minimum expected escapement of 122,000 adult spawners. We encourage the Council to discuss what improvements might be made to forecasts or impact assessment in the short term to better align the preseason and postseason estimates of escapement and exploitation rates.

### **Klamath River Fall-run Chinook Salmon (KRFC)**

**Background:** The status of KRFC also declined to the point that it was declared overfished in 2018. The Council adopted a rebuilding plan in 2019 and NMFS published a final rule approving this rebuilding plan in November 2020.<sup>2</sup> The Council’s rebuilding strategy includes using the current KRFC harvest control rule to set maximum allowable exploitation rates and minimum escapement values based on forecasted abundance. Natural-area escapement of KRFC in 2020 was 26,190 adults, below the  $S_{MSY}$  of 40,700. The three-year geometric mean of spawners is 30,167 (2018-2020), which is below the minimum stock size threshold and, therefore, KRFC continue to meet the criteria for overfished status.

The KRFC harvest control rule specifies maximum allowable exploitation rates that vary with abundance, but generally seeks to provide for an  $S_{MSY}$  escapement level of at least 40,700 natural-area adults (i.e., adult fish that spawn in natural areas). When KRFC potential spawner abundance is projected to be less than 54,267 natural-area adults, fisheries are managed under the *de minimis* portion of the control rule, which allows for some fishing opportunity but results in the expected escapement falling below 40,700 natural-area adult spawners. The 2021 KRFC potential spawner abundance prior to fishing is predicted to be 42,098 Chinook salmon.

<sup>2</sup> Ibid.

The FMP also requires that the Council consider the following set of factors in setting an allowable *de minimis* exploitation rate:

- the potential for critically low natural spawner abundance, including considerations for substocks that may fall below crucial genetic thresholds;
- spawner abundance levels in recent years;
- the status of co-mingled stocks;
- indicators of marine and freshwater environmental conditions;
- minimal needs for tribal fisheries;
- whether the stock is currently approaching an overfished condition;
- whether the stock is currently overfished; and
- other considerations as appropriate.

The Council may recommend lower exploitation rates as needed to address uncertainties or other year-specific circumstances.

**Recommendation:** Applying the forecast abundance to the control rule results in a maximum allowable exploitation rate of 25 percent and a minimum expected natural area adult escapement of 31,574. Given the extremely low abundance forecast and resulting low level of allowable fishing mortality, NMFS anticipates harvest opportunity will be substantially constrained in the region between Cape Falcon, Oregon, and Point Sur, California. Given the status, performance, and outlook for the stock in 2021, NMFS encourages the Council to take a cautious approach and carefully consider the factors described in the FMP in setting the exploitation rate.

## ESA-listed Chinook Salmon Species

### **California Coastal (CC) Chinook Salmon Evolutionarily Significant Unit (ESU)**

**Background:** The CC Chinook salmon ESU has been listed as threatened under the ESA since 1999. The current consultation standard for CC Chinook is described in the FMP and is based on a 2000 NMFS biological opinion and an additional ESA consultation on the ESU completed in 2005, which specified actions necessary to implement the reasonable and prudent alternatives (RPAs) of the 2000 biological opinion.

**Guidance:** Council salmon fisheries in 2021 should be designed consistent with the RPA of the 2000 biological opinion (i.e., limits on the forecast KRFC age-4 ocean harvest rates serve as the consultation standard to ensure that CC Chinook are not subject to increasing harvest rates in the future) and the 2005 consultation (i.e., management measures shall result in a forecast KRFC age-4 ocean harvest rate of no greater than 16 percent).

### **Sacramento River Winter-run Chinook Salmon (SRWC) ESU**

**Background:** The SRWC ESU was listed under the ESA as threatened in 1990 and relisted as endangered in 1994. SRWC is one of eight species identified in NMFS' "Species in the Spotlight" initiative because it is at high risk of extinction. For more information about actions for its conservation and recovery, please refer to its Species in the Spotlight Priority Action Plan.<sup>3</sup>

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<sup>3</sup> Species in the Spotlight: priority actions, 2016-2020. Sacramento River winter-run Chinook salmon, *Oncorhynchus tshawytscha*. Available: <https://repository.library.noaa.gov/view/noaa/10746> (website accessed January 29, 2021).

NMFS has completed several ESA consultations regarding the impacts of the ocean salmon fishery on SRWC. The most recent and currently applicable biological opinion was completed in March 2018. That biological opinion analyzed the Council’s proposed new abundance-based control rule, informed by extensive analysis by the Council’s ad hoc SRWC Workgroup, in conjunction with size and season limits previously implemented. The 2018 biological opinion concluded that salmon fisheries managed under this new control rule, and maintaining the fishery season and size restrictions that were part of the previous RPA, are not likely to jeopardize SRWC.

The harvest control rule uses a forecast of SRWC age-3 escapement in the absence of salmon fisheries ( $E_3^0$ ) to determine the allowable age-3 impact rate.<sup>4</sup> If  $E_3^0$  is above 3,000, a maximum impact rate of 20 percent is allowed. If  $E_3^0$  is between 3,000 and 500, then the impact rate ranges from 20 percent to 10 percent. If  $E_3^0$  is below 500, then the impact rate has a steeper decline from 10 percent until it reaches zero at an  $E_3^0$  of zero (Figure 1).

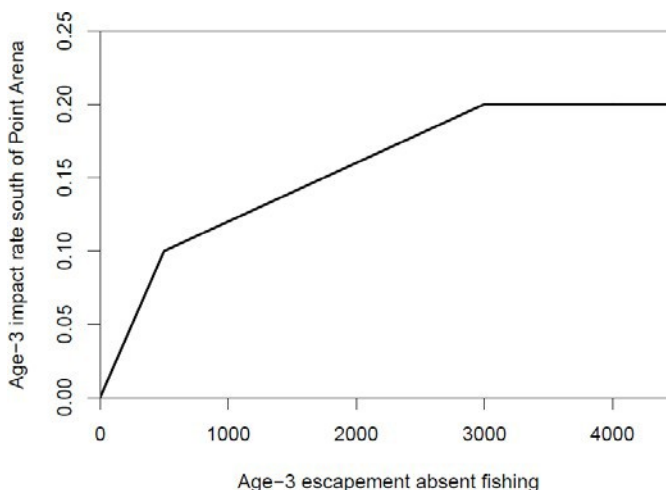


Figure 1. The adopted harvest control rule for management of ocean fisheries that affect Sacramento River winter-run Chinook salmon.

**Guidance:** The 2021 forecast of SRWC age-3 escapement in the absence of fisheries is 9,063. Applying this abundance forecast to the control rule results in a maximum allowable age-3 impact rate of 20 percent in 2021 salmon fisheries south of Point Arena, California. Council salmon fisheries in 2021 should be designed to not exceed a 20 percent age-3 impact rate on SRWC.

### **Central Valley Spring-run Chinook Salmon ESU**

**Background:** The Central Valley spring-run Chinook salmon ESU was first listed as threatened in 1999. Effects of the ocean salmon fishery on this ESU were most recently analyzed in NMFS’ 2000 biological opinion. That biological opinion concluded that the fishery, as regulated under the FMP and NMFS’ consultation standards for SRWC, is not likely to jeopardize the continued existence of Central Valley spring-run Chinook salmon.

<sup>4</sup> O’Farrell, M., N. Hendrix, and M. Mohr. 2016. An evaluation of preseason abundance forecasts for Sacramento River winter Chinook salmon. Pacific Fishery Management Council Briefing Book for November 2016, 35 pages. Available: <https://www.pcouncil.org/documents/2016/11/agenda-item-d-2-attachment-1-an-evaluation-of-preseason-abundance-forecasts.pdf/> (website accessed February 2, 2021).

The management framework for SRWC that includes the updated harvest control rule consulted on by NMFS in its March 2018 biological opinion and the size and season limits from the previous RPA for SRWC contains equivalent and/or additional restrictions on the salmon fishery when compared to previous management measures and is more responsive than prior management frameworks to information related to the status of Central Valley spring-run Chinook salmon by accounting for changes in freshwater conditions in the Central Valley for SRWC. As a result, NMFS concluded that the current management framework for SRWC, along with other regulatory measures in the FMP, limits impacts to Central Valley spring-run Chinook salmon in a manner that is more protective than anticipated in the 2000 biological opinion and, therefore, reinitiation of ESA consultation is not required at this time.

**Guidance:** Council salmon fisheries in 2021 should be managed to meet the consultation standard for SRWC to be sufficiently protective of the Central Valley spring-run Chinook salmon ESU.

### **Lower Columbia River (LCR) Chinook Salmon ESU**

**Background:** The LCR Chinook salmon ESU was listed as threatened under the ESA in 1999. In 2011, the Council recommended implementation of an abundance-based framework for limiting fishery impacts on this ESU. NMFS analyzed the effects of using this framework to manage ocean fisheries on LCR Chinook salmon in a 2012 biological opinion. The Council's abundance-based framework and the 2012 biological opinion continue to provide the basis for our guidance.

LCR Chinook salmon includes a spring-run component, a "far-north" migrating bright component, and a component of north-migrating tules. The bright and tule components both have fall run timing. The historic spawning habitat for the Upper Cowlitz, Cispus, and Lewis River spring-run populations in Washington is now largely inaccessible to salmon due to impassable dams. These populations are therefore dependent, for the time being, on the associated hatchery programs.

a) *Cowlitz, Lewis River, and Sandy River Hatcheries populations* – Per the Lower Columbia Salmon and Steelhead Recovery Plan, the Cowlitz Salmon Hatchery and Lewis River Salmon Hatchery are being used for reintroduction of LCR spring-run Chinook salmon into the upper basins above the existing dams.<sup>5</sup> The hatchery programs are critical to the overall recovery effort. Given the circumstances, maintaining the hatchery brood stocks for the Cowlitz and Lewis River Hatcheries is essential for implementation of the recovery plan. The Cowlitz Salmon Hatchery routinely met its escapement objective every year between 2002 and 2019. Lewis River Salmon Hatchery escapements declined between 2011 and 2016, but have since rebounded, achieving hatchery escapement goals every year since 2016. Although additional progress is required to meet the high viability objective for the Sandy River spring Chinook salmon population, harvest objectives specified for the population through recovery planning are being met.

b) *North Fork Lewis and Sandy River bright populations* – There are two extant natural-origin bright populations, both considered relatively healthy, in the LCR Chinook salmon ESU: the North Fork Lewis and Sandy River populations. The North Fork Lewis River population is used as a harvest indicator for ocean and in-river fisheries. The escapement goal used for management purposes for the North Fork Lewis River population is 5,700, based on estimates of maximum sustainable yield derived

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<sup>5</sup> Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, and Lower Columbia River Steelhead. Available: <https://www.fisheries.noaa.gov/resource/document/recovery-plan-lower-columbia-river-coho-salmon-lower-columbia-river-chinook> (website accessed February 2, 2021).

from spawner-recruit analysis. Annual escapement averaged 13,300 between 2010 and 2020 and, with few exceptions, have met or exceeded the goal since at least 1980. The Sandy River population is considered to be viable under current harvest conditions in the Lower Columbia River Salmon and Steelhead Recovery Plan. Given the long history of healthy returns and management constraints that will be in place this year for other stocks (e.g., tules and upriver brights), NMFS does not anticipate the need to take specific management actions in the ocean to protect the bright component of the LCR Chinook salmon ESU in 2021. NMFS expects that the states of Washington and Oregon will continue to monitor the status of the LCR Chinook salmon bright populations, and take the specific actions necessary through their usual authorities to deliver spawning escapement through the in-river fisheries they manage sufficient to maintain the health of these populations.

c) *LCR tule Chinook salmon* – There are twenty-one separate populations within the tule component of the LCR Chinook salmon ESU, which are caught in large numbers in Council fisheries, as well as fisheries to the north and in the Columbia River. NMFS’ 2012 biological opinion on the abundance-based management (ABM) framework concluded that fisheries managed under this framework are not likely to jeopardize LCR Chinook salmon. The ABM framework sets the annual exploitation rate limit depending on the abundance of Lower River Hatchery (LRH) tule Chinook salmon (Table 2).

Table 2. Variable exploitation rate limits based on the preseason forecast of LRH Chinook salmon.

Lower River Hatchery Abundance	Total Exploitation Rate Limit
0-30,000	30%
30,000-40,000	35%
40,000-85,000	38%
> 85,000	42%

**Guidance:** a) Cowlitz, Lewis River, and Sandy River Hatcheries populations – The 2021 forecast to the Columbia River mouth for Cowlitz Salmon Hatchery spring-run Chinook salmon is 1,830 adults, compared to a hatchery escapement goal of 1,337. The 2021 forecast to the Columbia River mouth for Lewis River Salmon Hatchery spring-run Chinook salmon is 2,350 adults compared to a hatchery escapement goal of 1,380. We understand that the states of Washington and Oregon will manage the mainstem Columbia River spring season salmon fisheries, along with salmon fisheries in Columbia River tributaries, to ensure the escapement to the Cowlitz and Lewis River Hatcheries will meet requirements in 2021. The Sandy River spring Chinook salmon population is meeting the recovery planning harvest objective and NMFS does not anticipate the need to take specific management actions in the ocean to protect the spring component of the LCR Chinook salmon ESU in 2021. We anticipate that the management agencies will continue to manage in-river fisheries, coordinating between mainstem and terminal tributary fisheries management, toward meeting hatchery escapement in 2021.

b) North Fork Lewis and Sandy River populations – Given the long history of healthy returns and management constraints that will be in place this year for other fall-run stocks (e.g., tules and upriver brights), we do not anticipate the need to take specific management actions in the ocean to protect the bright component of the LCR Chinook salmon ESU in 2021. The Council should continue to manage to meet the escapement goal of 5,700 Chinook salmon to the North Fork Lewis River. We anticipate that the states of Washington and Oregon will continue to monitor the status of the LCR Chinook salmon bright populations and take the specific actions necessary through their usual authorities to

deliver spawning escapement through the in-river fisheries they manage sufficient to maintain the health of these populations.

c) LRH tule Chinook salmon – The preseason forecast for LRH tule Chinook salmon in 2021 is 73,000; therefore, Council fisheries in 2021 should be managed such that the total exploitation rate on LCR tule Chinook salmon in all ocean fisheries and all mainstem Columbia River fisheries below Bonneville Dam combined does not exceed 38 percent.

### **Upper Columbia River Spring-run Chinook Salmon, Upper Willamette River Chinook Salmon, Snake River Spring/Summer-run Chinook Salmon ESUs**

**Background:** NMFS has considered the effects of Council fisheries on spring-run Chinook salmon stocks from the Upper Columbia River and Upper Willamette River Basins and spring/summer-run Chinook salmon stocks from the Snake River in several biological opinions. In these biological opinions we concluded that the expected take in Council salmon fisheries of salmon originating from any one of these ESUs is at most an occasional event; therefore, the fisheries were not likely to jeopardize any of these ESUs.

**Guidance:** Consistent with the findings of the biological opinions, management actions designed to limit catch from these ESUs beyond what will be provided by harvest constraints for other stocks in 2021 are not necessary.

### **Snake River Fall-run Chinook Salmon ESU**

**Background:** NMFS completed a biological opinion on the impacts of Council salmon fisheries on Snake River fall-run Chinook salmon in 1996. In that biological opinion, NMFS concluded that a 30.0 percent reduction in the age-3 and age-4 adult equivalent total exploitation rate in ocean salmon fisheries relative to the 1988-1993 base period standard provided a necessary and appropriate level of protection for Snake River fall-run Chinook salmon. That consultation standard is equivalent to an ocean exploitation rate limit of 33 percent on age-3 and age-4 Snake River fall-run Chinook under the current Fishery Regulation Assessment Model (FRAM) base period calibration. Since this ESU has shown continued progress towards recovery with the 1996 biological opinion's standard in place, that standard still applies.

**Guidance:** In 2021, Council salmon fisheries must be managed to ensure that the 30.0 percent base period reduction criterion for the aggregate of all ocean salmon fisheries, including Southeast Alaska, Canada, and Council fisheries, is achieved.

### **Puget Sound Chinook Salmon ESU**

**Background:** The following summarizes guidance for the Puget Sound Chinook salmon ESU. While NMFS is providing guidance for the 2021 Council salmon fisheries, we acknowledge the importance of, and continue to strongly support, the integrated management structure between the Council and North of Falcon planning processes. The FMP describes conservation objectives for each Puget Sound Chinook salmon stock. The conservation objective for Puget Sound Chinook salmon stocks that NMFS includes in this letter are described in terms of total or southern U.S. salmon fisheries (SUS) impacts rather than Council salmon fishery specific impacts. Under the current management structure, Council salmon fisheries are included as part of the suite of fisheries that comprise the fishing regime negotiated each year by the co-managers under *U.S. v. Washington* to meet management objectives for Puget Sound and Washington Coastal salmon stocks.



Although Council and Puget Sound fisheries are intertwined, it is worth noting that impacts on Puget Sound Chinook salmon stocks in Council salmon fisheries are generally quite low. In 2004, NMFS issued a biological opinion on the anticipated effects of Council salmon fisheries on the listed Puget Sound Chinook ESU for 2004 and future fishing years. The 2004 biological opinion found that exploitation rates in Council area salmon fisheries would not jeopardize the continued existence of the species. Exploitation rates on Puget Sound spring- and fall-run Chinook stock aggregates, in Council salmon fisheries, had been less than two percent and five percent on average, respectively.

NMFS has consulted on a series of proposed harvest plans for Puget Sound salmon fisheries impacting the Puget Sound Chinook Salmon ESU since the ESU was listed under the ESA in 1999. NMFS is currently reviewing a new comprehensive, multi-year joint Resource Management Plan (RMP) developed by the Washington Department of Fish and Wildlife and the Puget Sound Treaty Tribes (collectively the Puget Sound co-managers). However, discussions between NMFS and the Puget Sound co-managers regarding the provisions of the RMP are ongoing. Therefore, NMFS expects to consult on a proposed action encompassing the 2021 Puget Sound salmon fishing season. We expect to issue the biological opinion for the Puget Sound fisheries by early May 2021. The following guidance reflects NMFS' discussions with the Puget Sound co-managers to date and our best preliminary assessment of appropriate conservation objectives for 2021.

The status of populations in the Puget Sound Chinook salmon ESU varies. Most Puget Sound Chinook populations are well below escapement levels identified as required for recovery to low extinction risk. All populations are also consistently below productivity goals identified in the recovery plan. Although trends vary for individual populations across the ESU, currently 20 populations have exhibited a stable or increasing trend in natural escapement over the most recent five years available. For these populations, which did experience increased escapements, the more recent years since 2014 represent an 11-126 percent increase in natural-origin escapement. The status of the ESU, in general, is primarily due to factors other than harvest, but with consideration of the status of the ESU as-a-whole and the critical populations, in particular, our guidance reflects a cautionary approach.

**Guidance:** For the Puget Sound Chinook salmon ESU, consistent with the relative exploitation rates assessed in the 2004 opinion, the 2021 Council fisheries should be managed such that exploitation rates on Puget Sound spring- and fall-run Chinook salmon populations do not exceed 3 and 6 percent, respectively. Also, in adopting its 2021 salmon fisheries recommendations, the Council should determine that its fisheries, when combined with the suite of other fisheries impacting the Puget Sound Chinook salmon ESU, meet the conservation objectives set for populations within this ESU.

Our 2021 guidance for conservation objectives for all Puget Sound Chinook salmon populations is summarized in Table 3. The guidance is a mixture of total and southern U.S. exploitation rates, escapement goals, or noted expectations in place of specific objectives. In addition, the following section notes where discussions with the co-managers are ongoing. This guidance is specific to the 2021 season and is not intended to limit the ongoing discussions between NMFS and the co-managers with regard to the longer-term RMP.

Considerations for some Puget Sound Chinook populations, specific to circumstances in 2021, where we expect, based on these considerations, that the final objective that is produced during the preseason planning process will meet the conservation needs for the populations:

1. For the Mid-Puget Sound fall Chinook populations—Green River, Puyallup River, and Lake Washington—discussions with the co-managers are ongoing for

interim conservation objectives for the 2021 fishing season. As in 2020, NMFS expects that the final agreed-to objectives are representative of recent-year average natural-origin spawner escapement, in the Green and Puyallup Rivers, and a natural- origin spawner escapement in the Cedar River (Lake Washington) which looks to maximize spawner productivity. These interim objectives look to conserve recent gains in natural-origin escapement, consistent with the role of these populations in recovery of the ESU. In all three of these systems, hatchery broodstock collection goals are additional, important objectives that can limit the overall attainable harvest rates. Additionally, in the Green and Puyallup River systems, natural-origin adults can be captured at the hatchery facilities. These natural-origin fish are utilized in the hatchery program broodstock but adults that are in excess of that need can be transported or passed on to spawning reaches in the rivers to contribute to the natural-origin spawning objective. We expect that the co-manager’s fishery management actions, in the case of Lake Washington, and fishery management actions and hatchery broodstock actions in the Green and Puyallup Rivers, for 2021 will result in spawning ground escapements that will meet the objectives described above and we anticipate that these objectives will meet conservation needs for these populations.

2. For the Mid-Hood Canal Chinook population, the 2021 forecast is for very low abundance, as has been the case for recent years. The discontinuation of the supplementation program for the population in 2014 has resulted in a marked decrease in total terminal run size for this population. The co-managers are continuing to discuss the objective for 2021 fisheries and for the long-term RMP. Understanding that these discussions are ongoing between the co-managers, NMFS’ guidance for the Mid-Hood Canal Chinook population is that 2021 fisheries limit their impacts such that the reduction in preseason estimated escapement of natural-origin fish, as a result of Puget Sound fisheries, is consistent with the most recent two years of preseason estimates (NMFS 2019 and 2020)<sup>6</sup>. We anticipate that an objective that meets this criteria will meet the conservation needs of the population. If, during the North of Falcon process, circumstances are inconsistent with our expectations, we will work with the co-managers to develop appropriate measures.

In summary, while the primary purpose of this document is to provide guidance for the Council salmon fisheries in 2021, we acknowledge the importance of the integrated management structure between the Council and North of Falcon planning processes. Management actions taken to meet the above-described conservation objectives will occur primarily in Puget Sound fisheries because impacts on

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<sup>6</sup> NMFS. 2019. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response: Impacts of the Role of the BIA Under its Authority to Assist with the Development of the 2019-2020 Puget Sound Chinook Harvest Plan, Salmon Fishing Activities Authorized by the U.S. Fish and Wildlife Service, and Fisheries Authorized by the U.S. Fraser Panel in 2019. May 3, 2019. National Marine Fisheries Service, West Coast Region. NMFS Consultation No.: WCR-2019-00381. 284p.

NMFS. 2020. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response: Impacts of the Role of the BIA Under its Authority to Assist with the Development of the 2020-2021 Puget Sound Chinook Harvest Plan, Salmon Fishing Activities Authorized by the U.S. Fish and Wildlife Service, and Fisheries Authorized by the U.S. Fraser Panel in 2020. May 8, 2020. National Marine Fisheries Service, West Coast Region. NMFS Consultation No.: WCR-2020-00960. 345p.

Puget Sound Chinook salmon in Council fisheries are low. However, since impacts in both fisheries are considered in meeting the objectives, any delay in reaching the necessary agreements through the North of Falcon process by the end of the April 2021 Council meeting will complicate NMFS' ability to approve regulations for Council area fisheries and to complete the biological opinion for Puget Sound fisheries by May 2021.

To avoid such complications, we strongly recommend that the Council provide assurance that the final option adopted at its April 2021 Council meeting, when combined with Puget Sound fisheries negotiated during the North of Falcon process, results in harvest impacts that are consistent with the conservation objectives for each Puget Sound Chinook management unit included in Table 3 based, on the anticipated 2021 abundances.

(continued next page)

Table 3. NMFS' guidance for Puget Sound Chinook salmon conservation objectives for the 2021 fishing year. Grayed rows indicate interim, one-year objectives for 2021. Low abundance thresholds for management units with multiple populations are in bold, where available. Table footnotes are provided on the following page.

Management Unit/Population	Normal Abundance Regime			Minimum Fishing Regime		
	Exploitation Rate Ceiling		Escapement Goal	Low Abundance Threshold	Critical Exploitation Rate	
	Total	Southern US			So. US	Preterminal So. US
<b>Nooksack spring</b> NF Nooksack SF Nooksack	Minimum Fishing Regime applies			400 200	10.5%/13.5% <sup>1</sup>	
<b>Skagit Summer/Fall</b> Upper Skagit Lower Skagit Lower Sauk	48%			<b>9,100</b> <sup>2</sup> 2,200 900 400	17% <sup>3</sup>	
<b>Skagit Spring</b> Suitttle Upper Sauk Cascade	37.5%			<b>823</b> <sup>2</sup> 170 130 170	10.3%	
<b>Stillaguamish</b> NF Stillaguamish and SF Stillaguamish	22% <sup>4</sup>			1,200	8%	
<b>Snohomish</b> Skykomish Snoqualmie	19% <sup>5</sup>			<b>3,250</b> <sup>2</sup> 2,015 1,132	9%	
<b>Lake Washington</b> Cedar River	See bullet 1 above					
<b>Green</b>	See bullet 1 above					
<b>White River</b>		22%	1,000	400	15%	
<b>Puyallup</b>	See bullet 1 above					
<b>Nisqually</b>	47%/49% <sup>6</sup>					
<b>Skokomish</b>	50%			<b>1,300</b> <sup>2</sup> 800 natural spawners and 500 hatchery escapement	Further reductions as necessary	12%
<b>Mid-Hood Canal</b>	See bullet 2 above					
<b>Dungeness</b>		10%		500	6%	
<b>Elwha</b>		10%		1,500	6%	

(Table 3 footnotes on next page)

Table 3 footnotes.

1. Expected total SUS exploitation rate will not exceed 10.5% in 4 out of 5 years and 13.5% in 1 out of 5 years.
2. Both aggregate and individually identified goals must be met.
3. For Skagit River summer/fall Chinook Management Unit, the critical exploitation rate ceiling is set at 15% during even years and 17% during odd years.
4. Total exploitation rate (including Alaskan and Canadian salmon fisheries) cannot exceed 22%. If northern fisheries exceed 14%, SUS impacts will be lowered to maintain natural-origin recruit impacts, not to exceed a 22% total exploitation rate.
5. When forecasted abundance is greater than the Low Abundance Threshold (LAT) or Upper Management Threshold (UMT) (4,900; 3,600 for Skykomish and 1,300 for Snohomish) and the northern fishery exploitation rate is projected to exceed 9%, SUS fisheries may be planned to the exploitation rate limits of 9% and 10%, at the above LAT and above UMT tiers, respectively. In these cases, the total exploitation rate may exceed 19%.
6. An additional 2% exploitation rate, in the terminal area net fishery, may be included for the 2021 management objective, to facilitate the continued experimental, selective gear project. The inclusion of this additional 2% exploitation rate is dependent on NMFS's acceptance of a pre-season implementation plan prior to the April Council meeting and receipt of the results of the previous year's experimental gear fishery if it occurred.

## ESA-listed Coho Salmon Species

### Oregon Coast (OC) Coho Salmon ESU

**Background:** The ESA listing status of the OC coho ESU has changed over the years. Since February 2008, the OC coho ESU has been ESA-listed as threatened. Regardless of its listing status, the Council has managed OC coho consistent with the terms of Amendment 13 of the FMP as modified by the Council's 2000 ad-hoc OC Natural Coho Workgroup. NMFS concluded in its 1999 ESA section 7 biological opinion on Amendment 13 to the FMP that management of fisheries consistent with the Amendment was not likely to jeopardize this ESU. The 2000 modifications to the framework in Amendment 13 added management tiers to address lower marine survival and parent brood conditions. With these modifications, the framework has provided equivalent and/or additional restrictions on the ocean salmon fishery for OC coho salmon when compared to the provisions of the 1999 biological opinion. Therefore, reinitiation of consultation was not required.

Prior to FMP Amendment 13 (January 1999), coho originating in coastal Oregon streams from the Necanicum River in the north to the Winchuck River in the south were managed as one aggregate stock, Oregon Coast Natural (OCN) coho. Amendment 13 disaggregated OCN coho management into four sub-aggregates: northern (Necanicum River to Neskowin River), north central (Salmon River to Siuslaw River), south central (Siltcoos River to Sixes River), and southern (Elk River to Winchuck River). Three of these (northern, north central, and south central) comprise the OC coho ESU. The southern sub-aggregate is within the Southern Oregon/Northern California Coastal coho ESU (SONCC coho), discussed below. Amendment 13 sets allowable fishery impact rates for OC coho based on measures of parental escapement and marine survival with ocean impact rates for each of the three OC coho sub-aggregates limited by the lowest status of the three.

**Guidance:** For the 2021 season, the spawner status for both the northern sub-aggregate and the north-central sub-aggregate is low, while the spawner status for the south-central sub-aggregate is high. The marine survival index is in the medium category. Under these circumstances, the 2000 ad hoc OC Natural Coho Workgroup report requires that the total exploitation rate in 2021 marine and freshwater salmon fisheries be limited to no more than 15 percent for all three of the OC coho sub-aggregates.<sup>7</sup> As mentioned above, the southern sub-aggregate is within the SONCC coho ESU; therefore, it should be managed consistent with the SONCC coho ESU section as described below.

For 2021, fishery managers should continue to coordinate ocean fishery impacts with terminal fishery opportunities for wild coho salmon. The Fishery Management and Evaluation Plans for the rivers and lakes of the OC coho ESU<sup>8</sup> specify the criteria for allowing additional opportunities on specific populations that may be experiencing greater returns this season. For 2021, mixed stock fisheries in the ocean and estuaries are subject to a limit of 15 percent in each sub-aggregate.

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<sup>7</sup> OCN Work Group Report. 2000 Review of Amendment 13 to the Pacific Coast Salmon Plan. October 12, 2000. Exhibit B.3.b in the November 2000 briefing book. Available: <https://www.pcouncil.org/documents/2000/11/b-salmon-management-november-2000.pdf> (website accessed February 6, 2021).

<sup>8</sup> Thom, B.A. 2009. Letter from Barry A. Thom, Acting Regional Administrator, Northwest Region, NMFS, to Ed Bowles, Fish Division Administrator, ODFW, dated September 1, 2009, concurring with ODFW's "Oregon Coastal Coho, Coastal Rivers Coho Sports Fishery" Fisheries Management and Evaluation Plan under limit 4 of the 4(d) rule. 3 p.

**Lower Columbia River (LCR) Coho Salmon ESU**

**Background:** The LCR coho ESU was listed as threatened under the ESA in 2005. In 2014, the Council recommended a harvest management matrix for managing impacts to LCR coho. NMFS completed a biological opinion concluding that Council fisheries managed using this matrix are not likely to jeopardize LCR coho. The matrix and the 2015 biological opinion provides the basis for our guidance in 2021.

The total exploitation rate limit for LCR coho is set each year based on measures of parental escapement and marine survival (Table 4). The total exploitation rate on LCR coho salmon in all marine area fisheries and fisheries in the mainstem Columbia River below Bonneville Dam must not exceed the year-specific exploitation rate limit.

Table 4. Harvest management matrix for LCR coho showing allowable fishery exploitation rates based on parental escapement and marine survival index.

Parental Escapement (rate of full seeding)		Marine Survival Index (based on return of jacks per hatchery smolt)					Allowable exploitation rate
		Very Low (≤ 0.06%)	Low (≤ 0.08%)	Medium (≤ 0.17%)	High (≤ 0.40%)	Very High (> 0.40%)	
Normal	≥ 0.30	10%	15%	18%	23%	30%	Allowable exploitation rate
Very Low	< 0.30	≤ 10%	≤ 15%	≤ 18%	≤ 23%	≤ 30%	

**Guidance:** For the 2021 season, parent escapement is in the normal category. The marine survival index is in the very high category. Therefore, Council salmon fisheries in 2021 should be managed such that the total exploitation rate in all salmon fisheries on LCR coho below Bonneville Dam does not exceed 30 percent.

**Southern Oregon/Northern California Coastal (SONCC) Coho Salmon ESU**

**Background:** The SONCC coho ESU has been listed as threatened under the ESA since 1997. The current consultation standard for SONCC coho, described in the FMP, is from a 1999 NMFS biological opinion. The Rogue/Klamath coho hatchery stock is used as an indicator of fishery impacts on SONCC coho. In April 2020, the Council formed an ad hoc workgroup to develop a harvest control rule for the SONCC coho salmon ESU for Council consideration by November 2021. In the meantime, guidance for Council salmon fisheries is based on the 1999 biological opinion.

**Guidance:** Salmon fisheries in 2021 should be consistent with the consultation standard, which requires that management measures developed under the FMP achieve an ocean exploitation rate on Rogue/Klamath coho hatchery stocks of no more than 13 percent.

**Central California Coastal (CCC) Coho Salmon ESU**

**Background:** The CCC coho ESU was listed as threatened under the ESA in 1996 and relisted as endangered in 2005. The current consultation standard for CCC coho is from a 1999 biological opinion. Information on past harvest or non-retention mortality rates is lacking for CCC coho. In the absence of more specific information, the consultation standard requires that directed fishing for coho and retention of coho in Chinook salmon-directed fisheries be prohibited off California.

CCC coho is one of eight species identified in NMFS' "Species in the Spotlight" initiative because the ESU is at high risk of extinction. For more information about actions for its conservation and recovery, please refer to its Species in the Spotlight Priority Action Plan.<sup>9</sup>

**Guidance:** Salmon fisheries in 2021 should be consistent with the consultation standard to prohibit directed fishing for coho and retention of coho in Chinook salmon-directed fisheries off California.

## **ESA-listed Chum Salmon Species**

### **Hood Canal Summer-run Chum Salmon ESU**

**Background:** Chum salmon are not targeted, and are rarely caught, in Council salmon fisheries. However, the FMP requires fisheries to be managed consistent with NMFS' ESA standards for listed species, which includes the Hood Canal summer-run chum salmon ESU. The Summer Chum Salmon Conservation Initiative, approved by NMFS under Limit 6 of the ESA 4(d) Rule, describes the harvest actions that must be taken to protect listed Hood Canal summer-run chum salmon both in Washington fisheries managed under the jurisdiction of the Council and Puget Sound fisheries managed by the state and tribal fishery managers.<sup>10</sup>

Under the terms of the Conservation Initiative, chum salmon must be released in non-treaty sport and troll fisheries in Washington catch Area 4 from August 1 through September 30. The Conservation Initiative does not require release of chum salmon in tribal fisheries in catch Area 4 during the same period, but does recommend that release provisions be implemented. As in previous years, tribal managers will discuss implementation of these provisions during the North of Falcon planning process.

**Guidance:** Council fisheries in 2021 should be managed consistent with the terms of the Summer Chum Salmon Conservation Initiative.

### **Columbia River Chum Salmon ESU**

**Background:** The Columbia River chum salmon ESU has been listed as threatened under the ESA since 1999. In a 2001 biological opinion NMFS determined Columbia River chum salmon are rarely caught in Council salmon fisheries and that Council salmon fisheries were not likely to jeopardize Columbia River chum salmon.

**Guidance:** Management constraints in the 2021 ocean salmon fisheries for the protection of listed Columbia River chum salmon are not considered necessary.

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<sup>9</sup> Species in the Spotlight: priority actions, 2016-2020. Central California coast coho salmon, *Oncorhynchus kisutch*. Available: <https://repository.library.noaa.gov/view/noaa/17439> (website accessed January 29, 2021).

<sup>10</sup> Washington Department of Fish and Wildlife and Point No Point Treaty Tribes. 2000. Summer Chum Salmon Conservation Initiative: An Implementation Plan to Recover Summer Chum in the Hood Canal and Strait of Juan de Fuca Region. Dated April 2000. 797 p. Available: <https://wdfw.wa.gov/sites/default/files/publications/00155/wdfw00155.pdf> (website accessed January 29, 2021).



## ESA-listed Sockeye Salmon Species

### Snake River Sockeye Salmon and Ozette Lake Sockeye Salmon ESUs

**Background:** Sockeye salmon are rarely caught in Council salmon fisheries. In previous biological opinions, NMFS determined that Council fisheries were not likely to adversely affect Snake River or Ozette Lake sockeye salmon.

**Guidance:** Management constraints in the 2021 ocean fisheries for the protection of listed sockeye salmon are not considered necessary.

## ESA-listed Steelhead Species

**Background:** One Distinct Population Segment (DPS) of steelhead is currently listed as endangered, and ten DPSs are listed as threatened in Washington, Oregon, Idaho, and California. All eleven ESA-listed DPSs have been considered in NMFS' biological opinions on the effects of Council fisheries. Steelhead are rarely caught in ocean fisheries and retention of steelhead in non-treaty commercial ocean fisheries is currently prohibited.

**Guidance:** Based on currently available information, we conclude that no additional measures are required at this time to avoid effects not already considered in prior biological opinions. The Council and states should continue to prohibit the retention of steelhead with intact adipose fins in ocean recreational fisheries and we encourage the same in treaty tribal fisheries to minimize the effect of whatever catch may occur.

## ESA-listed Southern Resident killer whale (SRKW) DPS

**Background:** NMFS is evaluating the recommendation adopted by the Council in November 2020 as part of the proposed action analyzed in a new ESA biological opinion on the effects of Council salmon fisheries to SRKW. That biological opinion will analyze the operation of the ocean salmon fisheries in the west coast Exclusive Economic Zone (EEZ) as managed under the Council's Pacific Coast Salmon FMP, including proposed Amendment 21. NMFS has committed to finalizing and signing the biological opinion prior to promulgation of the 2021 salmon management measures and will apprise the Council upon completion.

NMFS remains committed to working with the Council, states, tribes and our other partners to take actions across the primary threats of prey availability, vessel noise and disturbance, and pollutants to improve conditions for the whales. We recognize that prey availability is only one element that has contributed to the current SRKW condition and fisheries are only one source of potential risk.

**Guidance:** A key component of the recommendation at the November 2020 Council meeting was adoption of a low abundance threshold of 966,000 Chinook salmon in North of Falcon (NOF) waters<sup>11</sup> below which the Council would implement additional management measures in the ocean salmon fishery; as of the date of this letter, that threshold still applies, see footnote 11. By the end of its March

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<sup>11</sup> This threshold is the arithmetic mean of the seven lowest years of pre-fishing Chinook salmon abundance estimated to be present on October 1 in the area North of Cape Falcon (1994-1996, 1998-2000, and 2007). Should any updates or changes occur to models that affect these historic estimates of abundance, the threshold should be recalculated.

meeting, the Council should use the ad hoc SRKW Workgroup's methods (PFMC 2020<sup>12</sup>) to estimate and report the pre-fishing (October 1) adult Chinook salmon abundance<sup>13</sup> based on 2021 forecasts for each of the five spatial areas defined by the ad hoc SRKW Workgroup: North of Falcon, Salish Sea, southwest West Coast Vancouver Island, Oregon coastal waters, and California coastal waters. The Council should compare the 2021 abundance estimate for the NOF area to the adopted low abundance threshold. If the 2021 abundance estimate for NOF is less than the low abundance threshold, the Council should implement the management measures as adopted at its November 2020 meeting and as described by the Council in the Decision Summary Document (<https://www.pcouncil.org/november-2020-decision-summary-document/#Salmon>). We also acknowledge the states' commitment as stated at the November 2020 Council meeting to implement management measures in state waters that complement the alternative adopted by the Council in November 2020.

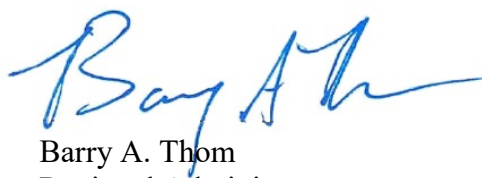
In addition to the evaluation of the Chinook salmon low abundance threshold, NMFS will use the pre-fishing abundance estimates across all five spatial areas in ongoing monitoring of available Chinook salmon abundance as it relates to available prey and SRKW spatial distribution.

## Conclusion

NMFS West Coast Region expects the Council salmon fisheries in the coastal waters of the EEZ in 2021 will meet the conservation objectives for salmon stocks managed under the FMP and be responsive to the abundance of salmon stocks including the guidance described in the preceding sections.

We look forward to working with the Council to develop 2021 ocean salmon fisheries consistent with the conservation and management objectives of the Salmon FMP, the Magnuson-Stevens Fishery Management and Conservation Act, and the ESA. We are committed to working with the Council to address the issues outlined in this letter. To discuss this guidance further, please contact Ryan Wulff, Assistant Regional Administrator for Sustainable Fisheries at 916-930-3733 or [Ryan.Wulff@noaa.gov](mailto:Ryan.Wulff@noaa.gov).

Sincerely,



Barry A. Thom  
Regional Administrator

cc: Chuck Tracy, Executive Director, Pacific Fishery Management Council  
Ryan Wulff, Assistant Regional Administrator for Sustainable Fisheries, NMFS WCR

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<sup>12</sup> PFMC. 2020. Pacific Fishery Management Council Salmon Fishery Management Plan Impacts to Southern Resident Killer Whales. Risk Assessment. May 2020. Ad hoc SRKW Workgroup. 165p.

<sup>13</sup> Based on October 1 starting cohort sizes (time step 1 of the Fishery Regulation Assessment Model).