



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
7600 Sand Point Way N.E.  
Seattle, Washington 98115

March 7, 2016

Ms. Dorothy M. Lowman, Chair  
Pacific Fishery Management Council  
7700 NE Ambassador Place, Suite 101  
Portland, Oregon 97220-1384

Dear Chair Lowman:

The Pacific Coast Salmon Fishery Management Plan (Salmon FMP) requires that the Pacific Fishery Management Council (Council or PFMC) develop management recommendations for fisheries under the Salmon FMP consistent with consultation standards developed by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) to protect species listed under the Endangered Species Act (ESA). This letter summarizes NOAA Fisheries' consultation standards and provides guidance regarding the potential effects of the 2016 season on ESA-listed salmonid species. As in previous years, this letter is intended to offer NOAA Fisheries' preliminary guidance regarding conservation needs for ESA-listed salmonid species. NOAA Fisheries will conduct a new consultation in 2016 on the effects of salmon fisheries on Puget Sound Chinook and steelhead. The ultimate ESA-determination shall be provided when the biological opinion for those species is completed.

We also use this opportunity to comment on other subjects of general interest, including developing circumstances related to endangered Southern Resident killer whales and our expectations for the genetic stock identification (GSI) sampling program in 2016. We also provide guidance for Sacramento River fall Chinook and Klamath River fall Chinook and our expectations for management of these stocks in 2016 due to circumstances in recent years and their relative importance to the fisheries. We also want to bring to the Council's attention that three species affected by the salmon fisheries – Southern Resident killer whales, Sacramento River winter-run Chinook salmon, and Central California Coast (CCC) coho salmon – were recently included in NOAA Fisheries' new "Species in the Spotlight" initiative; they are among eight federally endangered species most at risk of extinction. NOAA Fisheries developed action plans to guide efforts to stabilize these critically vulnerable populations and prevent their extinction.

### **Southern Resident Killer Whales**

NOAA Fisheries and other researchers continue to develop new scientific information and analyses regarding the ecology of Southern Resident Killer Whales (Southern Residents), which are listed as endangered under the ESA. It is clear that Chinook salmon are very important to the survival and recovery of Southern Residents as a prey species. Therefore, any activities that



affect the abundance of Chinook salmon available to Southern Residents, such as fisheries that occur within the range of Southern Residents or that affect Chinook salmon abundance within their range, have potentially serious impacts on the survival and population growth of the whales.

Because Southern Residents also are listed as endangered pursuant to Canada's Species at Risk Act, the Canadian Department of Fisheries and Oceans (DFO) and NOAA Fisheries sponsored a series of scientific workshops during 2012 and 2013 to review the available information about Southern Residents, their feeding habits, and the potential effects of salmon fisheries on the whales through reduction in the abundance of their prey. A panel of seven independent scientists was selected to oversee and participate in the process and produce a report documenting its findings. The independent panel issued its final report on November 30, 2012.<sup>1</sup>

NOAA Fisheries is continuing to consider all aspects of the final report of the independent science panel to inform new consultations on fisheries and continued evaluation of the need to reinstate existing fishery consultations. In addition, we are pursuing several research projects identified in the report. These projects focus on the whales' migration patterns, feeding habits, health condition and preference for Chinook salmon for prey. With regard to prey, we are working to improve our understanding of which salmon runs and timing might be most important to address any food limitations for the whales and to also understand the roles of other salmon predators and fisheries that can affect prey availability for the whales.

For more information about the status of Southern Resident killer whales and its conservation and recovery, please refer to NOAA Fisheries' "Species in the Spotlight" Priority Action Plan: [http://www.nmfs.noaa.gov/stories/2015/05/05\\_14\\_15species\\_in\\_the\\_spotlight.html](http://www.nmfs.noaa.gov/stories/2015/05/05_14_15species_in_the_spotlight.html).

NOAA Fisheries is considering a risk assessment framework based on the scientific information reviewed by the panel and updated analysis. We continue our work to develop a structured process to evaluate the effects of changes in salmon abundance on survival and recovery of the Southern Residents. We will seek input from the public and fishery management entities on the framework and any specific risk criteria prior to incorporating this approach into new consultations. Meanwhile, Canada also is considering the ramifications of the panel's report to its fisheries in the context of its domestic fishery consultative processes. In 2016 NOAA Fisheries will focus its efforts on completing this work. Given the time it will take to complete development of the framework and procedures for its implementation, we do not foresee implementing a new process for consultations on fisheries in 2016.

### **Genetic Stock Identification Sampling**

In 2015 at-sea sampling of Chinook salmon by fishermen was conducted in many open times and areas off Oregon and California, and full season sampling occurred in Washington. The overall effort was part of the West Coast Salmon Genetic Stock Identification (WCS-GSI) collaboration;

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<sup>1</sup> Hilborn, R., S.P. Cox, F.M.D. Gulland, D.G. Hankin, N.T. Hobbs, D.E. Schindler, and A.W. Trites. 2012. The Effects of Salmon Fisheries on Southern Resident Killer Whales: Final Report of the Independent Science Panel. Prepared with the assistance of D.R. Marmorek and S.W. Hall, ESSA Technologies Ltd., Vancouver, G.C. for National Marine Fisheries Service (Seattle, WA) and Fisheries and Oceans Canada (Vancouver, BC). xv + 61 pp. + Appendices.

a partnership of west coast fishermen's organizations, universities, states, tribes, and NOAA Fisheries, formed in 2006 to apply GSI to the study of west coast salmon fisheries.

The data collected in 2015 represent the sixth year of fine-scale GSI sampling over a broad geographic area for a full season, although coverage was less comprehensive than in some previous years. Current results show informative contrasts in catch rates and distributions relative to previous years. Results are being analyzed for a variety of purposes, including updating the Chinook Fishery Regulation Assessment Model (FRAM) and exploring their use in evaluating management area boundaries.

Genetic stock identification is one of many stock identification tools widely used in fisheries management. A related genetic methodology, Parentage-based Tagging, is also gaining acceptance. Coded-wire tags (CWT), Passive Integrated Transponder (PIT) tags and genetic technologies, in combination, now provide fine-scale, timely stock-specific information to meet the needs of the management and scientific communities. We anticipate that workshops and discussion will increasingly focus on using multiple stock identification and marking technologies for management. For example, the salmon Methodology Review in 2015 considered new management lines in California based on combined data from coded-wire tags and GSI. The conclusion was that, while in some cases stock distribution differences did appear to exist, the data were not strong enough to support management revisions. The experience of the WCS-GSI collaboration, combined with analysis of their data, has become central to these discussions.

In 2010 and 2012, non-retention GSI sampling was conducted in areas closed to harvest, which required set-asides during the preseason process to account for associated impacts. In 2011 and 2013-2015, sampling was conducted only in open areas, with resulting data gaps that make it more difficult to construct a complete coast-wide picture of stock distribution and movement. Samples from 2012 were the first to include a full season of sampling in Washington, and that effort was repeated in 2013, 2014, and 2015. Washington will not sample the ocean fishery in 2016; instead they will focus on analyzing archived samples. Oregon hopes to test a dockside sampling protocol for GSI that will provide data more comparable in fishery coverage to the CWT data while preserving fine scale spatial information on stock distributions. Such sampling could eventually lead to more complete integration of genetic techniques in management.

Sampling in 2016 is funded through a Saltonstall-Kennedy grant award to the California Salmon Council. We anticipate that a Scientific Research Permit will be requested from NOAA Fisheries to allow non-retention sampling in closed times and areas. The areas for non-retention sampling will depend on fishing opportunities, will be south of Horse Mountain, Oregon, and could extend south to the Monterey area in California. Sampling plans will be developed during the PFMC 2016 preseason salmon planning process. The impacts associated with sampling in closed areas will have to be assessed in the modeling by the Council's Salmon Technical Team and considered by the Council as it develops its recommended management alternatives.

## **CHINOOK SALMON**

### **Sacramento River Fall Chinook**

NOAA Fisheries guidance for Sacramento River fall Chinook salmon in 2016 is to follow the FMP-defined control rule, which specifies an expected 2016 escapement greater than or equal to 122,000 hatchery and natural-area adult spawners.

### **Klamath River Fall Chinook**

NOAA Fisheries guidance for Klamath River fall Chinook (KRFC) salmon in 2016 is to follow the FMP-defined control rule, which specifies a minimum escapement in 2016 greater than or equal to 30,909 natural-area adult spawners. Given the forecasted run size, NOAA Fisheries anticipates harvest opportunity will be reduced relative to 2015.

### **California Coastal Chinook Salmon**

The California Coastal (CC) Chinook salmon Evolutionarily Significant Unit (ESU) has been listed as threatened under the ESA since 1999. The current consultation standard for CC-Chinook is from a NOAA Fisheries biological opinion dated April 28, 2000. On June 13, 2005, NOAA Fisheries completed additional consultation on CC-Chinook, and specified actions necessary to implement the reasonable and prudent alternatives (RPAs) of the 2000 biological opinion for this ESU.

The RPAs of the 2000 biological opinion stated that to ensure that CC-Chinook are not subject to increasing harvest rates in the future, limits on the forecast KRFC age-4 ocean harvest rates would serve as the consultation standard. The 2005 re-initiation of consultation affirmed that management measures shall result in a forecast KRFC age-4 ocean harvest rate of no greater than 16 percent. The 2000 biological opinion and 2005 consultation require NOAA Fisheries to collect and examine information that would allow re-evaluation of this consultation standard.

Data are insufficient at this time to move forward with a new CC-Chinook management alternative. Until alternative management strategies become feasible, the 16 percent KRFC age-4 ocean harvest rate will remain as the consultation standard for CC-Chinook.

### **Sacramento River Winter Chinook Salmon**

The Sacramento River winter Chinook salmon ESU (winter-run) was listed under the ESA as threatened in 1990 and relisted as endangered in 1994. The current consultation standard for winter-run is derived from a NOAA Fisheries biological opinion completed on April 30, 2010. The 2010 biological opinion<sup>2</sup> found that the ocean salmon fishery, as managed under the Salmon FMP, was likely to jeopardize the continued existence of the winter-run. This determination was based on the lack of an explicit management process to avoid or reduce impacts to winter-run when this stock is declining and/or facing increased extinction risks. To avoid the likelihood of jeopardizing the existence of winter-run while enabling the continuation of the ocean salmon fishery, NOAA Fisheries developed an RPA<sup>3</sup> which implemented a new abundance-based management framework for winter-run that is responsive to changes in stock status. The framework was first implemented in the 2012 ocean salmon fishing year.

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<sup>2</sup> [http://www.westcoast.fisheries.noaa.gov/fisheries/salmon\\_steelhead/ocean\\_fisheries.html](http://www.westcoast.fisheries.noaa.gov/fisheries/salmon_steelhead/ocean_fisheries.html)

NOAA Fisheries continues to examine new information and consider options that will provide the most effective management of winter-run impacts in the ocean salmon fishery, including participating in a PFMC ad-hoc work group focused on exploring alternative control rules. However, for 2016, NOAA Fisheries guidance is to follow the existing winter-run control rule, which specifies a predicted age-3 impact rate of no greater than 19.9 percent in fisheries south of Point Arena, California.

In 2015, the Council evaluated information related to the status of winter-run and responded by recommending management measures that were more conservative than required by the RPA's management framework. For 2016, NOAA Fisheries recommends and anticipates that the Council again review the best available information related to the status of winter-run and develop management measures that are responsive to that information.

Sacramento winter Chinook are one of eight species recently identified in NOAA Fisheries' new "Species in the Spotlight" initiative. For more information about actions for its conservation and recovery, please refer to its *Species in the Spotlight Priority Action Plan*: [http://www.nmfs.noaa.gov/stories/2015/05/05\\_14\\_15species\\_in\\_the\\_spotlight.html](http://www.nmfs.noaa.gov/stories/2015/05/05_14_15species_in_the_spotlight.html).

#### **Central Valley Spring Chinook Salmon**

The Central Valley spring Chinook ESU was first listed as threatened in 1999. The current consultation standard for Central Valley spring Chinook is from the NOAA Fisheries biological opinion, dated April 28, 2000, on the effects of the ocean salmon fishery on Central Valley spring Chinook and CC-Chinook. The 2000 opinion concluded that the ocean salmon fishery, as regulated under the Salmon FMP and NOAA Fisheries consultation standards for winter-run, is not likely to jeopardize the continued existence of Central Valley spring Chinook. The 2012 management framework implemented for Sacramento River winter Chinook offers at least equivalent, and/or additional, restrictions on the ocean salmon fishery than those provided by the previous Sacramento River winter Chinook consultation standards. As a result, NOAA Fisheries has determined that the current management framework, along with other regulatory measures in the Salmon FMP, provides sufficient protection for Central Valley spring Chinook for the 2016 fishing year.

#### **Lower Columbia River Chinook Salmon**

Lower Columbia River (LCR) Chinook salmon were listed as threatened under the ESA on March 24, 1999. NOAA Fisheries' most recent biological opinion regarding the effects of Council fisheries on LCR Chinook was completed in 2012. The 2012 opinion provides the basis for our guidance in 2016.

The LCR Chinook ESU is comprised of a spring component, a "far-north" migrating bright component, and a component of north migrating tules. The bright and tule components both have fall run timing. Of nine historical spring Chinook populations two are considered extinct including the White Salmon and Hood River populations, both located in the Columbia River Gorge above Bonneville Dam. Four of the remaining seven populations are targeted to achieve high viability including the Upper Cowlitz, Cispus (a tributary of the Cowlitz), North Fork Lewis, and Sandy River populations. The historic spawning habitat for the Upper Cowlitz, Cispus, and Lewis River 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. The Lower Columbia Salmon and Steelhead Recovery Plan<sup>3</sup> specifies actions to be taken to facilitate recovery of spring Chinook populations in Washington State. The Cowlitz and Lewis River hatcheries are being used, for example, for reintroduction of spring Chinook into the upper basins above the existing dams.

The hatchery programs are therefore critical to the overall recovery effort. Although additional progress is required to meet the high viability objective for the Sandy River, harvest objectives specified for the population through recovery planning are being met. Given the circumstances, maintaining the hatchery brood stocks for the Cowlitz and Lewis River hatcheries is essential for implementation of specified recovery actions. The Cowlitz Hatchery has met its escapement objective regularly. The forecast for 2016 is 25,100 adults which will again meet the minimum hatchery escapement of 1,550 adults. The Lewis Hatchery in 2015 did not meet its minimum hatchery escapement goal of 1,500 adults; however, the egg-take goal was met due to above average fecundity of the female broodstock. Hatchery escapements have routinely been above goal, but have been declining in recent years. The 2016 forecast for Lewis River hatchery fish is 1,000 adults to the tributary mouth similar to the return in 2015. Although the egg take goal in 2015 was met, the low returns in 2015 and low forecast in 2016 warrant continuing review. Nonetheless, the general pattern of meeting the goals ensures that what remains of the genetic legacy is preserved and can be used to advance recovery. NOAA Fisheries expects that the management agencies will continue to manage in-river fisheries to meet hatchery escapement goals, but no additional management constraints on Council fisheries are considered necessary at this time.

There are two extant natural-origin bright populations in the LCR Chinook ESU including the North Fork Lewis and Sandy River populations. Both populations are considered to be relatively healthy. 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 population is 5,700, based on estimates of maximum sustained yield derived from spawner-recruit analysis. Escapements averaged 9,200 since 2005 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 (NMFS 2013). Given the long history of healthy returns, and management constraints that will be in place this year for other stocks, NOAA Fisheries does not anticipate the need to take specific management actions in the ocean to protect the bright component of the LCR Chinook ESU in 2016. NOAA Fisheries does expect that the states of Washington and Oregon will continue to monitor the status of the LCR bright populations, and take the specific actions necessary through their usual authorities to deliver spawning escapement through the fisheries they manage sufficient to maintain the health of these populations.

There are twenty-one separate populations within the tule component of the LCR Chinook ESU. Unlike the spring or bright populations of the ESU, LCR tule populations are caught in large numbers in Council fisheries, as well as fisheries to the north and in the Columbia River. The biological opinion completed in 2012 analyzed an abundance-based management (ABM)

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<sup>3</sup>[http://www.westcoast.fisheries.noaa.gov/protected\\_species/salmon\\_steelhead/recovery\\_planning\\_and\\_implementation/lower\\_columbia\\_river/lower\\_columbia\\_recovery\\_plan.html](http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/lower_columbia_river/lower_columbia_recovery_plan.html)

framework based on recommendations from the joint state, tribal, Council, NOAA Fisheries and hoc Tule Chinook Workgroup and other input to set ESA consultation standards for fisheries. The ABM framework sets the annual exploitation rate limit depending on the abundance of Lower River Hatchery (LRH) tule Chinook (Table 1). The abundance framework, as implemented over time, should have a conservation benefit that is equal or greater to the previous consultation standard of a fixed exploitation rate of 0.36. This is accomplished by reducing harvest when abundance is low and populations are most in need of protection while providing some increase in harvest opportunity when abundance is relatively high. Since its implementation in 2012, abundance levels for Chinook salmon returning to the Columbia River, including LCR tule Chinook, have been high due in large part to favorable ocean survival conditions. As a consequence, the framework has allowed for an exploitation rate limit of 0.41 since its inception.

**Table 1.** Harvest management matrix for LCR Chinook showing allowable fishery exploitation rates based on parental escapement and marine survival index.

<b>Lower River Hatchery Abundance</b>	<b>Total Exploitation Rate Limit</b>
0 – 30,000	0.30
30,000 – 40,000	0.35
40,000 – 85,000	0.38
> 85,000	0.41

The preseason forecast for LRH Chinook in 2016 is 133,700. Therefore, based on the ABM framework, Council fisheries in 2016 should be managed such that the total exploitation rate on LCR tule Chinook in all ocean fisheries and all mainstem Columbia River fisheries below Bonneville Dam does not exceed 0.41.

NOAA Fisheries will continue to focus on implementing the comprehensive transitional strategy described in the recovery plan that links harvest actions to progress on the suite of actions necessary to achieve long term recovery. In that regard, NOAA Fisheries continues to urge that the parties focus on all aspects of the overall recovery strategy. Monitoring will be critical to verify that the actions specified in the plan are being taken and that populations are responding as expected. Success on both fronts will be necessary to avoid further constraints on harvest in the future.

The harvest framework is part of the comprehensive transition strategy. The 2012 biological opinion called for a review of the harvest framework every three years which is consistent with the call for an ongoing review of the recovery strategy. NOAA Fisheries completed a three year review of the harvest framework to the Council in September 2015, concluding that more data points are necessary for an adequate comprehensive review, at which time the estimates of exploitation rates from FRAM should be compared to independent exploitation rate estimates derived from coded-wire tag groups.

#### **Upper Columbia River Spring Chinook Salmon Upper Willamette River Chinook Salmon Snake River Spring/Summer Chinook Salmon**

NOAA Fisheries has considered the effects of Council area fisheries on spring Chinook salmon stocks from the Upper Columbia River and Upper Willamette River Basins and spring/summer

Chinook salmon stocks from the Snake River in prior biological opinions. These stocks are rarely caught in Council fisheries. NOAA Fisheries has determined that management actions designed to limit catch from these ESUs beyond what will be provided by harvest constraints for other stocks are not necessary.

#### **Snake River Fall Chinook Salmon**

NOAA Fisheries completed a biological opinion on the new Pacific Salmon Treaty Agreement in 2008 where we again considered the effects of fisheries, including Council area fisheries, on Snake River fall Chinook. We concluded that the existing guidance standard for ocean fisheries continued to provide a necessary and appropriate level of protection for Snake River fall Chinook. NOAA Fisheries requires that the Southeast Alaskan, Canadian, and Council fisheries, in combination, achieve a 30.0% reduction in the age-3 and age-4 adult equivalent total exploitation rate relative to the 1988-1993 base period. The Council fisheries in 2016 therefore must be managed to ensure that the 30.0% base period reduction criterion for the aggregate of all ocean fisheries is achieved.

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

While NOAA Fisheries is providing formal guidance for the PFMC fisheries for 2016, we acknowledge the importance of and continue to strongly support the integrated management structure between the Council and North of Falcon planning processes. The Salmon FMP includes management objectives for each Puget Sound Chinook stock based on ESA consultation standards. All of the requirements of the FMP for Puget Sound Chinook stocks are described in terms of total or southern U.S. impacts rather than PFMC-specific impacts. Also, under the current management structure, Council 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. Consequently, the comprehensive nature of the management objectives and the management planning structure strongly connect Council and Puget Sound fisheries. Therefore, in adopting its regulations, the Council must determine that its fisheries, when combined with the suite of other fisheries impacting this ESU, meet the management targets set for populations within this ESU. For that reason, NOAA Fisheries provides the following guidance for fisheries managed under the PFMC and describes its expectations for the full suite of southern U.S. fisheries that will affect Puget Sound Chinook stocks in 2016.

Beginning in 2001, our guidance relied on a series of comprehensive, multi-year joint Resource Management Plans (RMP) developed by the Washington Department of Fish and Wildlife and the Puget Sound Treaty Tribes (Puget Sound co-managers). The most recent RMP (2010-2014) and the ESA take limit for fisheries implemented under the terms of that RMP expired May 1, 2014. Since that time, NOAA Fisheries has conducted consultations on annual harvest plans based on the provisions of the 2010 RMP as amended by population-specific provisions in the annual harvest plans. We anticipate we will do the same for 2016 fisheries. Although the co-managers have not yet provided a Puget Sound Chinook harvest plan for 2016 fisheries, we understand from our discussions with them that they plan to rely on conservation objectives similar to those used in 2015 with three exceptions. For the Lake Washington and Green River populations, conservation objectives remain under discussion between the co-managers at this time. The forecasted abundance for these populations is similar to 2014 and 2015 so NOAA

Fisheries believes the management approach implemented in those years would meet ESA requirements for 2016 fisheries and have reflected that as italicized language in Table 2. However, we would consider alternative objectives should the co-managers propose them in time for consideration within the PFMC process. For Nisqually Chinook, NOAA Fisheries and the co-managers agree a comprehensive long term mitigation strategy that replaces the one built around the Nisqually weir is necessary in going forward in order to address the risks associated with the proposed exploitation rate and associated hatchery programs. NOAA Fisheries expected that an alternative mitigation strategy would be developed by this time, but the necessary planning has not occurred. Until that strategy is in place NOAA Fisheries will require a gradual reduction in the exploitation rate for Nisqually Chinook beginning in 2016. Therefore, for the 2016 fishing season, Nisqually Chinook should be managed for a total exploitation rate of 50% on unmarked Nisqually Chinook. The conservation objectives for all Puget Sound Chinook populations are summarized in Table 2, although it will be necessary for the co-managers to confirm the conservation objectives they intend to propose for 2016.

The management approach in the RMP and subsequent annual plans consists of a two-tiered harvest regime (normal and critical), that is responsive to stock and northern fishery status. The harvest objectives in the RMP are a mixture of total and southern U.S. exploitation rates and escapement goals. Under conditions of normal abundance, the exploitation rates and escapement goals, listed on the left of Table 2, apply. However, when a particular management unit is 1) not expected to meet its low abundance threshold, or, 2) if the anticipated northern fisheries exploitation rate is projected to exceed the difference between a management unit's Exploitation Rate Ceiling and the Critical Exploitation Rate Ceiling (CERC), the co-managers will constrain their fisheries such that either the Exploitation Rate Ceiling is not exceeded, or the CERC, listed on the right of Table 2, is not exceeded. Run size information indicates that the Dungeness, North and South Fork Nooksack early, Mid-Hood Canal, and North Fork and South Fork Stillaguamish populations are below their low abundance thresholds in 2016.

Meeting the conservation objectives is essential, but the Puget Sound Chinook harvest plan includes additional details that are also key to NOAA Fisheries conclusion in the biological opinion for Puget Sound fisheries. In particular, use of a weir to reduce hatchery fish in the escapement was a key component to the recovery strategy for the Nisqually Chinook population since 2011. In 2015, the co-managers and NOAA Fisheries concluded use of the weir as mitigation was no longer feasible. As mentioned previously, NOAA Fisheries is working with the co-managers to develop an alternative long-term strategy. Because the Nisqually population is essential to the recovery of the Puget Sound Chinook ESU, and the alternative strategy is key to supporting the proposed harvest regime for the population, completion of the plan and a timeline for implementing the associated actions, benchmarks and deadlines will be key to NOAA Fisheries findings in its opinion for the 2016 fisheries.

In 2015, available information indicated fisheries exceeded their exploitation rate ceilings for four Puget Sound Chinook populations in recent years (Skagit summer/fall, Puyallup, Nisqually and Skokomish). It is essential that fishing plans be designed using the best available information and with an expectation that the conservations objectives will not be exceeded. The co-managers subsequently provided a Management Performance Assessment for these populations that reviewed past performance, by comparing preseason and post season estimates of exploitation

rate, factors that contributed to the observed overages, and remedial actions (Graham and Unsworth 2015). To assess the efficacy of these management provisions, the co-managers committed to provide a post season accounting of run sizes, terminal harvest rates, and all pertinent events and observations related to management of the terminal fisheries for the four above described populations by no later than March 2016. NOAA Fisheries will work with the co-managers to review the report to ensure previously identified issues have been addressed.

Although Council and Puget Sound fisheries are intertwined, it is worth noting that impacts on Puget Sound Chinook stocks in Council fisheries are generally quite low. Exploitation rates on Puget Sound spring Chinook and fall Chinook stock aggregates have been less than two percent and five percent on average, respectively, in recent years. NOAA Fisheries is aware that considerable discussion has focused on consequences that could occur should the co-managers fail to reach agreement on fisheries in Puget Sound through the North of Falcon process in 2016 and how that might affect NOAA Fisheries approval of PFMC fisheries (Turner 2016).

The impact of the PFMC fisheries on threatened Puget Sound Chinook has most recently been addressed in a 2004 biological opinion (NMFS 2004). The 2004 opinion found that exploitation rates in Council Area fisheries within the range observed for brood years 1991-1998 would not jeopardize the continued existence of the species. In determining if the PFMC fisheries comply with the ESA, NOAA Fisheries would need to assess whether the proposed PFMC fisheries have similarly low impacts on Puget Sound Chinook stocks. However, this does not by itself ensure that NOAA Fisheries could approve PFMC management measures without some form of assurance regarding Puget Sound fisheries. As noted above, under the current management structure, the management objectives under the FMP account for combined fishery impacts. NOAA Fisheries must also make a determination that the measures are consistent with "other applicable law" including the provisions of the Pacific Salmon Treaty and exercise of treaty rights.

In summary, while this document provides formal guidance for the PFMC fisheries in 2016, we acknowledge the importance of the integrated management structure between the Council and North of Falcon planning processes. Because impacts in Council fisheries are low, management actions taken to meet conservation objectives will occur primarily in Puget Sound fisheries. However, since impacts in all fisheries are considered in meeting the objectives, NOAA Fisheries must be assured even in the unlikely event of a lack of North of Falcon agreement, that the final option adopted at the April Council meeting when combined with Puget Sound fisheries negotiated during the North of Falcon process meets the escapement goals and exploitation rates for each Puget Sound Chinook management unit included in Table 2, after applying the appropriate regime to the status of each management unit anticipated in 2016. Failure to reach the necessary agreements through the North of Falcon process by the end of the April Council meeting would complicate NOAA Fisheries ability to approve regulations for Council area fisheries and to complete the biological opinion for Puget Sound fisheries by May 1, 2016.

**Table 2.** Puget Sound Chinook conservation objectives for the 2016 fishing year.

Management Unit/Population	Normal Abundance Regime			Minimum Fishing Regime		
	Exploitation Rate Ceiling		Escapement Goal	Low Abundance Threshold	Critical Exploitation Rate	
	Total	Southern US (PT=Preterminal)			So. US	Preterminal So. US
Nooksack spring NF Nooksack SF Nooksack	Minimum Fishing Regime applies			1,000 <sup>2</sup> 1,000 <sup>2</sup>	7.0%/9.0% <sup>1</sup>	
Skagit Summer/Fall Upper Skagit Lower Skagit Lower Sauk	50.0%			4,800 2,200 900 400	15.0%	
Skagit Spring Suiattle Upper Sauk Cascade	38.0%			576 170 130 170	18.0%	
Stillaguamish NF Stillaguamish SF Stillaguamish	25.0%			700 <sup>2</sup> 500 <sup>2</sup> 200 <sup>2</sup>	15.0%	
Snohomish Skykomish Snoqualmie	21.0%			2,800 <sup>2</sup> 1,745 <sup>2</sup> 521 <sup>2</sup>	15.0%	
Lake Washington Cedar River		20.0%		200		10.0%
Green River	<i>Pre-terminal fisheries will operate under the minimum fishing regime; Terminal fisheries will not target Chinook and other species fisheries in the terminal area will be shaped to minimize Chinook bycatch</i>			1,800		12%
White River	20.0%			200	15.0%	
Puyallup	50.0%			500		12.0% <sup>3</sup>
Nisqually	50.0%			700	50% reduction of SUS ER <sup>4</sup>	
Skokomish	50.0%			800 natural <sup>5</sup> 500 hatchery <sup>5</sup>		12.0%
Mid-Hood Canal		15.0% PT		400		12.0%
Dungeness		10.0%		500	6.0%	
Elwha		10.0%		1,000	6.0%	

<sup>1</sup> Expected Southern US rate will not exceed 7.0% in 4 out of 5 years and 9.0% in 1 out of 5 years.

<sup>2</sup> Threshold expressed as natural-origin spawners.

<sup>3</sup> The total southern U.S. exploitation rate for the Puyallup is expected to fall within the range of 23% to 27%.

<sup>4</sup> Southern U.S. ER ceiling will be one-half (50%) of the difference between 50% exploitation rate objective and the expected ER associated with fisheries in Alaska and British Columbia.

<sup>5</sup> Anticipated hatchery or natural escapements below these spawner abundances trigger specific additional management actions.

## **COHO SALMON**

### **Oregon Coast Coho Salmon**

The ESA listing status of Oregon Coast (OC) coho has changed over the years. On February 11, 2008 NOAA Fisheries again listed OC coho as threatened under the ESA. Regardless of their listing status, the Council has managed OC coho consistent with the terms of Amendment 13 of the Salmon FMP as modified by the expert advice of the 2000 ad-hoc Workgroup. NOAA Fisheries approved the management provisions for OC coho in connection with its ESA section 7 consultation on Amendment 13 in 1999, and has since supported use of the related expert advice. The applicable spawner status in determining the appropriate exploitation rate is the lowest of the northern, north-central, and south-central sub-aggregates. For the 2016 season, the spawner status for the northern and north-central sub-aggregate is medium; the south-central is high. The marine survival index is in the medium category. Under these circumstances, the Workgroup report requires that the exploitation rate be limited to no more than 0.20. Although the south sub-aggregate is included in the harvest matrix described in Amendment 13 as modified by the 2000 Workgroup, the south sub-aggregate is part of the Southern Oregon/Northern California Coastal coho ESU and is managed subject to provisions that are described below for that ESU.

Managers should continue to coordinate ocean fishery impacts with desired terminal fishery opportunities for wild coho salmon to ensure that the impacts remain within the overall limits specified for the sport fishery per the Fishery Management and Evaluation Plans for the rivers and lakes of the OC coho ESU. For 2016, the ocean fisheries plus the specific river sport fisheries are subject to a limit of 0.20 in the northern and north-central sub-aggregate and 0.30 in the south-central subaggregate.

### **Lower Columbia River Coho**

Lower Columbia River coho were listed as threatened under the ESA on June 28, 2005. In 2008 NOAA Fisheries completed a biological opinion regarding the effects of Council fisheries and fisheries in the Columbia River on LCR coho salmon. That opinion provided guidance in managing Council fisheries from 2008 through 2014. NOAA Fisheries completed a new opinion in 2015 which considered application of a new harvest matrix for ocean and freshwater fisheries combined.

The harvest matrix manages fisheries subject to a total exploitation rate limit that is set each year based parental escapement and marine survival (Table 3). 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. The harvest matrix should be reviewed periodically beginning after the third year of implementation (i.e. 2018). The purpose of the review is to assess performance, and assumptions and expectations described in the Beamesderfer et al. (2014) analysis.

**Table 3.** 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 (≤ 6%)	Low (≤ 8%)	Medium (≤ 17%)	High (≤ 40%)	Very High (> 40%)	
Normal	≥ 0.30	10%	15%	18%	23%	30%	Allowable exploitation rate
Very Low	< 0.30	≤ 10%	≤ 15%	≤ 18%	≤ 23%	≤ 30%	

For the 2016 season, parent escapement is in the normal category. The marine survival index is in the medium category. Therefore, Council fisheries in 2016 should be managed such that the total exploitation rate in all fisheries on LCR coho below Bonneville Dam does not exceed 18 percent.

#### **Southern Oregon/Northern California Coastal Coho Salmon**

The Southern Oregon/Northern California Coastal coho ESU (SONCC coho) has been listed as threatened under the ESA since 1997. The current consultation standard for SONCC coho is from a NOAA Fisheries biological opinion dated April 28, 1999. The Rogue/Klamath coho hatchery stock is used as an indicator of fishery impacts on SONCC coho. The 1999 biological opinion requires that management measures developed under the Salmon FMP achieve an ocean exploitation rate on Rogue/Klamath coho hatchery stocks of no more than 0.13.

#### **Central California Coastal Coho Salmon**

The Central California Coastal coho ESU (CCC coho) 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 NOAA Fisheries biological opinion dated April 28, 1999. Information on past harvest or non-retention mortality rates is lacking for CCC coho. In the absence of more specific information, the 1999 biological opinion requires that directed fishing for coho and retention of coho in Chinook-directed fisheries be prohibited off California.

CCC coho salmon are one of eight species recently identified in NOAA Fisheries' new "Species in the Spotlight" initiative. For more information about actions for its conservation and recovery, please refer to its Species in the Spotlight Priority Action Plan:

[http://www.nmfs.noaa.gov/stories/2015/05/05\\_14\\_15species\\_in\\_the\\_spotlight.html](http://www.nmfs.noaa.gov/stories/2015/05/05_14_15species_in_the_spotlight.html).

### **CHUM SALMON**

#### **Hood Canal Summer Chum**

Chum salmon are not targeted and are rarely caught in Council salmon fisheries. However, the Salmon FMP requires fisheries to be managed consistent with NOAA Fisheries' ESA standards for listed species, which includes the Hood Canal summer-run chum salmon ESU. The Summer Chum Salmon Conservation Initiative (PNPTC and WDFW 2000), approved by NOAA Fisheries 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 PFMC and Puget Sound fisheries managed by the state and tribal fishery managers.

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.

### **SOCKEYE SALMON**

#### **Snake River Sockeye Salmon**

#### **Ozette Lake Sockeye Salmon**

Sockeye salmon are rarely caught in Council salmon fisheries. In previous biological opinions, NOAA Fisheries determined that PFMC fisheries were not likely to adversely affect Snake River or Ozette Lake sockeye salmon. Therefore, management constraints in ocean fisheries for the protection of listed sockeye salmon are not considered necessary.

### **STEELHEAD**

NOAA Fisheries has listed two Distinct Population Segment (DPS) of steelhead as endangered and nine DPSs as threatened in Washington, Oregon, Idaho, and California. All eleven ESA-listed DPSs have been considered in biological opinions on the effects of PFMC fisheries.

Steelhead are rarely caught in ocean fisheries and retention of steelhead in non-treaty fisheries is currently prohibited. Based on currently available information, NOAA Fisheries concludes that ocean fishery management actions beyond those already in place that seek to shape fisheries to minimize impacts to steelhead are not necessary. The Council and states should continue to prohibit the retention of steelhead with intact adipose fins in ocean non-treaty fisheries and encourage the same in treaty tribal fisheries to minimize the effect of whatever catch may occur.

NOAA Fisheries looks forward to working with the Council to develop fisheries consistent with the conservation and management objectives of the Salmon FMP and the ESA. We are committed to working with the Council to address the issues outlined in this letter.

Sincerely,



William W. Stelle, Jr.  
Regional Administrator