

Joint-State Columbia River Fishery Policy Review Committee

Analysis Results of Policy Issues, Alternatives under Consideration

August 29, 2019

Following are the analysis results associated with possible policy changes for spring Chinook fisheries as part of the Oregon-Washington review of Columbia River salmon and steelhead fishery management under current consideration by the Joint-State Columbia River Fishery Policy Review Committee (PRC) process. Issues and options designated as “active for further analysis” as of August 29, 2019 are shown below; issues and options previously removed from the list are excluded.

Spring Chinook

Issue 1: Allocation of Upriver spring Chinook impacts between non-treaty fisheries

Analysis Results:

Table 1 compares the expected average annual angler trips (below Bonneville only) and commercial ex-vessel value for three different Upriver spring Chinook non-treaty sport/commercial allocation sharing scenarios; 70%/30% (Current PRC recommendation/WA status quo), 80%/20% (OR status quo), and 60%/40% (Alternative 1). An abundance-based matrix for allocation (Alternative 2) has not been analyzed at this time. Outputs are based on 2013-2018 results adjusted to the hypothetical allocations shown, and therefore are best interpreted as an assessment of what might have occurred in those years under a different set of policies, rather than as an estimate of what would occur in the future. Recreational angler trips are limited to fisheries below Bonneville because comparable information was not available for all fisheries upstream of Bonneville Dam until 2017.

Table 1. Modelled economic metrics for mainstem sport and commercial spring Chinook fisheries below Bonneville Dam at different combinations of allocation shares and allowable commercial gears.			Economic Metrics ²	
Spring Chinook Issue-Alternative Combination ¹	Allocation % (sport/commercial)	Allowable Mainstem Commercial Gear	Sport Angler Trips ³	Commercial Ex-Vessel Value
Issue 1 PRC rec-WA Status Quo/Issue 2 PRC	70/30	Pre TN/Post TN/GN ⁵	115,469	\$313,257
Issue 1 OR Status Quo/Issue 2 Alt 1	80/20	Post TN ⁴	115,469	\$95,714
Issue 1 Alt 1/Issue 2 PRC	60/40	Pre TN/Post TN/GN ⁵	109,138	\$504,851
Issue 1 Alt 2 - Abundance Based Matrix	NA	NA	NA	NA

¹ Potential combinations of allocation shares and allowable commercial gears other than those presented in this table were not modelled.

² 2013-2018 averages used for sport and commercial metrics.

³ Effort data for 2013-2018 modelling period only available for sport fisheries downstream of Bonneville Dam.

⁴ No commercial buffer applied.

⁵ Commercial buffer applied to pre-update fishery.

Modelling results indicate a significant gain in ex-vessel commercial value as the commercial share increases and gill net gear is allowed. Because of differences among commercial gear types in how impacts can be converted to landed catch, the effects of concurrent allocation and gear changes must be estimated together. Estimated angler trips were 6% higher under an allocation change from 60% to 70%. As discussed in the ODFW draft report “Summary and Analysis of Columbia River Harvest Reform Activities 2009-2017” (section heading “Effect of Harvest Reform Allocation Changes on the

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Recreational Fishery”), the analysis indicates that gains in angler trips due to allocation increases did not occur in every season and year from 2013-2018, and when gains did occur, they were not linearly related to changes in allocation. Often, factors outside of the Policy (run size changes, fishing conditions, in-season management actions, etc.) had a far greater effect on the season structure than the allocation change. However, in any given year, there is a potential for larger increases in angler trips under larger allocations, if other factors do not prevent access to the increased allocation.

For example, in the 2017 spring Chinook season, poor river conditions during the pre-update recreational fishery led to catches being well below either a pre- or post-Reform guideline, resulting in a management decision to extend the fishery into late April which would have been the same whether the recreational allocation had been 60% or 80% (i.e. no effect from the allocation increase). When the run was significantly downgraded in May, a post-update fishery was not possible due to the cumulative catch exceeding the guideline, even at the higher 80% post-Reform allocation. Therefore, the allocation increase did not change the outcome of the post-update fishery either. In 2019 (not included in analysis but referenced for illustrative purposes), the lower Columbia spring Chinook recreational fishery was restricted to the area between Warrior Rock and Bonneville Dam due to expected low returns of Cowlitz and Lewis River spring Chinook, and this, coupled with poor river conditions and low catch rates, resulted in catches being well below either a pre- or post-Reform guideline at the conclusion of the pre-update fishery. Even after a run downgrade in May, the low cumulative catch would have allowed for a post-update fishery; however, very low returns of Upriver spring Chinook to hatchery facilities, and ensuing concerns regarding meeting broodstock needs, led managers to take a cautious approach and not implement a post-update fishery in the lower river. Thus, allocation increases from Harvest Reform did not affect the structure of the 2019 spring Chinook season.

Issue 2: Allowable mainstem commercial gear

Analysis Results:

The management measures that were employed during 2002-2016 used a combination of selective fishing tools; avoidance and live-release. While the post-release mortality rate (per fish) for gill nets is higher than that of tangle nets, gill nets were used to reduce encounters of non-target species such as steelhead and shad. Tangle nets were used less during periods of higher steelhead and shad abundance as encounter rates of these non-target species are higher with the smaller nets, and this can lead to higher total mortalities if encounters are high enough. Tangle nets have a lower post-release mortality (per fish) and were focused during periods of lower steelhead abundance to minimize encounters and total mortality of steelhead. Spring Chinook and steelhead that are caught in tangle nets are caught in the teeth or mouth and tend to tangle in the net and have a lower post-release mortality rate (14.7% for spring Chinook and 18.5% for steelhead). The regulations during the spring live-capture commercial fisheries, include the use of recovery boxes to resuscitate lethargic fish and reduced drift times.

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Table 2 shows the harvest of spring Chinook in tangle nets and gill nets during mark-selective mainstem non-treaty commercial fisheries in 2003 through 2018. The vast majority of mainstem spring Chinook harvest since 2003 has occurred using tangle nets, with an average of 87% during the three years prior to Harvest Reform (2010-2012), and 61% since implementation of Harvest Reform. The lower percentage of tangle net harvest since 2013 is the result of lower commercial allocations of spring Chinook impacts, which reduced opportunities to implement pre-update tangle net fisheries. Overall, tangle nets have been used extensively in mark-selective mainstem commercial spring Chinook fisheries, and have made a significant contribution to the ex-vessel value and economic viability of these fisheries (Table 3).

Table 2. Harvest of spring Chinook in mainstem non-treaty commercial fisheries, by gear, 2003-2018.			
Year	Tangle Net	Gill Net	% Tangle Net
2003	2,634	541	83%
2004	9,960	3,621	73%
2005	3,667	1,697	68%
2006	0	4,389	0%
2007	2,292	658	78%
2008	5,938	14	100%
2009	4,150	18	100%
2010	8,966	75	99%
2011	2,021	2,518	45%
2012	6,111	7	100%
2013	1,276	937	58%
2014	2,450	1,624	60%
2015	4,350	2,881	60%
2016	2,394	1,219	66%
2017 ¹	0	0	--
2018 ¹	0	0	--
2010-2012 Avg	5,699	867	87%
2013-2018 Avg	1,745	1,110	61%

¹No mainstem non-treaty commercial spring Chinook fishery took place in 2017 and 2018 because Oregon policy permitted a post-update mainstem fishery only if commercially allocated ESA impacts were not fully utilized in SAFE fisheries (no surplus impacts were available in 2017 and 2018), and Washington policy at the time did not allow a mainstem commercial spring Chinook fishery.

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Table 3. Comparison of landings and ex-vessel value to estimated harvest costs for the 2013-2016 spring mainstem commercial tangle net/gillnet fisheries.

Year	Days Fished	Avg # of Vessels ¹	Chinook Landed ²	Total Ex-Vessel Value	Costs			Net Fishery Return	Net Return/Vessel
					Annual	Daily	Total		
2013	4	75	2,213	\$202,405	\$49,692	\$44,700	\$94,392	\$108,013	\$1,450
2014	5	71	4,074	\$322,675	\$47,090	\$52,950	\$100,040	\$222,634	\$3,153
2015	8	67	7,231	\$580,660	\$44,772	\$80,550	\$125,322	\$455,338	\$6,783
2016	6	65	3,613	\$415,641	\$43,355	\$58,500	\$101,855	\$313,786	\$4,827
Avg	6	69	4,283	\$380,345	\$46,227	\$59,175	\$105,402	\$274,943	\$4,054

¹ Average number of vessels fishing during the season. Approximated using average number of deliveries per day.
² Includes adults and jacks.

Issue 3: Allocation of Upriver spring Chinook within recreational fisheries

Analysis Results:

Tables 4A-E portray the modelled change in Upriver spring Chinook mortalities (4A), open retention days (4B), angler trips (4C), kept catch (4D), and allocated ESA impacts (4E) based on various Upriver spring Chinook impact allocation scenarios within each of the recreational spring Chinook fisheries (below Bonneville Dam, Bonneville to the OR/WA border, and the Snake River). For simplicity, all results are based on 2018 preseason fishery planning models (below Bonneville and Bonn-OR/WA State line) and 2018 fishery data (Snake River). Allocations described in these tables refer to below Bonneville Dam/Bonneville Dam upstream to the Oregon/Washington State line/Snake River percentages. These results are based on Alternative 1 (65%/15%/20%), Alternative 2 (85%/5%/10%), and Alternative 3 (Status Quo plus 500 fish) under Issue 3.

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Table 4A. Pre-season allocation of Upriver spring Chinook Catch Balance (kept + release mortalities) for hypothetical 2018 Columbia River spring Chinook recreational fisheries below Bonneville Dam, from Bonneville Dam to the OR-WA state line, and in the Snake River at different recreational fishery sub-allocation shares, given an overall allocation of 70% recreational and 30% commercial for ESA impacts.¹

Below BON/BON-State Line/Snake Sharing (%)	<BON	BON-S/L	Snake
65/15/20	6,096	1,407	1,206
75/10/15 (status quo)	6,907	921	888
85/5/10	7,689	452	581
Status Quo w/500 Fish Transfer from <BON to Snake ²	6,407	921	1,388

¹ Sharing of Upriver spring Chinook is based on ESA impacts; Catch Balance shares are similar, but not the same due to differential impact rates on different stocks by the recreational fisheries. Catch Balances are typically the limiting factor for the spring Chinook recreational fishery, and were calculated on a pre-update buffered Upriver run size of 116,690. All scenarios remain within recreational ESA impact limits.

² The intent of this alternative is to transfer 500 Upriver CHS mortalities from the pre-update Below Bonneville fishery's status quo allocation to the post-update Snake River fishery's status quo allocation. Although increasing the Snake allocation by 500 fish will increase the total ESA impacts used by the recreational fishery, they will still fit within the allowable limit for the season.

Table 4B. Difference in pre-update fishing days (starting March 1) compared to status quo.

Below BON/BON-State Line/Snake Sharing (%)	<BON	BON-S/L	Snake
65/15/20	-1	6	5
75/10/15 (status quo)	0	0	0
85/5/10	1	-6	-5
Status Quo w/500 Fish Transfer from <BON to Snake	-1	0	8

Table 4C. Difference in pre-update angler trips (starting March 1) compared to status quo.

Below BON/BON-State Line/Snake Sharing (%)	<BON	BON-S/L	Snake
65/15/20	-5,272	1,230	490
75/10/15 (status quo)	0	0	0
85/5/10	5,272	-1,230	-490
Status Quo w/500 Fish Transfer from <BON to Snake	-5,272	0	784

Table 4D. Difference in pre-update kept catch (starting March 1) compared to status quo.

Below BON/BON-State Line/Snake Sharing (%)	<BON	BON-S/L	Snake
65/15/20	-873	484	305
75/10/15 (status quo)	0	0	0
85/5/10	873	-459	-294
Status Quo w/500 Fish Transfer from <BON to Snake	-873	0	480

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Below BON/BON-State Line/Snake Sharing (%)	<BON	BON-S/L	Snake
65/15/20	-0.113%	0.057%	0.057%
75/10/15 (status quo)	0.000%	0.000%	0.000%
85/5/10	0.113%	-0.057%	-0.057%
Status Quo w/500 Fish Transfer from <BON to Snake	-0.061%	0.000%	0.096%

Issue 4: Provide improved season stability for Upriver spring Chinook recreational fisheries

Option 3: Apply buffer only to fisheries below Bonneville Dam

Analysis Results:

Since the available allocation by area is partly driven by run size, this concept would increase Upriver spring Chinook mortalities available to recreational fisheries upstream of Bonneville Dam prior to the run update. As a result, the recreational fishery downstream of Bonneville Dam would need to be managed to a larger run buffer prior to a run update in order to maintain the mandatory collective 30% buffer provision in the *U.S. v OR Management Agreement*. This would result in a shorter recreational season below Bonneville Dam prior to the run update, and the potential for a longer pre-update fishery in the mainstem Columbia River above Bonneville Dam. If this were to be instituted, it would increase the risk of the Zone 6 fishery exceeding its portion of the above Bonneville allocation, resulting in a possible fishery closure within other areas, including the Snake River. Excluding the increased risk by the Zone 6 fishery exceeding its allocation, the Snake River fishery would not likely be affected since the fishery is typically managed to the actual run-size due to later timing unless the above Bonneville allocation used.

Option 4: Establish a set season above Bonneville Dam

Analysis Results:

Although this approach would in theory provide more season stability, adopting seasons without consideration of the annual run size is not done in most Oregon and Washington salmon fisheries, including the mainstem Columbia River. Fixed seasons above Bonneville Dam would increase the likelihood of fisheries exceeding their allocation of available impacts, which could negatively affect post-update fisheries in other areas, and potentially exceed available recreational shares in the event of a significant run downgrade, triggering effects on commercial fisheries. Variation in annual migration timing makes it difficult to offer consistent dates for fishing in the Snake River that will occur during times when the fish are present and attractive to anglers. Snake River fisheries are structured around when the fish arrive in the Snake River to ensure that anglers will have meaningful harvest opportunity and the fishery is not extended over a protracted period of time to prevent over-expenditure of a limited creel survey budget. Estimating catch and release numbers for this fishery is required under the *U.S. v OR Management Agreement*. Fishery days cannot be offered without fishery monitoring. Lastly, if the risk of exceeding the above Bonneville allocations are properly accounted for, the set seasons might be quite small and would even then need to be

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cancelled or adjusted if the run size did not materialize as to forecasted level, so as to accomplish the conservation goals in place; thus season stability could not be assured even with a “set” season.

Option 8: No lower river extension beyond pre-season plan

Analysis Results:

Proponents of this option intended for no fishery extension in the lower river prior to a run update. This concept would have no impact on recreational fishery allocation for below and above Bonneville Dam, but could affect how much of the lower river pre-update allocation is used, depending on how it was implemented. Spring Chinook fisheries are typically managed in-season based on area-specific sub-allocations. Prior to the run-update, each fishery is generally allowed access to its impact share which is then adjusted after the run-update. If mainstem Columbia River fisheries (below and above Bonneville Dam) have not reached their allocation by the end of the fishery planned preseason, they are generally provided extensions. This concept would prohibit recreational season extensions below Bonneville which could result in fewer fish landed in the initial season, potentially providing a larger functional buffer in the event of a run-size downgrade. This could help prevent emergency closures for fisheries above Bonneville in years with a significant run downgrade. Stakeholders above Bonneville view this concept as a precautionary approach to ensure that exceeding the lower river allocation will not occur. However, not extending the lower river fishery to its pre-update allowable catch can result in the fishery not being able to access its allocation after the run-update (and prior to June 15) since the majority of the run has crossed Bonneville Dam, and may also result in not accessing the full non-treaty allocation. This has become more of an issue with later run timings observed in recent years. In response to these later returns, the agencies have managed the pre-update lower river fishery more conservatively in the early season, generally setting projected pre-update closure dates to be relatively early in the season. Once catches are assessed for the early portion of the fishery, decisions are made about adding additional days, generally in small amounts (1-3 days) to remain under the pre-update allowances. In the past, managers had frequently used a different approach, with either a less conservative (later) projected closure date, and in-season action was taken to close the fishery when it was projected to attain its allocation. If this past approach were used in the future, any benefits of this option would be negated.

Issue 5: Allocation of unused commercial impacts

Analysis Results:

This issue involves allocation of impacts from the commercial fishery that are not used during the season. The current OR and WA policies on this are different. No analytical results are provided at this time.