

Joint-State Columbia River Fishery Policy Review Committee
Narrative Descriptions and Analysis of Policy Issues, Alternatives under Consideration
SPRING CHINOOK
October 1, 2019

Description of Issues

Following is a listing of possible policy changes related to non-treaty fisheries as part of the review of Columbia River salmon and steelhead fishery management under consideration by the Joint-State Columbia River Fishery Policy Review Committee (PRC) process. Policy issues that have been introduced for active consideration during the process are listed below, together with a narrative description of status quo and identified potential alternatives from current status quo associated with that particular issue. The current status of PRC discussion and/or recommendation on each alternative is also shown, including rationale for any action taken to date to eliminate or de-prioritize an alternative from further consideration at this time.

Spring Chinook

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

This issue involves the allocation of Upriver spring Chinook impacts between recreational and non-treaty commercial fisheries. Allocation sharing applies to the fisheries occurring in concurrent Columbia River waters downstream of Highway 395 near Pasco, WA; the Snake River, and Select Areas. The allocations (% share) of Upriver spring Chinook are of the available ESA impact allowance for non-treaty fisheries, not total harvest.

The *U.S. v Oregon* Management Agreement specifies that fisheries occurring prior to an in-season run size update will be buffered by assuming a run size of 70% of the pre-season forecast. The buffer is intended to ensure that fisheries occurring prior to an in-season run size update do not exceed allowable ESA impacts in the event the run comes in below the pre-season forecast.

The *U.S. v Oregon* management agreement also specifies that non-treaty fisheries are to be managed to not catch more total Upriver spring Chinook than treaty fisheries are allowed to catch. This requirement for 'Catch-Balancing' applies to all fishery-related mortality in non-treaty fisheries (harvested fish plus released fish that subsequently die). This requirement is intended to ensure that non-treaty fisheries using mark-selective techniques do not harvest more Upriver spring Chinook than treaty fisheries are allowed to harvest. Staff accounts for these factors, as well as Commission allocation policies, in developing and implementing non-treaty fisheries.

- Status Quo
 - February PRC recommendation/Current WA policy
 - Catch sharing of spring Chinook between the recreational and commercial fishery is based on the allocation or sharing of impacts on ESA-listed Upriver spring Chinook allowed for non-treaty fisheries, with 70% provided to recreational and 30% to commercial.
 - Oregon has yet to formally act on the PRC recommendation of February 26, thus current allocation in Oregon remains at their 2013 long term policy of 80%/20% recreational/commercial allocation.

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- Alternative 1 (similar to 2011-2013)
 - Change the allocation of recreational/commercial to 60%/40%.
- Alternative 2
 - Use an abundance-based matrix for recreational/commercial allocation.
- Alternative 3
 - Change the allocation of recreational/commercial to 65%/35%.
- *Status of Consideration: All alternatives are active for further analysis.*

Issue 2: Allowable mainstem commercial gear

This issue involves establishing allowable commercial gear types for non-treaty commercial fisheries targeting spring Chinook in the mainstem Columbia River. Prior to 2002, large -mesh gill nets were the primary gear used in this fishery. Beginning in 2002, tangle nets (combined with other live-capture regulations) were implemented as a new gear to implement a mark-selective fishery and maximize harvest of hatchery spring Chinook. Both gear types were used for mark-selective fishing during 2002-2016 with large mesh gill nets primarily used early and/or late in the season when steelhead and/or shad were more abundant. Non-treaty commercial fisheries in the mainstem have not occurred since 2016 due to policy changes.

- Status Quo
 - February PRC Recommendation/Current WA Policy
 - Allowed mainstem gear types include tangle nets prior to the Upriver spring Chinook runsize update (pre-update) and tangle nets and gill nets post-update.
 - Oregon has yet to formally act on the PRC recommendation of February 26, and current policy in Oregon restricts commercial gear in mainstem areas to tangle nets for use after a run size update only.
- *Status of Consideration: Active for further analysis.*

Issue 3: Allocation of upriver spring Chinook within recreational fisheries

This issue involves the allocation between lower river (below Bonneville Dam) and upriver (Columbia River upstream of Bonneville Dam and the Snake River) recreational fisheries, and allocation within the upriver allocation between recreational fisheries in concurrent Oregon-Washington mainstem Columbia River waters and recreational fisheries in the Snake River in Washington. As with recreational and commercial allocations, the allocation here is of ESA impacts; *U.S. v Oregon* pre-season run size buffer and Catch-Balancing provisions apply.

When there are not enough harvestable fish available to support the desired fisheries, allocation conflicts can occur. This is the case with sharing of upriver spring Chinook within the recreational fisheries above and below Bonneville Dam. Prior to 2001, mainstem Columbia River spring Chinook fisheries only occurred in the lower river downstream of the Willamette River and primarily from January through the end of March. There were no fisheries upstream of the Willamette River. Beginning in 2001, several things happened including; a) the majority of hatchery spring Chinook were mass-marked, b) a new abundance-based harvest rate schedule was adopted; and c) a recent record

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high return of hatchery upriver spring Chinook to the Columbia River. As a result, spring Chinook fisheries were extended in time and area to provide additional opportunity, including some limited opportunity above Bonneville Dam. Beginning in 2002, fisheries above Bonneville expanded to include the area from Bonneville Dam to McNary Dam and the Snake River.

Since 2002, interest in spring Chinook fisheries has increased. Trying to balance meeting ESA goals and recreational fishery allocations can be challenging for fishery managers. The timing of the Upriver run over Bonneville has tended to be later than normal in several years since 2002, making it difficult to accurately estimate the run size in-season in a timely fashion.

- Status Quo (unchanged by the PRC Recommendation of February 26)
 - Sharing of spring Chinook between lower river and upriver recreational fisheries is based on the allocation of impacts on ESA-listed Upriver spring Chinook allowed for in non-treaty recreational fisheries, with 75% of that allocation currently provided for lower river fisheries and 25% provided to upriver fisheries.
 - Catch sharing of spring Chinook impacts between recreational fisheries from Bonneville Dam to the Oregon-Washington state line area are allocated 10% (40% of 25%) and recreational fisheries in the Snake River are currently allocated 15% (60% of 25%).
- Alternative 4
 - Change the allocation of ESA impacts for lower river/upriver fisheries from 75%/25% to 70%/30%
 - Alternative 4a. Change the allocation for fisheries between Bonneville Dam to the WA/OR State line and the Snake River to 12.5% (42%) and 17.5% (58%)
 - Alternative 4b. Change the allocation for fisheries between Bonneville Dam to the WA/OR State line and the Snake River to 10% (33%) and 20% (67%)
- *Status of Consideration: Active for further analysis.*

Issue 5: Allocation of unused commercial impacts

This issue involves allocation of impacts from the commercial fishery that are not used during the season.

- Status Quo
 - The two states have different policies/rules regarding the use of unused non-treaty commercial spring Chinook allocation.
- Alternative 1
 - OR Policy: apply unused non-treaty commercial allocation to escapement.
- Alternative 2
 - WA policy: no restrictions on unused allocation (can be applied to escapement or upriver recreational fisheries).
- *Status of Consideration: Active for further analysis.*

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Results

Following are the analysis results associated with possible policy changes for spring Chinook fisheries as part of the 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 October 1, 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 mainstem commercial ex-vessel value for four different Upriver spring Chinook non-treaty sport/commercial allocation sharing scenarios; 70%/30% (Current PRC recommendation/WA status quo), 80%/20% (OR status quo), 60%/40% (Alternative 1), and 65%/35% (Alternative 3). 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.

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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.

Spring Chinook Issue-Alternative Combination ¹	Allocation % (sport/commercial)	Allowable Mainstem Commercial Gear	Economic Metrics ²	
			Sport Angler Trips ³	Commercial Ex-Vessel Value
PRC rec-WA Status Quo/Issue 2 PRC	70/30	Pre TN/Post TN/GN ⁵	115,469	\$313,257
OR Status Quo/Issue 2 Alt 1	80/20	Post TN ⁴	115,469	\$95,714
Alt 1/Issue 2 PRC	60/40	Pre TN/Post TN/GN ⁵	109,138	\$504,851
Alt 2 - Abundance Based Matrix	NA	NA	NA	NA
Alt 3/Issue 2 PRC	65/35	Pre TN/Post TN/GN ⁵	112,303	\$409,054

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 mainstem 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 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

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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.

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).

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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 sub-allocation 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 4a (70%/12.5%/17.5%) and Alternative 4b (70%/10%/20%).

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

Below BON/BON-State Line/Snake Sharing (%)	<BON	BON-S/L	Snake
75/10/15 (status quo)	6,907	921	888
70/12.5/17.5	6,505	1,162	1,045
70/10/20	6,565	938	1,206

¹ Sharing of upriver spring Chinook is based on ESA impacts; catch balance shares are similar, but not exactly the same due to differential impact rates on different stocks by the various sport fisheries. Catch balances are typically the limiting factor for the spring Chinook sport fishery, and were calculated in the 2018 pre-season model based on a pre-update buffered upriver run size of 116,690. The difference in total recreational upriver mortalities between options is due to the transfer of some mortalities to the Wanapum tribal fishery.

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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
75/10/15 (status quo)	0	0	0
70/12.5/17.5	-1	3	2
70/10/20	-1	0	5

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
75/10/15 (status quo)	0	0	0
70/12.5/17.5	-5,272	615	196
70/10/20	-5,272	0	490

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
75/10/15 (status quo)	0	0	0
70/12.5/17.5	-873	242	122
70/10/20	-873	0	305

Table 4E. Difference in pre-update allocated ESA impacts compared to status quo.			
Below BON/BON-State Line/Snake Sharing (%)	<BON	BON-S/L	Snake
75/10/15 (status quo)	0.000%	0.000%	0.000%
70/12.5/17.5	-0.057%	0.028%	0.029%
70/10/20	-0.057%	0.000%	0.057%

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. Results will be provided in a separate document.