4(d) Rule Limit 6
Final Evaluation and Recommended Determination

Title:	Skagit River Steelhead Fishery Resource Management Plan
Plan Submitted by:	Sauk-Suiattle Indian Tribe Swinomish Tribal Community Upper Skagit Indian Tribe Skagit River System Cooperative Washington Department of Fish and Wildlife
ESU/DPS:	Puget Sound Steelhead Distinct Population Segment
4(d) Rule Limit:	ESA 4(d) Rule Limit 6
NMFS Tracking Number:	WCR-2017-7053

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1. Introduction

On November 18, 2016, the Sauk-Suiattle Indian Tribe, the Swinomish Indian Tribal Community, the Upper Skagit Indian Tribe, the Skagit River System Cooperative, and the Washington Department of Fish and Wildlife (WDFW) (co-managers), as co-managers of the fisheries resource under *U.S. v. Washington* (1979), submitted the Skagit River Steelhead Fishery Resource Management Plan (Skagit RMP) to the National Marine Fisheries Service (NMFS) for review and determination under Limit 6 of the Endangered Species Act (ESA) 4(d) Rule for salmon and steelhead (Joseph 2016 [dated November 4, 2016]). NMFS initiated its review of the Skagit RMP, including additional meetings with the co-managers to clarify aspects of the plan, and on June 21, 2017, issued the co-managers a letter of sufficiency (Dygert 2017), indicating NMFS would begin its formal evaluation process under the Endangered Species Act (ESA).

As part of NMFS' 4(d) Rule review process, on December 7, 2017, NMFS published a proposed evaluation and preliminary determination (PEPD) in the Federal Register (82 FR 57729) for a 30-day public review and comment period. During this review and comment period, NMFS received roughly 120 comments from the general public, including from fishing and conservation organizations. The comments ranged from fully supportive of NMFS' proposal to approve the Skagit RMP, to fully against NMFS' approval, with the majority of the comments falling into the supportive category but with some concerns about the management of the fishery, as proposed. A summary of the substantive comments received and NMFS' responses to them can be found in Section 3 of this document.

NMFS has thoroughly reviewed all of the comments received and considered them in evaluating whether the Skagit RMP adequately addresses the criteria of Limit 6 of the 4(d) Rule for salmon and steelhead. The following sections present NMFS' final evaluation and recommended determination (ERD) for the Skagit RMP, under Limit 6 of the 4(d) Rule for salmon and steelhead.

2. Evaluation

On July 10, 2000, NOAA's National Marine Fisheries Service (NMFS) issued a final Endangered Species Act (ESA) 4(d) rule adopting regulations (50 CFR 223.203) to conserve 14 salmon and steelhead Evolutionary Significant Units (ESUs) listed as "threatened" under the ESA (70 FR 37160 and 73 FR 55451) . The 4(d) Rule applies the take prohibitions in section 9(a)(1) of the ESA to salmon and steelhead listed as threatened, and sets forth specific circumstances when the take prohibitions would not apply, known as 4(d) limits. A central goal of the 4(d) rule is to encourage tribes, state and local governments to step forward and assume

leadership roles in saving these species by providing the means for NMFS to approve these efforts and to limit liability under the ESA.

Under Limit 6 of the 4(d) rule for Joint Tribal/State Resource Management Plans, ESA section 9 take prohibitions for listed species do not apply to fishery activities described in a resource management plan (RMP), developed jointly by the Tribes and the States of Washington, Oregon, and/or Idaho, provided that:

- The Secretary of Commerce has determined pursuant to 50 CFR 223.204(b), and the government-to-government processes therein, that implementing and enforcing the RMP would not appreciably reduce the likelihood of survival and recovery of listed salmon and steelhead
- The joint plan (RMP) will be implemented and enforced within the parameters set forth in *U.S. v. Washington (U.S. v. Washington* 1979*)* or *U.S. v. Oregon (U.S. v. Oregon* 2009*)*
- The Secretary of Commerce has taken comment on how any RMP addresses the 4(d) rule Limit 4 criteria (§223.203(b)(4))

The Puget Sound Steelhead Distinct Population Segment (DPS) was listed under the ESA on May 11, 2007 (72 FR 26722). NMFS conducted the required 5-year status reviews in 2011 and 2016 and determined that the species' classification as "threatened" remained appropriate (79 FR 20802). The Skagit River steelhead populations, which are the subject of the Skagit RMP, are included in the Puget Sound Steelhead DPS.

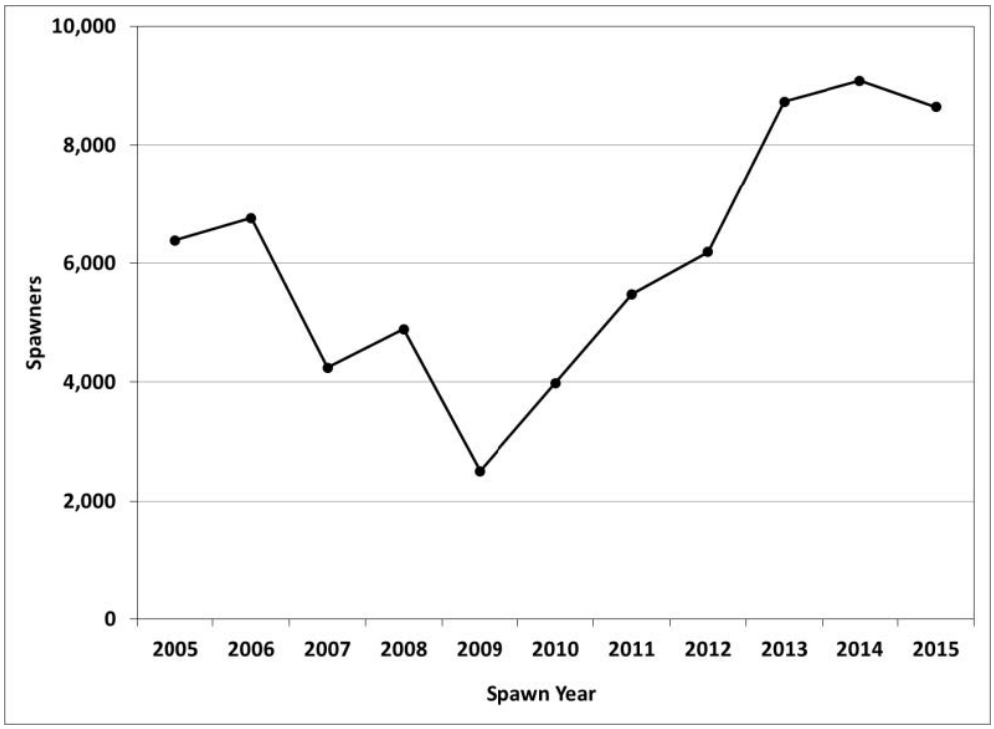
Impacts of the Skagit RMP to listed the Puget Sound Chinook salmon ESU was considered but not evaluated in this ERD because the co-managers anticipate, and NMFS agrees, that there will be little to no impact on spring Chinook salmon in the proposed project area due to temporal and spatial differences in run timing between the species and the proposed activities under the RMP (McClure 2017).

2.1 Background

The Skagit RMP, submitted by co-managers, would provide for fishery management activities for Skagit River steelhead, in the Skagit River terminal area, for five years beginning in 2018. Historically, the Skagit Basin has maintained the largest steelhead natural origin populations and has been one of the most productive steelhead basins of the Puget Sound Steelhead DPS (Busby et al. 1996; Hard et al. 2007). In the most recent status review, for ESA-listed West Coast salmon and steelhead, the Northwest Fisheries Science Center (2015) found that, in general, broad patterns of steelhead abundance across the Puget Sound DPS are similar to those summarized in the prior status review which had considered data through 2009 (Ford et al. 2011). Trends in abundance indicate modest increases from 2009 to 2014 for 13 of the 22 DIPs, including Skagit

River winter-run steelhead, even though most populations fall below viability parameters[1] (NWFSC 2015). Several of these upward trends are not statistically different from neutral trends, and most populations within the Puget Sound Steelhead DPS remain small in size (NWFSC 2015). However, the Skagit has been one of the largest and most productive steelhead basins of the Puget Sound Steelhead DPS and the estimated probability that Skagit Basin steelhead would reach the quasi-extinction threshold of 157 fish established by the NMFS Puget Sound Steelhead Technical Review Team (PSS TRT) is very low – less than 10% within 100 years (Hard et al. 2015).[2]

Skagit River steelhead counts have been highly variable over time. While the population estimates have generally declined since the early 1980s, there is no significant evidence to determine population trends at this time (Hard et al. 2015). Steelhead spawners in the Skagit River reached the lowest estimate of roughly 2,000 spawners in 2009. Since 2009, Skagit River spawners have increased by 350% and have averaged 8,800 from 2013 to 2015 (Sauk-Suiattle Indian Tribe et al. 2016) (Figure 1).



[1] Thirteen of the DIPs indicating modest increases in abundance trends were: Samish River/Bellingham Bay Tributaries; Pilchuck River; White River; Skokomish River; Strait of Juan de Fuca Tributaries; Skagit River; Green River; West Hood Canal Tributaries; Nooksack River; East Hood Canal Tributaries; Dungeness River; and Elwha winter-run steelhead as well as Tolt River summer-run steelhead.

[2] The PSS TRT is highly confident ($P < 0.50$) that a 90% decline in the Skagit Basin populations would not occur within the next 20 years and that a 99% decline would not occur within the next 45 years. However, beyond the near term (after a few decades), we are uncertain about the precise level of extinction risk (Hard et al. 2015).

Figure 1. Steelhead Spawners in the Skagit River from 2005 to 2015 (Sauk-Suiattle Indian Tribe et al. 2016).

Despite recent increases in Skagit steelhead spawner estimates, the co-managers recognize that substantial improvements in the productivity of the species and protection of its habitat are necessary to ensure the long-term viability of Skagit Basin steelhead populations. The co-managers have determined that the levels of fishery mortality described and assessed in the Skagit RMP are consistent with the survival and recovery of the Puget Sound Steelhead DPS (Sauk-Suiattle Indian Tribe et al. 2016).

The Skagit RMP would allow for fisheries targeting three extant natural origin steelhead populations in the Skagit basin (the project area, which is defined in Section 1.2) (Figure 2), for a harvest management period of five years. The fisheries would include tribal and non-tribal commercial and recreational Skagit steelhead fisheries as well as tribal ceremonial and subsistence (C&S) fisheries.[3] In establishing the allowable harvest rates for natural-origin steelhead, the Skagit RMP includes all sources of landed and non-landed Skagit steelhead mortality in the Skagit terminal area (i.e., directed and incidental take in other fisheries).

The Skagit RMP proposes an abundance-based, stepped harvest regime based upon annual data collected for adult steelhead abundance in the Skagit River Basin (Sauk-Suiattle Indian Tribe et al. 2016). The stepped harvest regime's allowable harvest rates would vary from 4% to 25% on annual steelhead abundances of less than 4,000 fish to greater than 8,001 fish (Sauk-Suiattle Indian Tribe et al. 2016) (Section 1.4; Table 4). During the first three years of the five-year Skagit RMP implementation, the co-managers will collect and incorporate additional data and information, where available, in order to review the effectiveness of the Skagit RMP at the beginning of the fourth year. In the fifth year of implementation, the co-managers would use the information from the previous years to modify or revise the Skagit RMP for steelhead management in the remaining year of the fishery or to use while seeking future RMP approval. Should new information become available that would indicate a deviation from the steelhead fishery management regime described in the Skagit RMP or substantial changes come to light, the co-managers would consult with NOAA Fisheries and determine an appropriate course of action (Sauk-Suiattle Indian Tribe et al. 2016).

NMFS consulted with the applicants during the development of the RMP through government-to-government (tribal) and technical work group (co-managers) meetings to provide technical assistance, to exchange information, discuss what would be needed to conserve listed species, and to be consistent with legally enforceable tribal rights and the Secretary's trust responsibilities to the Skagit Basin Treaty Tribes. NMFS reviewed the Skagit RMP and determined that it was

[3] The Skagit RMP would govern the overall Skagit steelhead impacts from all steelhead and salmon fisheries in the Skagit Terminal Management Area. (Sauk-Suiattle Indian Tribe et al. 2016).

sufficient[4] for NMFS to proceed in its evaluation of plan effects on ESA-listed Puget Sound Chinook salmon and steelhead.

NOAA Fisheries is in the process of developing a long-term Puget Sound steelhead recovery plan with federal, state, tribal, local, and private partners. The draft steelhead recovery plan is currently scheduled to be completed by the end of 2018, with a final plan completed by the end of 2019.[5]

Section 1.2 through Section 1.13 evaluates whether the RMP addresses the criteria in section 223.203(b)(4) of the 4(d) rule for salmon and steelhead.

2.2 4(i) NMFS will approve a fishery management plan only if it clearly defines its intended scope and area of impact, and sets forth the management objectives and performance indicators for the plan.

The Skagit RMP defines its intended scope and area of impact. In scope, the RMP addresses direct and incidental impacts on adult steelhead from salmon and steelhead fisheries in the Skagit River Basin, as well as in the marine area of Puget Sound directly outside the mouth of the Skagit River (i.e., marine Area 8, collectively referred to as the Skagit Terminal Area) (McClure 2017) (Figure 2). These fisheries include both treaty ceremonial and subsistence (C&S; in the marine and freshwater areas) and commercial steelhead fisheries (in the marine area), as well as non-treaty recreational steelhead fisheries conducted within the Skagit River Basin (in the freshwater areas). The RMP does account for all sources of landed and non-landed natural-origin steelhead mortalities in the Skagit Terminal Area.

The RMP does not address other causes of fish mortality on Puget Sound steelhead such as coastal marine water fisheries outside of the Skagit Terminal area, freshwater fisheries in Puget Sound for trout or warm-water species, or marine fisheries for halibut, rockfish, or other non-salmonid species.

Co-managers anticipate fisheries directed at adult steelhead will occur in the following areas (McClure 2017) (Figure 2):
Treaty Fisheries:

- Commercial marine Area 8 (Skagit Bay and Saratoga Passage)
- Freshwater Areas 78C, 78D-1, 78D-2, 78D-3, and 78D-4 to the mouth of the Baker River; 78O Baker River from the Skagit River to Hwy 20 bridge; 78B Sauk River from

[4] Letter from R. Wulff, (NMFS), to L. Loomis (Swinomish Indian Tribal Community), J. Joseph (Sauk-Suiattle Tribe), S. Schuyler (Upper Skagit Indian Tribe), and J.B. Scott (WDFW) dated June 21, 2017 (Wulff 2017).
[5] For more information on the recovery planning process, please visit NOAA Fisheries' website at: http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/puget_sound/overview_puget_sound_steelhead_recovery_2.html.

the Skagit River to the Sauk Prairie Road bridge; 78P Cascade River from the Skagit River to the Rockport/Cascade bridge

- Freshwater Area 78P in the lower reach of the Cascade River

Non-Treaty Fisheries:

- Recreational fisheries in the Skagit River mainstem from the Dalles Bridge (approximately river mile (RM) 54) in Concrete upstream to Gorge Powerhouse (approximately RM 94.3)
- Recreational fisheries in the Sauk River from the mouth (enters Skagit River mainstem at RM 66) to Sauk Prairie Road Bridge
- Recreational fisheries in the Suiattle River from the mouth (enters Sauk River at RM 13) upstream to Boundary Bridge (intersection of Forest Road 26 and 25, RM 12)[6]

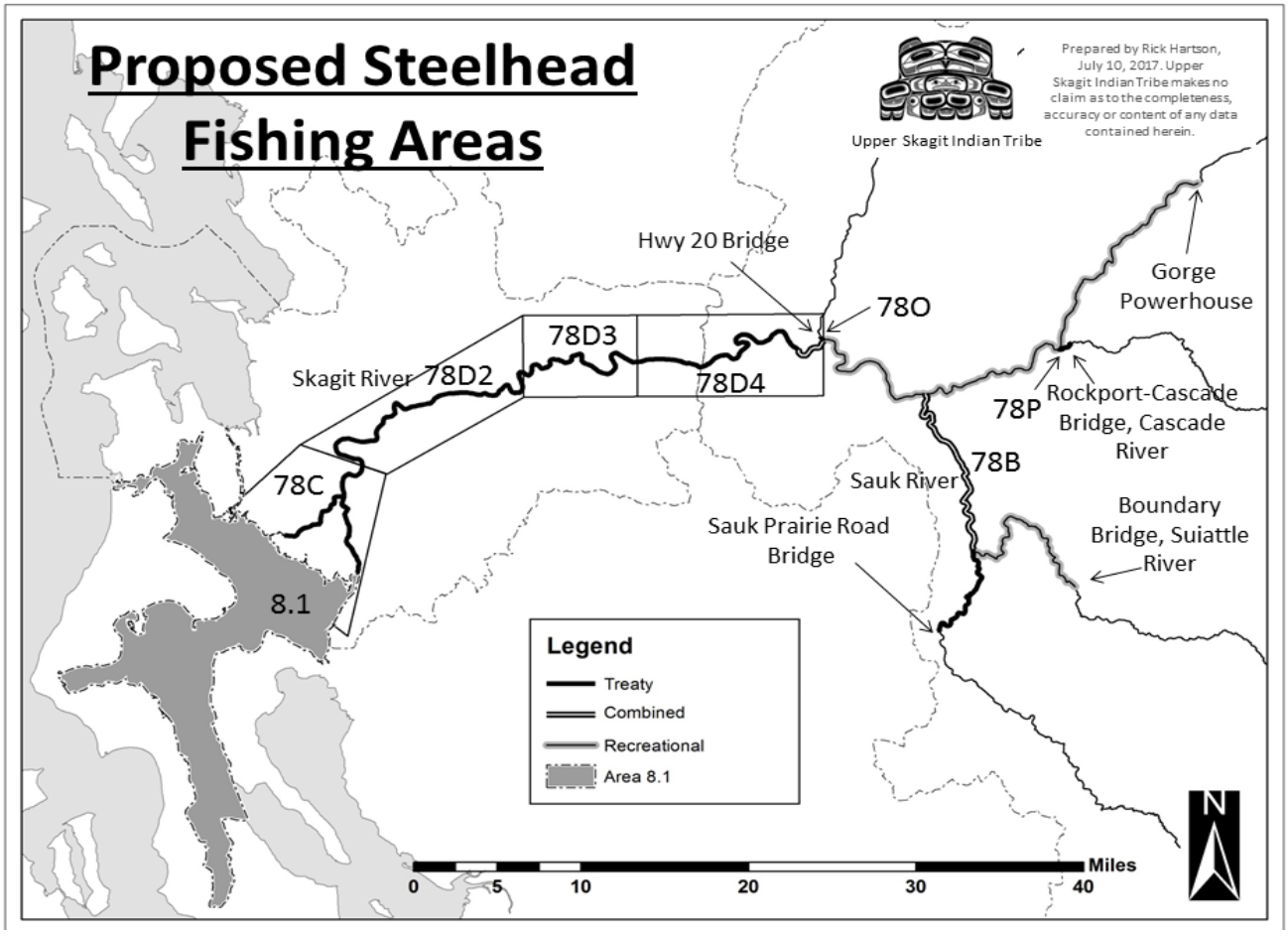


Figure 2. Map of Skagit RMP proposed fishing areas (Hartson 2017 in McClure 2017).

[6] The proposed recreational fishery will not occur in other tributaries than those listed here.

The Skagit RMP also includes management objectives. The objectives of the RMP are to (Sauk-Suiattle Indian Tribe et al. 2016):

1) designate Skagit-origin steelhead (*Oncorhynchus mykiss*) as an independently managed component of the Puget Sound Steelhead Distinct Population Segment (DPS), for the purposes of fishery management – the Skagit "Steelhead Management Unit" (SMU),[7] and

2) conduct Skagit River Terminal Area fisheries in a manner, pursuant to *U.S. v. Washington,* which would not appreciably reduce the survival and recovery of ESA-listed Puget Sound steelhead.

Performance indicators for the RMP include a combination of spawning escapement estimates and landed catch reports.

For evaluation of the performance indicators, co-managers will focus on the following questions (Sauk-Suiattle Indian Tribe et al. 2016):

1) Is the SMU as productive as estimated from the historical cohort reconstruction in the RMP? Since population productivity is an important factor in determining the allowable impact rate, recruits per spawner of each cohort would be compared with the distribution of productivity in the reconstruction of historical cohorts.

2) Does the preseason forecast accurately predict the abundance of returning adults? Accuracy and precision of both the preseason forecast method and error of the preseason forecast will be evaluated annually.

3) Are the annual fisheries managed consistent with the allowable impact rates described in the RMP? Allowable harvest rates identified during the preseason planning process for treaty and non-treaty fisheries would be compared to postseason estimates of actual impact rates to assess ESA compliance annually.

4) Are the number of annual spawners escaping to the spawning grounds consistent with expectations described in the RMP? The estimated number of adult steelhead spawners would be compared with the anticipated range predicted in the risk assessment simulations and forecasts.

5) Is the range of current spawn timing being maintained or has it shifted during implementation of the RMP? Spawn timing information would be collected in order to assess any long-term changes in Skagit River steelhead spawn timing.

[7] This plan would be independent of the current 2016-17 Puget Sound fisheries evaluation (NMFS 2017).

The Skagit RMP states that methods are in place to monitor fisheries and observe spawn timing and frequency so escapement of Skagit River steelhead and harvest mortalities can be assessed annually. Methods to monitor fisheries proposed in the Skagit RMP include: catch accounting, such as fish tickets for tribal net fisheries and Catch Record Cards for recreational fisheries, a non-retention tangle net test fishery, and ground-based, in-season creel surveys (Sauk-Suiattle Indian Tribe et al. 2016). Methods to observe spawn timing and frequency include: foot surveys, float surveys, and fixed-wing or helicopter aerial surveys, depending on stream size and visibility, to achieve a census of total redds in each index reach (Sauk-Suiattle Indian Tribe et al. 2016). Fisheries data collected by the co-managers, combined with surveys to determine escapement estimates, would provide the basis for catch composition, return age structure, and overall run reconstruction (Sauk-Suiattle Indian Tribe et al. 2016). The methods for collecting this information would be reviewed, evaluated, and, where necessary, modified, to enhance the quantity and quality of steelhead data for evaluation of performance indicators.

2.3 4(i)(A) The RMP clearly defines the populations within the affected listed ESUs, taking into account spatial and temporal distribution, genetic and phenotypic diversity, and other appropriate identifiable unique biological and life history traits. Populations may be aggregated for management purposes when dictated by information scarcity, if consistent with the survival and recovery of the listed ESU/DPS, if the plan describes the reasons for using such units in lieu of population units and describes how the management units are defined, given biological and life history traits, so as to maximize consideration of the important biological diversity contained within the listed ESU/DPS, and help ensure consistent treatment of listed salmonids across a diverse geographic and jurisdictional range.

The Skagit RMP clearly defines the four steelhead populations within the affected listed DPS (Sauk-Suiattle Indian Tribe et al. 2016) as identified by the NMFS Puget Sound Steelhead Technical Review Team (Myers et al. 2015):

1) Skagit River Summer- and Winter-Run
2) Nookachamps Creek Winter-Run
3) Sauk River Summer- and Winter-Run; and
4) Baker River Summer- and Winter-Run

The RMP states that Myers et al. (2015) noted that many of the NMFS Puget Sound Steelhead Technical Recovery Team (PSS TRT) members considered the Baker River Summer- and Winter-Run to have been extirpated.

The RMP states that, historically, the Skagit SMU was managed as a discrete stock aggregate with a variety of proposed escapement objectives. The Skagit SMU (i.e., total extant Skagit River steelhead DIPs combined) is independent from the other Puget Sound steelhead

populations. The co-managers acknowledge that while data exists for some of the Skagit River populations, there is limited information on the scale of the demographically independent populations (DIPs) identified by the PSS TRT (Sauk-Suiattle Indian Tribe et al. 2016). Taking into account spatial and temporal distribution, genetic and phenotypic diversity, and other appropriate identifiable, unique biological and life history traits, the co-managers' established a Skagit "Steelhead Management Unit (SMU)" consisting of all extant steelhead populations[8] in the Skagit Terminal Area. The Skagit RMP states that management at the SMU level, rather than the DIP level, is necessitated by the limited population-specific information available for steelhead in the Skagit River Basin (Sauk-Suiattle Indian Tribe et al. 2016). Population-specific information was used, where available, in the development of steelhead management objectives and guidelines. Co-managers note that the Nookachamps Creek Winter-Run DIP has the least known viable salmonid population (VSP) parameters (i.e., abundance, productivity, diversity, and spatial structure of the populations; (McElhany et al. 2000). Based on limited information of the VSP parameters, the Skagit Basin steelhead populations appear to share many characteristics. Hard et al. (2015) assessed the characteristics and viability of the Skagit Basin steelhead populations within a Bayesian network using various attributes.

The three populations comprising the Skagit SMU were characterized similarly for abundance, productivity, spatial structure, and diversity (Hard et al. 2015) (Tables 1 and 2). For example, the total nodal values (%) for abundance varied from 36% to 42% for the three Skagit Basin DIPs. The total nodal values for spatial structure, productivity, and diversity were identical for all DIPs with the exception of diversity spawn timing and a couple abundance parameters for the Nookachamps winter-run steelhead population. These nodal values, which are meant to represent the DIP's current status, relative to several viability criteria within each VSP parameter, are further described in (Hard et al. 2015). Tables 1 and 2 list the probabilities that these characteristics reflect a viable population – one likely to persist and sustain its key characteristics over 100 years or more. For example, a nodal value of 55% for the smolts to spawner category of the Nookachamps River winter-run steelhead DIP implies a considerable degree of uncertainty that this productivity metric is at full viability. In total, the probability of 33% in the Nookachamps winter-run steelhead DIP indicates that the current productivity of this population is low and likely to limit the population's overall viability (Hard et al. 2015) (Table 1).

In summary, given that the Bayesian network characterization of the VSP attributes (abundance, productivity, diversity, and spatial structure of the populations) for the three Skagit steelhead populations are identical, (see Table 1 and Table 2; with the exception of one spawn timing diversity and a couple abundance parameters for the Nookachamps winter-run steelhead population), it is appropriate for these populations to be aggregated for management purposes, and not just based on data scarcity alone. Using the data in NMFS' viability criteria to verify the

[8] Skagit River Summer- and Winter-Run, Nookachamps Creek Winter-Run, and Sauk River Summer- and Winter-Run. This does not include the Baker River Summer- and Winter-Run (Sauk-Suiattle Indian Tribe et al. 2016).

Skagit SMU ensures consistent treatment of listed steelhead across a diverse geographic and jurisdictional range.

Table 1. Bayesian network characterization of abundance and productivity for steelhead populations comprising the Skagit SMU (Hard et al. 2015).

Population	Abundance			
	Adult	**Juvenile**	**Quasi-Extinction Threshold (QET)[9]**	**Total**
Skagit River Summer & Winter	20%	20%	90%	39%
Sauk River Summer & Winter	20%	20%	40%	42%
Nookachamps Winter	40%	40%	90%	36%

Population	Productivity				
	Smolts/Spawner	**Adults/Smolt**	**Lambda**	**Iteroparity**	**Total**
Skagit River Summer & Winter	55%	55%	48%	30%	33%
Sauk River Summer & Winter	55%	55%	48%	30%	33%
Nookachamps Winter	55%	55%	48%	30%	33%

[9] Probability that the population will reach its QET within 100 years.

Table 2. Bayesian network characterization of spatial structure and diversity for steelhead populations comprising the Skagit SMU (Hard et al. 2015).

Population	Spatial Structure		
	Intrinsic Potential (IP)		
	Spawn	Rear	Total
Skagit River Summer & Winter	40%	40%	33%
Sauk River Summer & Winter	40%	40%	33%
Nookachamps Winter	40%	40%	33%

Population	Diversity				
	Spawn Timing	Hatchery	Age	Residents	Total
Skagit River Summer & Winter	95%	90%	45%	15%	33%
Sauk River Summer & Winter	95%	90%	45%	15%	33%
Nookachamps Winter	60%	90%	45%	15%	33%

2.4 4(i)(B) The RMP utilizes the concepts of "viable" and "critical" salmonid population thresholds, consistent with the concepts contained in the technical document entitled "Viable Salmonid Populations (NMFS, 2000)." Proposed management actions must recognize the significant differences in risk associated with viable and critical population threshold states and respond accordingly to minimize the long-term risks to population persistence. For populations with a high degree of confidence to be above critical levels but not yet at viable levels [such as the Skagit SMU steelhead populations] harvest actions must not appreciably slow the population's achievement of viable function.

The Skagit RMP utilizes the concepts of viable and critical salmonid population thresholds as described in McElhany et al. (2000). The co-managers considered three methods when establishing a critical threshold for the Skagit SMU:[10]

1) *The predicted number of spawners at the point of depensation*
   Method 1 – Based on Peterman (1977) and (1987), the co-managers established the critical level equal to 5% of the equilibrium spawner size (i.e., 8,949) or 447 spawners.

2) *The sum of the minimum effective size of each population*
   Method 2 – Based on Waples (2004), the co-managers established an annual effective size or number of successful breeders for each population within the SMU that would not be lower than 50 if an N_b/N_c[11] ratio of at least 0.40 was achieved. The critical threshold for the Skagit SMU was set equal to three times the population specific value (to account for the three extant steelhead populations) for a total of 375 spawners.

3) *The sum of the quasi-extinction thresholds (QETs) of each population*
   Method 3 – Based on Hard et al. (2015) regarding quasi-extinction thresholds for Skagit Basin populations, the co-managers established a critical threshold of greater than 287 spawners. This is the total predicted QET values for each DIP within the Skagit SMU.[12]

Upon consideration of the above methods, the co-managers selected a critical threshold of 500 spawners[13] for the Skagit RMP (Sauk-Suiattle Indian Tribe et al. 2016). The Skagit RMP states that steelhead in the basin have maintained abundances well above the critical thresholds described by McElhany and Payne (2006) population category of "very low risk" to extinction in 100 years (i.e., >1,000 spawners). However, the Skagit SMU has yet to achieve the viable threshold (Hard et al. 2015).

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[10] Co-managers assumed resident *O. mykiss* would contribute to anadromous *O. mykiss* production but it was not considered in any of the methods evaluated for the critical threshold (Sauk-Suiattle Indian Tribe et al. 2016).

[11] The annual number of effective breeders (N_b) to spawner census (N_c) (Waples 2004).

[12] Nookachamps winter-run QET = 27; Skagit River summer- and winter-run QET = 157; and Sauk River summer- and winter-run QET = 103 for a total of 287 (Sauk-Suiattle Indian Tribe et al. 2016).

[13] This number is higher than any value suggested by the above methods that were cited because the co-managers used a conservative approach which includes a small buffer when establishing the steelhead critical threshold.

For populations with a high degree of confidence to be above critical levels but not yet at viable levels, such as the Skagit River steelhead populations, harvest actions must not appreciably slow the population's achievement of viable function. Based on Hard et al. (2015), the co-managers selected a viable threshold for the Skagit SMU equal to 44,619 adult steelhead, not including the Baker River DIP (Sauk-Suiattle Indian Tribe et al. 2016). The RMP states that substantial improvements in habitat capacity and productivity would be needed before the Skagit steelhead populations can approach this level of improvement. Until this can be achieved, the co-managers propose that harvest management objectives should be based the quantitative evaluation of current population productivity as defined by current habitat function and capacity (Sauk-Suiattle Indian Tribe et al. 2016). The co-managers identified two additional reference points for use in their harvest risk analysis:

4) R_{MSY} – Rebuilding threshold equal to the spawner level that would maximize the long term yield under current habitat conditions. For the Ricker and Beverton-Holt models, the R_{MSY} estimate would be 3,912 and 2,127 spawners, respectively.

5) R_{60} – Rebuilding threshold equal to 60% of the point on the spawner recruit function where less than one recruit is produced per spawner (i.e., equilibrium point on spawner-recruit function). For the Ricker and Beverton-Holt models, the R_{60} estimate would be 5,370 and 4,844 spawners, respectively.

The additional reference points of R_{MSY} and R_{60} are used as an interim measure to track progress of the Skagit steelhead populations to ensure that habitat productivity and capacity are examined on a regular basis and that sufficient spawners are available to recolonize underutilized habitat so as to not appreciably slow the Skagit SMU's achievement of reaching viable function (Sauk-Suiattle Indian Tribe et al. 2016). Table 3 provides an overview of the critical, viable, and rebuilding reference points used in the harvest risk analysis described in the RMP.

Table 3. Critical, viable, and rebuilding reference points (number of spawners) described in the Skagit RMP (Sauk-Suiattle Indian Tribe et al. 2016).

Reference Point	**Spawner-Recruit Function**	
	Ricker	**Beverton-Holt**
Critical	500	
Viable	44,619	
Rebuilding - R_{MSY}	3,912	2,127
Rebuilding – R_{60}	5,370	4,844

The co-managers recognize the potential for long-term habitat degradation resulting in the possible reduction of Skagit Basin steelhead productivity due to changing marine and freshwater environments. The proposed steelhead fisheries described in the RMP address this uncertainty through a stepped harvest rate that is linked to abundance, monitoring, and adaptive management of Skagit Basin steelhead throughout the proposed five-year duration of the plan.

Based on the above information, the co-managers recognized the significant differences in risk associated with viable and critical population threshold states and responded accordingly in their harvest analyses to minimize the long-term risks to population persistence by not only setting realistic critical and viable thresholds using the best available science under, not one but, three different scientific assessments, but also by developing interim rebuilding thresholds that take in consideration current habitat function and capacity while a Puget Sound steelhead recovery plan is under development to address improvements needed in marine and freshwater habitats that would increase steelhead productivity in the Puget Sound DPS.

2.5 4(i)(C) Set escapement objectives or maximum exploitation rates for each management unit or population based on its status, and a harvest program that assures that those rates or objectives are not exceeded. Maximum exploitation rates must not appreciably reduce the likelihood of survival and recovery of the ESU. Management of fisheries where artificially propagated fish predominate must not compromise the management objectives for commingled naturally spawned populations.

The Skagit RMP sets maximum allowable harvest rates for the Skagit SMU based on the forecasted terminal run size. These abundance tiers and abundance-based harvest rates are described in Table 4.

Table 4. Proposed stepped steelhead fishing regime for the Skagit SMU described in the Skagit RMP (Sauk-Suiattle Indian Tribe et al. 2016).

Preseason Forecast for Natural Origin Steelhead[1]	Allowable Harvest Impact Rate
$\leq$ 4,000	4%
$\geq$ 4,001 to $\leq$ 6,000	10%
$\geq$ 6,001 to $\leq$ 8,000	20%
$\geq$ 8,001	25%

[1] Terminal steelhead run.

The RMP must also include a harvest monitoring program that assures that those rates or objectives are not exceeded. The tiered fishing regime described above will be used with an

annual preseason forecast of abundance to develop an annual harvest program consistent with the provisions of *U.S. v. Washington* (*U.S. v. Washington* 1979). For annual development of treaty and non-treaty Skagit steelhead fisheries, the co-managers will incorporate the anticipated direct and incidental steelhead impacts, from fisheries also directed at salmon, within the Skagit Terminal Area, to ensure the total Skagit adult steelhead impacts remain below the allowable harvest impact rate (Sauk-Suiattle Indian Tribe et al. 2016).

The Washington Department of Fish and Wildlife terminated the early-winter steelhead hatchery program in the Skagit River. No hatchery program currently operates in the Skagit Basin that would compromise the management objectives for naturally spawned populations.

2.6 4(i)(D) Display a biologically based rationale demonstrating the harvest management strategy will not appreciably reduce the likelihood of survival and recovery of the ESU in the wild, over the entire period of time the proposed harvest management strategy affects the population, including effects reasonably certain to occur after the proposed actions cease.

The harvest impact analyses described in the Skagit RMP examines both the short-term and long-term[14] impacts of the proposed fishery regime on the abundance of Skagit Basin steelhead. The time period of the proposed harvest management strategy is five years. Simulations of the proposed fishery management regime described in the RMP were conducted using the following steps (Sauk-Suiattle Indian Tribe et al. 2016):

1) Initiate the simulation with the number of spawners randomly drawn from a normal distribution with mean and standard deviation estimated from observed Skagit Basin steelhead spawners from 1978-2007;

2) Apply the proposed harvest rate protocol (Table 4) and obtain a number of harvest fish;

3) Subtract the number of harvested fish from the number of returning mature fish to obtain a number of adult steelhead spawners;

4) Use the spawner recruit parameters to compute the next random number of recruits and multiply this by a random variable in order to incorporate environmental and demographic stochasticity;

5) Run for 25 cycles; and

6) Repeat for 1,500 simulations.

[14] Long-term effects include 25 steelhead generations (Sauk-Suiattle Indian Tribe et al. 2016).

Results from the harvest risk analyses are summarized in Table 5.

Table 5. Summary of simulation results on risk expressed as the proportion of resulting escapements that meet the threshold criteria under the proposed harvest regime (Sauk-Suiattle Indian Tribe et al. 2016).

Spawner Reference Point	Ricker		Beverton-Holt	
	No Fisheries	Proposed Fishery Regime	No Fisheries	Proposed Fishery Regime
< Critical	0%	0%	0%	0%
> Viable	0%	0%	0%	0%
> R_{MSY}	92%	88%	99%	99%
> R_{60}	78%	68%	82%	75%

The harvest risk analyses suggest that the probability of falling to the critical threshold[15] was less constraining than either of the rebuilding thresholds.[16] After running the 1,500 simulations, the probability of steelhead abundance falling below the critical threshold of 500 steelhead spawners or above the viable threshold of 44,619 fish was 0% for the proposed tiered harvest management regime (Sauk-Suiattle Indian Tribe et al. 2016).

The co-managers tested the resiliency of the proposed harvest management regime by simulating reductions in overall survival from 15% to 35% for the duration of 25 generations (Sauk-Suiattle Indian Tribe et al. 2016). In all reduced productivity simulations, the number of adult spawners remained above the critical threshold of 500 fish. Even at a 35% reduction in productivity over 25 generations, the percentage of years with adult spawners exceeding R_{MSY} was 75% (i.e., Ricker model) and 91% (i.e., Beverton-Holt model) summarized in Table 6. The proposed harvest regime provides protection for the DIPs within the Skagit SMU even over prolonged periods, such as 25 generations, during poor survival in freshwater or marine environments (Sauk-Suiattle Indian Tribe et al. 2016).

[15] 500 steelhead spawners.

[16] R_{MSY} and R_{60}.

Table 6. The effects of 15% to 35% reductions in survival over a 25-generation simulation on the exceedance of critical and reference thresholds from the harvest management proposal in the Skagit RMP (Sauk-Suiattle Indian Tribe et al. 2016).

Survival Reduction	Ricker		Beverton-Holt	
	% < Critical	% > R_{MSY}	% < Critical	% > R_{MSY}
0%	0%	88%	0%	99%
15%	0%	85%	0%	98%
20%	0%	83%	0%	97%
25%	0%	81%	0%	96%
30%	0%	79%	0%	94%
35%	0%	75%	0%	91%

Based on the results described above, the abundance-based tiered harvest regime is unlikely to appreciably reduce the survival and recovery of Skagit Basin steelhead populations in the wild for the duration of the 5-year plan since there is no more than a 10% difference in achieving the spawner reference points when comparing a no fishing regime with the proposed harvest regime (Table 5). Effects reasonably certain to occur after prolonged periods of harvest are also unlikely to appreciably reduce the survival and recovery of Skagit Basin steelhead populations in the wild since, even at a 35% reduction in average survival over 25 generations, the percentage of years with spawners exceeding RMSY was 75% (i.e., Ricker model) and 91% (Beverton-Holt model (Table 6). The proposed harvest management regime is unlikely to appreciably reduce the survival and recovery of Skagit Basin steelhead populations, including effects reasonably certain to occur even after the proposed actions cease, because the effects of the total amount of adult steelhead removed from the system, on abundance compared to the critical or viable thresholds, is not appreciably different from a no harvest scenario (i.e., 0%; Table 5). We recognize that the percentage rates in the viable category may mask higher overall abundances expressed under a no harvest regime but any risk to the Skagit steelhead DIPs within the Skagit SMU as a result of this harvest regime is likely low within the short, five-year time period proposed in this fisheries plan.

The co-managers have also chosen to implement additional fishery management strategies for the conservation of Skagit River steelhead populations or diversity components of the Skagit SMU (Sauk-Suiattle Indian Tribe et al. 2016). These include:

1) Protection of kelts – Hard et al. (2015) stated, "…iteroparity is an important consideration in a comprehensive evaluation of viability for steelhead. Iteroparity is also arguably an important factor for diversity (and also for population persistence through temporal risk spreading)", and "especially influential on viability in small populations during periods when marine mortality varies widely". The RMP provides protection for kelts by:

a) opening non-treaty recreational fisheries for adult steelhead upstream of the Dalles Bridge,[17] well upstream of the relatively small Nookachamps Creek population;
b) closing non-treaty recreational fisheries for adult steelhead no later than April 30 to limit kelt mortality; and
c) treaty fisheries targeting spring Chinook and sockeye salmon during weeks 18-30 would be conducted to limit winter steelhead kelt impacts.

2) Protection of summer-run timing population component – Myers et al. (2015) concluded that "there is likely to be some population substructure that should be considered in maintaining within-population diversity." Current data on run timing, spawn timing, and genetics indicate that steelhead return to the Skagit and Sauk rivers during the summer months. The RMP provides protection for the summer-run component of the populations by:

    a) opening non-treaty recreational fisheries directed at adult steelhead no earlier than February 1 and closing the fishery on April 30, and
    b) no treaty fisheries would be directed at the harvest of summer-run steelhead.

3) Protection of early-timed winter steelhead – Hard et al. (2015) stressed the importance of maintaining the historical breath of spawn timing for the viability of steelhead populations and hypothesized that the spawn timing of the Nookachamps Creek population had been altered relative to historical conditions. More broadly, there are concerns that fisheries directed at the harvest of early-timed hatchery fish may have resulted in the loss of the early-run timing component of wild steelhead (NMFS 2016). The RMP provides protection of early-timed natural origin steelhead because :

    a) hatchery steelhead are no longer released in the Skagit River;
    b) non-treaty recreational fisheries directed at adult steelhead would not be open prior to February 1; and
    c) treaty fisheries would not target early returns but rather be implemented to access steelhead across the entire adult winter steelhead return period.

4) Protection of the Nookachamps Creek population – As mentioned previously, the Nookachamps Creek population is the smallest extant population of steelhead in the Skagit Basin and, potentially, its smaller size could increase the risk of extirpation (Myers et al. 2015). The RMP provides additional protection for the Nookachamps Creek population by:

[17] Located in Concrete, WA.

a) opening non-treaty recreational fisheries for adult steelhead upstream of the Dalles Bridge, well upstream of the small population, and
b) treaty fisheries would not concentrate on the early-timed component of the steelhead run but rather be implemented to access steelhead across the entire adult steelhead return period.

2.7 4(i)(E) Include effective monitoring and evaluation programs to assess compliance, effectiveness, and parameter validation. At a minimum, harvest monitoring programs must collect catch and effort data, information on escapements, and information on biological characteristics such as age, fecundity, size, and sex data, and migration timing.

The RMP includes effective monitoring and evaluation programs to assess compliance, effectiveness, and parameter validation. The harvest monitoring programs would collect catch and effort data, information on escapements, and information on biological characteristics such as age, fecundity, size, and sex data, and migration timing at a minimum (Sauk-Suiattle Indian Tribe et al. 2016).

Treaty net fisheries are monitored to assess encounters and retention of steelhead in directed and non-directed fisheries. Retained steelhead for treaty commercial sales and fish taken for ceremonial and subsistence purposes are accounted for through fish tickets corroborated by tribal enforcement and/or tribal biologists and documented in real time into a harvest database managed by the co-managers (Sauk-Suiattle Indian Tribe et al. 2016). Treaty fisheries would be implemented to retain or not to retain steelhead depending on forecasted returns of steelhead. Tribal biologists would assess steelhead for hatchery / wild composition and scanned for Passive Integrated Transponder (PIT) tags. Scales would be collected from natural origin steelhead to estimate age composition. Landed steelhead would be assessed for sex and spawning condition[18] and tissue samples would be collected for future genetic analyses (Sauk-Suiattle Indian Tribe et al. 2016). Otoliths would also be collected to assess isotopic chemistry to inform managers on the contribution of resident *O. mykiss* to steelhead populations (Sauk-Suiattle Indian Tribe et al. 2016).

Steelhead in non-retention treaty fisheries would be enumerated by tribal staff.[19] When available, information such as sex, length, and markings of non-retained steelhead would be collected (Sauk-Suiattle Indian Tribe et al. 2016).

Since the number of landed natural origin steelhead in retention fisheries has decreased in recent years, this has reduced the co-managers' ability to monitor Skagit River steelhead populations and provide for in-season updates. As such, the Upper Skagit Tribe implemented a non-retention

[18] Pre-spawn to kelt spawning condition of adults.
[19] Tribal Enforcement or Natural Resources staff.

tangle net test fishery to ensure biological information are being collected to adequately characterize sex ratios, age structure, timing, detection of out-of-basin strays,[20] and collection of Deoxyribonucleic acid (DNA) to better assess abundance and provide information essential to the development of the RMP (Sauk-Suiattle Indian Tribe et al. 2016). Annual treaty steelhead tangle net fisheries begin in management week 8[21] and continue until management week 18.[22] No other fisheries or monitoring of steelhead currently occurs during this time period. During the treaty tangle net fishery, steelhead encounters are measured for length, assessed for marks and PIT tags. If PIT tags are not present, sex and tissue samples are collected for future DNA analysis. Steelhead are released upon sampling. Steelhead taken during the tangle net fishery would count toward the allowable harvest impact rate (Table 4) and would be estimated at 18.5% of approximately 100-150 steelhead encountered in the fishery annually (Sauk-Suiattle Indian Tribe et al. 2016).

The co-managers would continue to conduct hook-and-line sampling as part of the Skagit Basin genetic monitoring to provide information on steelhead recovery efforts. This sampling would supplement scale collection. Steelhead would be assessed for length, sex, marks, and PIT tags. This sampling effort is covered under an annual research permit authorized by NOAA Fisheries (NMFS 2017; 4(d) Limit 7 Research and Scientific Permit No. 20929).

Each WDFW recreational license holder is required to record retained marked hatchery steelhead on Catch Record Cards (CRC) in pre-terminal[23] and terminal[24] areas. A subsample of CRCs would be used to estimate landed catch of stray hatchery steelhead in freshwater and marine catch for each management year.[25] Estimates of landed catch would be adjusted downward to account for a non-response bias because successful anglers are more likely to return their CRCs than non-successful angers (Alexandersdottir et al. 1994). Large freshwater streams[26] in 2012-13 have a bias adjustment of 1.2 (Eric Kraig, WDFW, pers. comm. in Sauk-Suiattle Indian Tribe et al. 2016). Small freshwater streams[27] have no bias adjustment for catch estimates (Sauk-Suiattle Indian Tribe et al. 2016). Co-managers would review and revise reporting requirements in the Skagit Basin, as needed, to address steelhead encounters, retention, and release mortality consistent with the RMP objectives (Sauk-Suiattle Indian Tribe et al. 2016). The co-managers would explore trout fishery monitoring strategies with the intent to better understand the potential impact of those fisheries on resident and anadromous *O. mykiss* prior to sea migration.

[20] Hatchery or natural origin steelhead.
[21] Mid-February.
[22] Beginning of May.
[23] Marine, mixed-stock areas (i.e., Skagit Bay).
[24] Freshwater areas (i.e., Skagit River Basin).
[25] April through March, overlapping the calendar year.
[26] Streams with 20 or more fish reported on CRCs.
[27] Streams with less than 20 fish reported on CRCs.

WDFW would monitor recreational steelhead fisheries through in season creel surveys to ensure that allowable harvest impact rates (Table 4) are not exceeded (Sauk-Suiattle Indian Tribe et al. 2016). The general approach is described in Hahn et al. 1993. In summary:

a) To assess angler effort, catch, total harvest, and impacts on other species, a ground based creel survey would be conducted by trained personnel during the steelhead fishery;

b) Information collected during the creel interview would include angler effort, catch data, number in fishing party, angler type,[28] gear types,[29] whether or not anglers have completed their trip, start and stop time, number of trailers or cars associated with the party, number of fish by species encountered and released or kept, and whether the fish had any marks or tags;

c) DNA and scale samples would be taken from natural origin steelhead if they encounter an angler in the process of encountering a fish;

d) Samples would be coordinated and taken as part of the long-term age monitoring of steelhead in the Skagit Basin and as part of the WDFW Effectiveness Monitoring Program;

e) The fishery would be managed on a daily or weekly basis and creel data entered and calculated as collected; and

f) If encounter rates and potential mortality is greater than anticipated, fishery impacts would be projected forward and the fishery would be closed with a minimum of 48-hour notice to the public prior to the time the impact limit would be achieved.

Escapement estimates combined with the data collected as described above would provide the basis for catch composition, return age structure, and overall run reconstruction used for population trend monitoring. The Skagit River Tribes and WDFW would communicate regularly to share data on run size, timing, and catch to ensure the appropriate harvest management of steelhead (Sauk-Suiattle Indian Tribe et al. 2016).

2.8 4(i)(F) Provide for evaluating monitoring data and make any revisions of assumptions, management strategies, or objectives that the data show are needed.

For the five-year duration of the Skagit RMP, annual accounting of recreational encounters, all landed catch, estimates of non-landed mortalities, and estimation of spawning escapement would

[28] Boat or shore angling.

[29] Conventional gear or fly gear.

be collected by the co-managers to provide the basic information needed to monitor the Skagit steelhead population abundance and assess harvest management performance against the fisheries objectives (i.e., abundance thresholds and tiered allowable harvest impact rates) described in Table 4 (Sauk-Suiattle Indian Tribe et al. 2016). Sampling of fish during catch and escapement monitoring would occur to describe the age structure of populations needed to improve harvest management and make any revisions of assumptions, management strategies, or objectives that the data show are needed such as forecasting capability, quantifying recruitment, and developing new escapement goals (Sauk-Suiattle Indian Tribe et al. 2016).

2.9 4(i)(G) Provide for effective enforcement and education. Coordination among involved jurisdictions is an important element in ensuring regulatory effectiveness and coverage.

The Skagit River Tribes provide for effective enforcement of the proposed harvest management described in the Skagit RMP by monitoring and enforcing treaty commercial, subsistence, and ceremonial harvest regulations for both onsite and offsite reservation fisheries in the Skagit Basin. Violations of tribal regulations include fines or prosecution by tribal justice agencies. Tribal enforcement officers would monitor all tribal usual and accustomed (U&A) fishing areas, compliance with gear, area, and retention rules, and other tribal fishery regulations and requirements (Sauk-Suiattle Indian Tribe et al. 2016). Tribal enforcement officers patrol fisheries from shore and boat, where they can also provide assistance to tribal fishers. Closed waters for fishing out of season, and closed waters in season are also monitored for tribal fisheries compliance. Tribal officers may be cross-deputized and would also cooperate with other tribal, state, and federal fisheries enforcement agencies to ensure compliance (Sauk-Suiattle Indian Tribe et al. 2016).

The Skagit River Tribes[30] have also taken the lead in the removal of derelict gear in the Skagit Basin. Mandatory reporting of lost gear has been implemented and proven effective at limiting incidental mortality (Sauk-Suiattle Indian Tribe et al. 2016). Tribal regulations state that any gear fishing outside of legally-opened fishery periods is fishing illegally (Sauk-Suiattle Indian Tribe et al. 2016). Therefore, fishers must report any lost or derelict gear immediately upon loss or face closure of the fishery. Tribal enforcement officers attempt to locate and remove derelict gear in a timely manner (Sauk-Suiattle Indian Tribe et al. 2016).

The WDFW provides for effective enforcement of the proposed harvest management described in the RMP by enforcing and monitoring non-treaty commercial and recreational fishing regulations in the Skagit Basin. State enforcement officers would monitor compliance with established seasons, catch limits, gear restrictions, boat restrictions, and compliance with creel surveyors (Sauk-Suiattle Indian Tribe et al. 2016). State officers are assigned to work during open fishing days and restricted periods as well as closed periods. Vehicle, boat, foot, and launch

[30] Swinomish, Sauk-Suiattle, and Upper Skagit Tribes.

patrols would occur to check and assist anglers, when needed. Certain recreational fisheries may be assigned high priority for enforcement and require more intensive monitoring based on reported violations or recommendations from co-managers and/or NMFS. Covert surveillance may also be conducted where fishing violations have been reported. State officers would focus on protection of federally-listed species, reduction of user group conflicts,[31] boating safety, and provide assistance to tribal or other law enforcement entities as needed. State enforcement officers may assist tribal, city, county, other state law enforcement agencies and cooperate with the NMFS, U.S. Fish and Wildlife, and the U.S. Coast Guard fisheries enforcement agencies (Sauk-Suiattle Indian Tribe et al. 2016).

The Skagit River Tribes provide for effective education by developing harvest regimes under the oversight of their tribal Councils or fisheries committees that includes their respective tribal communities. Currently, limited steelhead harvest supplies a relatively small number of fish used for tribal subsistence or ceremonial purposes. Conservation measures incorporated in the RMP would be communicated to tribal fishers or their representatives who participate in tribal harvest management decision-making. These interactions among tribal fisheries and management staff ensure that tribal fishing regulations are practicable and enforceable (Sauk-Suiattle Indian Tribe et al. 2016).

The WDFW provides for effective education by consulting with their recreational angler organizations[32] and other interested citizens through their WDFW Fish and Wildlife Commission hearings. During these forums, WDFW receives and considers proposals for recreational steelhead fishery regulations and explains their rationale for annual regulation decisions. This process is intended to demonstrate the conservative effects of steelhead fishing regulations on listed natural origin steelhead, build credibility, and improve compliance among their constituents (Sauk-Suiattle Indian Tribe et al. 2016). WDFW anticipates hosting one or more public meetings and providing a news release, webpage, and other outreach materials to ensure that information on steelhead fishery regulations are readily accessible to recreational fishermen prior to any recreational steelhead fisheries in the Skagit River (Sauk-Suiattle Indian Tribe et al. 2016).

2.10 4(i)(H) Include restrictions on resident and anadromous fisheries that minimize take of listed species, including time, size, gear, and area restrictions.

The co-managers provide restrictions on resident and anadromous fisheries that minimize take of listed species, including time and area restrictions in the Skagit RMP. Size and gear restrictions are already in place to target steelhead and limit incidental catch of non-target species. These restrictions are described in Section 1.5 above. Take of ESA-listed kelts, summer-run

[31] Between tribal and non-tribal fishers.

[32] Such as the WDFW Steelhead and Cutthroat Advisory Group.

populations, early-timed winter-run populations, and the smallest, Nookachamps Creek winter-run steelhead population, would be minimized through the seasonal timing of fisheries and area restrictions (Sauk-Suiattle Indian Tribe et al. 2016) (Section 1.5).

2.11 4(i)(I) Be consistent with plan and conditions established within any Federal court proceeding with continuing jurisdiction over tribal harvest allocations.

The Skagit RMP was developed consistent with the Puget Sound Salmon Management Plan (1985) and the Federal court orders under *U.S. v. Washington* (1974) that control fisheries harvest management in Puget Sound (Sauk-Suiattle Indian Tribe et al. 2016).

2.12 4(i)(ii) The co-managers monitor the amount of take of listed salmonids occurring in its fisheries and provides to NMFS on a regular basis, as defined in NOAA Fisheries' letter of concurrence for the RMP, a report summarizing this information, as well as the implementation and effectiveness of the RMP. The co-managers shall provide NMFS with access to all data and reports prepared concerning the implementation and effectiveness of the RMP.

The Skagit Basin co-managers would monitor the amount of take of listed salmonids occurring in its fisheries and provide to NMFS, on a regular basis, as will be defined in NOAA Fisheries' letter of concurrence for the RMP, a Skagit SMU report summarizing this information, as well as the implementation and effectiveness of the RMP. The effectiveness of the proposed harvest management in achieving the objectives and guidelines stated in the RMP would be evaluated annually by the co-managers and compared to the performance indicators identified in Section 1.1. Each year's report would include all information collected from the first year's fishery to the most recent year of fisheries authorized under the proposed RMP by NOAA Fisheries. Any deviations from the pre-season agreement would be described and evaluated in the report. The Skagit SMU annual report would be included in the annual postseason, "Puget Sound Steelhead Harvest Management Report" currently submitted by the Puget Sound Indian Tribes and the WDFW and would be submitted to NOAA Fisheries by November 30th of each year (Sauk-Suiattle Indian Tribe et al. 2016). NMFS would have access to all data and reports prepared concerning the implementation and effectiveness of the Skagit RMP.

2.13 4(i)(iii) The co-managers confer with NMFS on its fishing regulation changes affecting listed ESUs/DPSs to ensure consistency with the approved RMP. Prior to approving a new or amended RMP NMFS will publish notification in the Federal Register announcing its availability for public review and comment. Such an announcement will provide for a comment period on the draft RMP of not less than 30 days.

The co-managers conferred with NMFS on its fishing regulation changes affecting the listed ESUs/DPSs (i.e., Puget Sound Chinook Salmon ESU and Puget Sound Steelhead DPS) described in the plan to ensure consistency with the pending decision of the RMP. Following the submittal of the Skagit RMP, NMFS published notification in the Federal Register announcing availability for public review and comment on this PEPD for 30 days on December 7, 2017 (82 FR 57729).

2.14 4(i)(iv) NMFS provides written concurrence of the RMP which specifies the implementation and reporting requirements. NMFS' approval of a plan shall be a written approval by NMFS' Regional Administrator. On a regular basis, NMFS will evaluate the effectiveness of the program in protecting and achieving a level of salmonid productivity commensurate with conservation of the listed salmonids. If it is not, NMFS will identify ways in which the program needs to be altered or strengthened. If the responsible agencies do not make changes to respond adequately to the new information, NMFS will publish notification in the Federal Register announcing its intention to withdraw the limit for activities associated with the RMP. Such an announcement will provide for a comment period of not less than 30 days, after which NMFS will make a final determination whether to withdraw the limit so that the prohibitions would then apply to those fishery harvest activities.

The NMFS West Coast Region's SFD is recommending that the Skagit RMP be approved under Limit 6 of the ESA 4(d) Rule and that concurrence letters (attachment 4) be sent to the individual Skagit co-managers, and that ESA take prohibitions do not apply to fisheries implemented in accordance with the Skagit RMP's own implementation and reporting measures.

NMFS will evaluate the effectiveness of the harvest program described in the Skagit RMP in protecting and achieving a level of salmonid productivity commensurate with the conservation of listed Puget Sound steelhead. If the harvest program does not continue to meet the 4(d) criteria, NMFS will identify ways to alter or strengthen the RMP so the co-managers can make changes to respond adequately to the new information. If those changes are not made on behalf of the co-managers, NMFS will take action by publishing notification in the Federal Register announcing its intent to withdraw the 4(d) authorization for a public comment period of not less than 30 days. NMFS will then make a final determination whether to withdraw the limit on fishery harvest activities described in the RMP.

3. Responses to Comments Received

As described in the introduction section of this document, NMFS received 121 comments on the PEPD. In reviewing the submitted public comments, a large portion of which (87) were form-letters sent by individuals, NMFS recognized several, consistent themes across many of the comment letters/emails. These comment themes represent a wide range of comments: support for the proposal; do not support the proposal; suggestions for specific fishery regulations; concern for the proposal in terms of conservation or ability to enforce the fisheries; criticism of the analysis in the PEPD and/or Skagit RMP; calls for delaying a decision until recovery planning is complete; and others. In order to efficiently address the comments received, NMFS has grouped the comments into common categories that relate to the primary purpose or subject area of the individual comments. NMFS' responses to these common categories are summarized in the following sections.

1) **For the proposed recreational fishery, many commenters expressed the need for the fishery to utilize specific gear restrictions, boat restrictions, or restrictions on guided fishing. Most gear restriction comments suggested using single barbless hooks and no bait. Others just suggested that the fishery be re-opened under the "old rules" that were in place historically. Some commenters re-iterated that the fishery should remain catch and release only. Boating restriction suggestions varied but most comments suggested no boating under power in the mainstem Skagit River, and no fishing from boats. Finally, some commenters suggested restricting guided fishing to some extent, either by restricting or eliminating guiding, or simply restricting or increasing costs for out of state fishing and guiding. Several commenters expressed opinions about the proposed fishing areas, including moving the lower recreational fishing boundary down to Gilligan Creek or the Hamilton/Lyman area to represent the historical boundary and further disperse the recreational fishing activity.**

NMFS' Response: *NMFS' obligation, under a 4(d) Rule determination, is to assess whether the RMP, as proposed, meets to criteria to qualify for the 4(d) Rule exemption. Often times, during the public review process for NMFS' approval of a proposed plan, such as the PEPD for the Skagit RMP, the general public may take the opportunity, while commenting on the proposal at hand, to offer additional thoughts, opinions, or comments on aspects of the proposed action which are not always under NMFS consideration for approval.*

The proposal for which NMFS took public comments on was the PEPD for the Skagit RMP under the ESA 4(d) Rule, Limit 6. Under the 4(d) Rule, Limit 6, the co-managers submit their proposed RMP to NMFS for determination of whether the RMP meets the required criteria under the rule. NMFS thus can either approve or disapprove of the RMP, depending on the results of its determination. The PEPD was NMFS' preliminary determination that the Skagit RMP does meet the criteria of the 4(d) Rule, Limit 6 and contained detailed information related to the

required criteria. These criteria require details on how the plan being proposed considers the effects on important elements to the status and recovery of the listed species, in this case, the Puget Sound steelhead DPS. The PEPD details how the Skagit RMP proposes to use the total, annual harvest rate of the Skagit River steelhead run as the management objective for consideration. The PEPD also describe the framework of the proposed fisheries, in terms of: time frame and area; user groups that will fish –when and where; the general methods that will be used to fish; as well as the methods used to monitor and report the results.

NMFS appreciates that commenters may have strong feelings about how specific fisheries are managed regarding time, location, gear, and other elements. However, the in-season management of fisheries, along with the details regarding specific time, place, bag limits, gear, boat use, etc. fall to the state and tribal co-managers. NMFS' role here is to determine whether the plan that has been proposed meets the criteria of the 4(d) Rule and that adequate mechanisms are described and will be in place to ensure that the objectives described in the plan are met. In this case NMFS has determined that the Skagit RMP, inclusive of its descriptions of the basic management and enforcement structure of the proposed annual fisheries, addresses the criteria: 4(i)(E), 4(i)(G), and 4(i)(iii).

2) Many comments, including the form-letter submittals and letters from two of the conservation organizations, as well as some individual comments, voiced concern that the analysis in the PEPD and/or RMP does not properly address several of the 4(d) Rule, Limit 6 criteria, is not conservative enough in the proposed objectives, or that the basis for the risk analysis in the RMP was flawed. We address the primary concerns raised in these comments below.

2.a) Many commenters believed harvest rates, at the highest tiers proposed (20 and 25%), are set too high for the Skagit River steelhead population to support and expressed concerns about how the co-managers developed these harvest rates, including that the analysis conducted was inappropriate or interpreted incorrectly.

NMFS' Response: One of the common points that was raised as a concern was the development of the harvest rates proposed in the Skagit RMP. Many commenters assumed that the proposed, stepped harvest rates are developed from the spawner-recruit modeling included in the RMP. Based on the estimated spawner-recruit relationship in the RMP analysis, the Skagit River steelhead would have an F_{MSY} *(estimated sustainable harvest rate) of 0.41 (41%), which is significantly higher than the range proposed in the RMP—4% to 25% (Sauk-Suiattle Indian Tribe et al. 2018). These lower, abundance-based steeped harvest rates, combined with the specific conservation measure implemented in the fishery timing and structure adequately address the 4(d) criteria related to the biological foundation of the proposed harvest rates.*

2.b) Some commenters questioned the years of data used in the RMP's spawner recruit modeling (1978-2007) and whether it was representative of the more recent years, where lower abundances have been seen, and whether the recruitment functions (Ricker and Beverton-Holt) produced from it would appropriate account for any

recent changes in the Skagit productivity.

NMFS' Response: NMFS has reviewed the additional material and references that were submitted with comments from the Wild Fish Conservancy et al. and Trout Unlimited and has concluded that the spawner-recruit analysis in the Skagit RMP is robust and accurately demonstrates the likely effects of the proposed harvest regime. One of the primary concerns expressed in these comments is the concern regarding stationarity, or the consistency of the underlying relationship—in this case the productivity (recruits/spawner)—over the timescale in the series. Non-stationarity in this relationship could introduce uncertainty regarding the reliability of the calculated productivity parameter (alpha) in the recruitment function(s). There has been variation in the productivity of the Skagit River steelhead population over the historical timeframe used in constructing the spawner-recruit functions. Although the variation evident in the 24-year dataset could simply be expected process error around a stable spawner-recruit relationship, it could also be evidence of non-stationarity. Both Trout Unlimited (TU 2018, and McMillan 2018) and Wild Fish Conservancy (WFC) et al. (2018) pointed to evidence of non-stationarity in the recruits per spawner relationship over the time series, with the WFC letter suggesting "clear evidence," citing an internal analysis (Gayeski 2018), of non-stationarity in the historical Skagit River steelhead spawner-recruit relationship. They concluded analytically that there is a clear change point at 1990, with the mean alpha parameter (productivity) under the Ricker model after 1990 being about half of that from before 1990. Gayeski (2018) went on to develop an alternative Ricker function, for the Skagit River, utilizing an expanded (relative to the base spawner-recruit data used in the Skagit RMP) post-1990 data set to represent the more recent (reduced) productivity regime. However, the resulting mean Ricker alpha parameter produced from this work, based on the more recent time period developed for the analysis, is close to that used in the RMP (α=4.85; sd 2.86 in the RMP and α=2.56; sd 1.95 in the Gayeski (2018) work), suggesting that although there may be evidence of non-stationarity in the historical time series, the discernable impact on the RMP assessment is likely minimal.

An additional assessment provided in the RMP takes a conservative approach to the co-manager's analysis of effect to the abundance of the Skagit steelhead. It incorporates a range of assumed survival reductions—15%-35%, in 5% increments—into the iterative modelling process described above. These assumed levels of reduced survival are applied to the resulting recruits generated by each of the recruitment functions (Ricker and Beverton-holt). This additional assessment looked to evaluate the RMP harvest regime's effect on abundance under assumptions of reduced productivity. In this way the results of this additional assessment could be used to evaluate the uncertainties discussed above, related to the stationarity of the spawner-recruit relationship in the base parameters developed in the RMP.

2.c) Additional comments, related to the spawner-recruit analysis in the RMP, focused on the issue of the estimated compacity of the Skagit River system. These comments focused on the question of whether the use of the aggregated spawner and recruit data could be masking underlying, small-scale mechanisms in the river system and leading to an inaccurate appearance of a density dependent relationship at the adult-recruitment level.

NMFS' Response: As described in the response above, relating to the comments on productivity and non-stationarity, NMFS thoroughly reviewed the comments, references and materials submitted by the conservation organizations. An additional concern raised by the comments from Trout Unlimited, again regarding the Skagit RMP spawner-recruit analysis, is that density-dependence within the Skagit River may be incompletely characterized by the RMP analysis. This concern was raised by the Trout Unlimited response letter (TU 2018). They cited the use of adult-recruitment in the RMP analysis and the aggregation of the spawners and recruits, basin-wide, as concerns that the resulting capacity parameters may be estimating lower system capacity than is likely available. In interpreting traditional Ricker or Beverton-Holt spawner-recruit relationships, the assumption is that the inflection point reflects the onset of density dependent effects in the population, and that association is typically interpreted to mean the population is close to reaching the capacity of the available habitat. Recent research suggests, however, that the presence of density dependence at the watershed level does not necessarily mean the population is at capacity.

Signals of density dependence can occur even at very low population levels where there is abundant, completely un-utilized or under-utilized habitat. For example, in the Snake River basin Walters et al. (2013) found strong density dependence at the juvenile stage when formerly large populations declined to very low levels, despite no concurrent changes in habitat. Similarly, Atlas et al. (2015) documented density dependence in a highly depleted population of steelhead in British Columbia, despite the availability of ample high-quality habitat. Additionally, standard application of stock-recruit models assume density dependence is occurring at the watershed scale. Walters et al (2013) and Atlas et al. (2015) suggest density dependence is occurring at smaller, more localized scales. If density dependence is occurring at smaller scales then stock-recruit curves, based on capacity generated from the basin-scale, may underestimate carrying capacity and thus result in management plans and recovery goals that may not fully use the available habitat for an entire river basin. Incorporation of spatial effects, temporal lag effects (e.g., Finstad et al. 2013), and juvenile dispersal distances (Einum et al. 2008), may improve model predictions. However, considering that the spawner-recruit analysis results indicate that the Skagit steelhead MSY rate would be 41% (Ricker model; Sauk-Suiattle Indian Tribe 2018), the rates that are proposed—from 4%-25%, depending on run-size—are sufficiently low and would provide escapement levels that would run as high as those seen from 1978 forward, e.g. >10,000, and that would continue to test the total spawning capacity of the system to produce larger, total runs.

Considered the concerns that were raised in public comment, regarding the analysis of the Skagit River steelhead productivity and capacity, as well as the material that was submitted and other sources that NMFS sought out regarding these concerns, NMFS has determined that the analysis in the Skagit RMP is sound and that the effects that it demonstrates are likely to occur.

3) Another common concern, expressed in some comments, was that the RMP should provide for more protection of unique or variable steelhead life histories (i.e. kelts or repeat spawners, summer steelhead, early return steelhead).

NMFS' Response: NMFS reviewed the specific measures, proposed in the Skagit RMP to reduce

the impacts of the harvest rates on specific steelhead populations and run-timing components, and determined that they adequately addresses the conservation need for the protection of the diversity and spatial structure of the Skagit steelhead.

As described in the PEPD, the Skagit RMP proposes several Conservation Actions to be continued or implemented to conserve or build the population structure and diversity of the Skagit River steelhead (Sauk-Suiattle et al. 2016, Section 8.4- Additional Conservation Actions for Populations and Diversity). These include: Fishery management objectives that are protective of kelts; Fishery management objectives that are protective of the summer run-timing component of the Skagit populations; Fishery management objectives that are protective of the early run-timed Skagit Steelhead; and Fishery management objectives that are protective of the Nookachamps winter steelhead DIP.

Specific text from the RMP below details the protection of these variable life histories.

- *Kelts: "This Plan provides protection for kelts by: 1) opening recreational fisheries for adult steelhead upstream of the Dalles Bridge in Concrete, well upstream of the relatively small Nookachamps Creek population; 2) closing recreational fisheries for adult steelhead no later than April 30 to limit mortalities on kelts; and 3) opening tribal fisheries during the weeks 18 – 30 targeting spring Chinook and sockeye will be conducted to limit kelt impacts."*
- *Summer Run-Timing Steelhead: "This Plan provides protection for the summer-timed component of the populations by: 1) opening recreational fisheries directed at adult steelhead no earlier than February 1; and 2) not opening any tribal fisheries directed at the harvest of summer-timed steelhead."*
- *Early-Timed Winter Steelhead: "Early-timed hatchery steelhead are no longer released in the Skagit River, and this Plan provides protection for any early-timed component of the natural-origin return by not allowing any recreational fisheries directed at adult steelhead prior to February 1. Treaty fisheries will not concentrate on the early returns, but rather be designed to access steelhead across the entire return period."*
- *Nookachamps Creek Population: "This Plan provides additional protection for the Nookachamps Creek population by opening recreational fisheries for adult steelhead upstream of the Dalles Bridge in Concrete, well upstream of the relatively small Nookachamps Creek population. Treaty fisheries will not concentrate on the early returns, but rather be designed to access steelhead across the entire return period."*

NMFS concludes that these conservation measures, combined with the Skagit RMP's tiered harvest regime, which reduces the harvest rate down to 4% at lower run sizes (<4,000), will act together to provide conservation of the diversity present in the Skagit steelhead DIPs.

4) A few commenters were concerned with the WDFW's ability to appropriately enforce the new fishery regulations given the added strain on their current staff.

<u>NMFS' Response</u>: NMFS has concluded that the Skagit RMP describes monitoring and enforcement activities for both the treaty fisheries, which are monitored by the tribes, as well as the recreational fisheries, which would be monitored by WDFW, and that these measures, if

implemented as described, meet the criteria under the 4(d) Limit and will provide adequate enforcement of the fishing regulation which the Tribes and WDFW will develop annually, as described in the Skagit RMP. For reference, these excerpts from the PEPD describe both the Tribes and the State of Washington's proposed enforcement programs for the Treaty Indian and recreational fisheries:

> *The Skagit River Tribes provide for effective enforcement of the proposed harvest management described in the RMP by monitoring and enforcing treaty commercial, subsistence, and ceremonial harvest regulations for both onsite and offsite reservation fisheries in the Skagit Basin. Violations of tribal regulations include fines or prosecution by tribal justice agencies. Tribal enforcement officers would monitor all tribal usual and accustomed (U&A) fishing areas, compliance with gear, area, and retention rules, and other tribal fishery regulations and requirements (Sauk-Suiattle Indian Tribe et al. 2016). Tribal enforcement officers patrol fisheries from shore and boat, where they can also provide assistance to tribal fishers. Closed waters for fishing out of season, and closed waters in season are also monitored for tribal fisheries compliance. Tribal officers may be cross-deputized and would also cooperate with other tribal, state, and federal fisheries enforcement agencies to ensure compliance (Sauk-Suiattle Indian Tribe et al. 2016).*
>
> *The WDFW provides for effective enforcement of the proposed harvest management described in the RMP by enforcing and monitoring non-treaty commercial and recreational fishing regulations in the Skagit Basin. State enforcement officers would monitor compliance with established seasons, catch limits, gear restrictions, boat restrictions, and compliance with creel surveyors (Sauk-Suiattle Indian Tribe et al. 2016). State officers are assigned to work during open fishing days and restricted periods as well as closed periods. Vehicle, boat, foot, and launch patrols would occur to check and assist anglers, when needed. Certain recreational fisheries may be assigned high priority for enforcement and require more intensive monitoring based on reported violations or recommendations from co-managers and/or NMFS. Covert surveillance may also be conducted where fishing violations have been reported. State officers would focus on protection of federally-listed species, reduction of user group conflicts,33 boating safety, and provide assistance to tribal or other law enforcement entities as needed. State enforcement officers may assist tribal, city, county, other state law enforcement agencies and cooperate with the NMFS, U.S. Fish and Wildlife, and the U.S. Coast Guard fisheries enforcement agencies (Sauk-Suiattle Indian Tribe et al. 2016).*

5) The RMP should detail more clearly the methods used to determine yearly spawning escapement.

<u>NMFS' Response</u>: Although not described in technical detail, in the PEPD, the Skagit RMP describes how escapement is currently calculated and how they plan to improve on these estimates in the future as follows:

> *Winter steelhead escapement surveys have been conducted on the Skagit River system*

since the mid-1970s. In general, surveys to enumerate redds are conducted using multiple methods; by foot, by floating stream sections, and by fixed-wing or helicopter aerial surveys, depending stream size and visibility. Surveys are conducted on index reaches on tributary streams on a 10-14 day rotation typically from late February/early March depending on where in the basin the stream is located through June or early July. Typically lowland streams with warmer water temperatures see the earlier spawning activity with higher elevation streams with lower water temperatures spawning activity starts and ends later. The surveys are a census of total redds built in each index reach. The estimation of redds in unsurveyed tributaries is made using a regression of redds counted per km2 of available spawning habitat in surveyed tributaries and km^2 of available spawning habitat in tributaries not surveyed.

On mainstem indexes four to six flights are typically conducted. All visible redds are counted during aerial surveys regardless to ability to identify unique previously constructed redds. Total estimated mainstem steelhead redds are calculated using a modified area under the curve methodology. Some reaches may also be surveyed by jet sled with a cumulative redd count conducted. Mainstem reaches not surveyed are expanded by using redd/mile in surveyed reaches that have similar spawning habitat/gradient. High flow and turbidity typical of the spawning season often preclude following the regular survey schedule, or may confound interpretation of the data.

Additionally, the RMP describes some of the shortcomings of the current method and identifies actions to investigate alternative methods:

Estimates of escapements that are used in cohort reconstructions are often derived from non-probabilistic sampling designs that may not associate to abundances (Isaak et al. 2007). In the case of the Skagit SMU, escapement estimates use a proven (but 40 year old) study design (Phillips et al. 1980). At the time of the design, there was no knowledge that the Skagit SMU is comprised of four distinct populations as identified in later genetic analysis (Meyers et al. 2015). The tribes and WDFW have identified that the study design, including: sampling methodology and analytical methods require updating and are seeking support to assess and validate these methods. In addition, the incidence of repeat-spawning must be factored in and the tribes are working on a long-term sampling plan that includes a network of Passive Integrated Transponder tags to potentially assess, among other things, repeat-spawning.

NMFS has concluded that the Skagit RMP contains a sufficiently detailed description of the co-manager's proposed annual spawning assessment. They propose to utilize measures and techniques that are standard approaches to these assessments throughout the range of the species. Additionally, that the co-managers acknowledge that there are potential improvements that could be addressed and intend to work to address them during the timeframe of the Skagit RMP, is encouraging.

6) **One commenter suggested that the co-managers should analyze previous years' pre and post season estimates to determine the accuracy of the estimation methods and incorporate more dynamic management strategies (such as moving away from maximum sustainable yield and incorporating adaptive management).**

NMFS' Response: NMFS disagrees. The Skagit RMP does include, as was described in the PEPD, the annual process for post-season evaluation and incorporation of the results of the past season's outcomes into the planning for the next and future year's fishery. As described in the PEPD, for the five-year duration of the RMP, annual accounting of recreational encounters, all landed catch, estimates of non-landed mortalities, and estimation of spawning escapement would be collected to provide basic information needed to monitor steelhead population abundance and assess harvest management performance against the fisheries objectives (i.e., abundance thresholds and tiered allowable harvest impact rates) described in Table 4 of the PEPD (Sauk-Suiattle Indian Tribe et al. 2016). Sampling of fish during catch and escapement monitoring would occur to describe the age structure of populations needed to improve harvest management and make any revisions of assumptions, management strategies, or objectives that the data show are needed such as forecasting capability, quantifying recruitment, and developing new escapement goals (Sauk-Suiattle Indian Tribe et al. 2016).

7) **At least on commenter stated that NMFS should hold off on approving the Skagit harvest plan until the Puget Sound Steelhead Recovery Plan is completed.**

NMFS' Response: NMFS does not agree that the Puget Sound steelhead Recovery plan needs to be completed before it can determine whether a proposed RMP qualifies under the 4(d) Rule. While it would certainly be helpful to have a completed recovery plan for the Puget Sound steelhead DPS, it is not a necessary requirement. As detailed in the PEPD and in the RMP, the Puget Sound steelhead Technical Recovery Team (PSSTRT) has completed the historical populations analysis and the viability assessment for the Puget Sound steelhead DPS. These documents provided much of the information used in the Skagit RMP assessment and analysis relating to: Demographically Independent Populations (DIPs); Important life-history attributes to conserve; recommended thresholds for abundances, both critical and viable; etc. These documents are the primary references for use in the development of the recovery plan, which is planned for draft release later in 2018. Additionally, the 5-year timeframe for the RMP and for NMFS' determination would allow for incorporation, revision, and or reevaluation of the Skagit RMP in light of the final PS steelhead recovery plan.

8) **At least on commenter stated that we should retract the PEPD and start an Environmental Impact Statement process for the Skagit RMP.**

NMFS' Response: NMFS completed an environmental assessment (EA) and reached a finding of no significant impact (FONSI). More information describing these findings can be found in the EA.

4. Determination

As evaluated above, it is the recommendation of the Sustainable Fisheries Division that the Regional Administrator determine that the Skagit River Steelhead Fishery Resource Management Plan, submitted by the Sauk-Suiattle Indian Tribe, Swinomish Indian Tribal Community, Upper Skagit Indian Tribe, Skagit River System Cooperative, and the Washington Department of Fish and Wildlife adequately addresses all of the criteria required under Limit 6 of the 4(d) Rule. If the Regional Administrator so finds and approves the Skagit RMP, the take prohibitions would not apply to fisheries implemented in accordance with the approved RMP and NMFS' letter of concurrence.

5. Reevaluation Criteria

NMFS will reevaluate this determination if: (1) the actions described by the RMP is modified in a way that causes an effect on the listed species that was not previously considered in NMFS' evaluation; (2) new information or monitoring reveals effects that may affect listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may affect NMFS' evaluation of the RMP.

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