

**Joint-State Columbia River Fishery Policy Review Committee**  
Narrative Descriptions and Analysis of Policy Issues, Alternatives and Options  
**SPRING CHINOOK – Issue 5: Allocation of unused commercial impacts for spring Chinook**  
*October 22, 2019*

**Description of Issue 5: Allocation of unused commercial impacts for spring Chinook**

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*

Unused impacts are defined as those impacts that are allowable under the ESA or *U.S v Oregon* guidelines but have not been fully utilized by the fisheries. These are unmarked mortalities that were expected to occur in fisheries and are within the conservation constraints of the state and federal agencies.

**Results**

This issue involves how to assign unused ESA impacts from the commercial fishery. Table 1 shows that in five of eight years during 2010-2017, the commercial fishery did not have any unused Upriver spring Chinook impacts. During 2015 and 2016, the adaptive management and additional commercial opportunity provisions outlined in policy/rule were utilized to provide additional commercial harvest once objectives for recreational fisheries were projected to be met. In general, the commercial fishery does not typically have unused impacts, but the sport fishery does for reasons described below.

Staff have provided two examples of estimated changes to escapement based on unused ESA impacts in spring Chinook fisheries. Example 1 is based on actual results since policy changes were enacted in 2013. Results in Example 2 were developed in 2012 to summarize expected savings resulting from potential Policy changes. In either case, some additional mortality of these fish would occur in upstream fisheries (tribal fisheries and tributary sport fisheries) and inter-dam passage loss.

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**Table 1. Percent of Upriver spring Chinook ESA impact utilized in non-treaty fisheries downstream of McNary Dam.**

	Recreational			Commercial		
	Allowed Impacts	Actual Impacts	% of Allowed	Allowed Impacts	Actual Impacts	% of Allowed
2010	1.10%	1.02%	93%	0.99%	0.87%	87%
2011	1.20%	0.80%	67%	0.70%	0.67%	95%
2012	1.14%	0.83%	73%	0.67%	0.52%	79%
2013	1.02%	0.77%	75%	0.60%	0.62%	104%
2014	1.40%	1.09%	77%	0.60%	0.61%	102%
2015	1.54%	0.91%	59%	0.66%	1.02%	155%
2016	1.33%	0.94%	71%	0.57%	0.76%	133%
2017*	1.20%	0.71%	60%	0.30%	0.40%	133%
Average 2010-2012			78%			87%
Average 2013-2017			68%			126%

\*No mainstem commercial fishing occurred in 2017.

**Example 1**

WDFW staff provided information to the Washington Fish and Wildlife Commission during their 2018 Policy review process focused on unused ESA impacts for Upriver spring Chinook. In addition, during the 2012 two-state policy/reform development process, an analysis was conducted by the two agencies regarding this same issue. Shown below are the results from those two analyses.

Information Provided to the Washington Fish and Wildlife Commission in 2018

Beginning in 2010, modifications to spring Chinook fishery management were implemented, which required non-treaty fisheries to meet the Catch Balance provisions in the *U.S. v Oregon* Management Agreement for Upriver spring Chinook. In building the 2008-2017 *U.S. v Oregon* Management Agreement, certain assumptions had to be made about how many fish would be harvested in treaty and non-treaty fisheries at varying ESA limits. For non-treaty fisheries, these assumptions included several parameters associated with use of mark-selective fishing in the commercial and recreational fisheries, in particular the mark rate, post-release mortality rates (including different rates for different commercial gears), that have a relatively strong effect on how many hatchery fish can be harvested with a given allowable ESA rate. As the Management Agreement was implemented, it became apparent that non-treaty fisheries being implemented were somewhat more efficient in converting impacts to harvestable fish than had been anticipated, and thus, non-treaty fisheries were able to harvest more fish than were treaty fisheries, at a given run size. Because this situation was contrary to the expectations of

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the Parties to *U.S. v Oregon*, the Parties agreed upon modifications to the agreement to implement specific ‘catch balancing’ provisions, which are described below.

In addition to continuing to remain below ESA impacts (as under prior agreements), under these new provisions, non-treaty fisheries must be managed so that total mortalities (kept and release mortalities) in mainstem non-treaty fisheries do not exceed the total allowable catch available for treaty fisheries. This is referred to as “Catch Balance.” Under this provision, non-treaty fisheries are likely to reach their catch balancing limits before reaching their ESA limits, and the effect on the sport fishery is, in general, more sensitive to this difference than is the effect on the mainstem commercial fishery.

Prior to implementation of the Policy (2010-2012), an average of 22% of the sport fishery ESA allocation was not used (Table 1). When the Policy was implemented (2013-2017), a greater proportion of the non-treaty allocation was shifted from the commercial fishery to the sport fishery, from 60% in 2012 to 80% in 2017. The unused impacts in the sport fishery during 2013-2017 increased from 22% to 27% of the total sport allocation, primarily due to the allocation shift itself but also due to the higher ratio of hatchery fish retained per wild mortality in the sport fishery (the source of the ‘sensitivity’ described above). This higher ratio is due to the difference in gear mortality rates (10% hook-and-line vs 14.7% tangle net or 40% for gill net), which results in fewer wild fish impacts being accrued prior to the catch reaching the catch balance limit.

**Table 2. Unused ESA impacts for Upriver spring Chinook in non-treaty sport fisheries.**

Year	Unused Sport Impact	% of Total Sport Impact Unused
2010	0.08%	7%
2011	0.40%	33%
2012	0.31%	27%
2013	0.25%	25%
2014	0.32%	23%
2015	0.63%	41%
2016	0.39%	29%
2017	0.20%	17%
Average 2010-2012	0.26%	22%
Average 2013-2017	0.36%	27%

The creation of unused ESA impacts can be associated with catch balance, allocation shifts, management error, or management decisions, therefore, conservation benefit of unused

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**SPRING CHINOOK – Issue 5: Allocation of unused commercial impacts for spring Chinook**  
*October 22, 2019*

allocation can be associated with several factors. It is not possible to quantify how much is associated with each source, however; an example of a potential analysis was completed.

For this exercise, it was assumed that the additional unused impact savings related to the Policy allocation shift was the difference between the average percent of the allocation unused prior to the policy (22%) versus the average percent of the allocation unused during the policy (27%), in other words all change was attributable to the Policy. This is a difference of 5% of the ESA impacts. Applying 5% of the 2013-2017 average impacts unused in 2013-2017 (0.36%) equates to 0.018% of unused ESA impacts (Table 2). Applying this impact rate (0.018%) to the ESA-listed populations result in increased fishery escapement of 1-8 Snake River Wild spring Chinook and increased fishery escapement of 0.6-1 Upper Columbia River Wild spring Chinook.

Table 2 shows unused ESA impacts from the commercial fishery from 2010-2017. Prior to implementation of the Policy (2010-2012), an average of 13% of the commercial fishery ESA allocation was unused (Table 3). The unused impacts in the commercial fishery during 2013-2017 decreased from 13% to -26% of the total commercial allocation. However, during 2015-2016, unused ESA impacts from the sport fishery were shifted to the commercial fishery, and more of the commercial catch occurred using gill nets because it was occurring late in the spring season, using the adaptive management provision of the Policy. This means during 2013-2017, the commercial fishery used more ESA impacts than what was allocated preseason, although for 2015-2016 the shift was a management decision, and in 2013-2014, the percent was small.

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 Narrative Descriptions and Analysis of Policy Issues, Alternatives and Options  
**SPRING CHINOOK – Issue 5: Allocation of unused commercial impacts for spring Chinook**  
*October 22, 2019*

**Table 3. Unused ESA Impacts for Upriver Spring Chinook for Non-Treaty Commercial Fisheries.\***

<b>Year</b>	<b>Unused Comm Impacts</b>	<b>% of Total Comm Impact Unused</b>
2010	0.12%	13%
2011	0.03%	5%
2012	0.14%	21%
2013	-0.03%	-4%
2014	-0.01%	-2%
2015	-0.36%	-55%
2016	-0.19%	-33%
2017	-0.10%	-33%
Average 2010-2012	0.10%	13%
Average 2013-2017	-0.14%	-26%

*\* Negative values indicate that the commercial fishery used impacts allocated to sport fisheries.*

**Summary of Example 1**

During 2013-2017, the commercial fishery did not have any unused Upriver spring Chinook ESA impacts, and were provided some of the unused sport fishery allocation to prosecute additional fishing opportunity under the Policy. The sport fishery averaged about 27% of their impacts unused during the same time frame, some of which was allocated to the commercial fishery. Applying all of the unused sport fishery impacts (not including those transferred to commercial fisheries) to escapement would equate to about 1-8 Snake River Wild spring Chinook and a savings of 0.6-1 Upper Columbia River Wild spring Chinook, based on the assumptions referenced above.

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**Example 2**

The following information was included in “Management Strategies for Columbia River Recreational and Commercial Fisheries: 2013 and Beyond” (Appendix F). This report was developed by staff for the participants in the policy and harvest reform workgroup in 2012.

Table F1 below shows modeled estimates of the amount of unused Upriver spring Chinook ESA impacts under four allocation scenarios for non-tribal mainstem Columbia River recreational and commercial fisheries. The table also shows the number of marked and unmarked fish that would be expected to escape mainstem non-tribal fisheries given the unused ESA impacts.

Scenario	ESA Management Guideline (% Recreational Fishery Share)	U.S. v. Oregon Management Guideline (% Recreational Fishery Share)	Number of Marked Fish Kept	Number of Unmarked Fish Killed	Percent of U.S. v. Oregon Management Guideline Used	Unused ESA Impacts	Number of Fish that Escape Mainstem Non-Tribal Fisheries, Given the Unused ESA Impacts	
							Marked fish	Unmarked fish
Recreational = 60% <sup>a</sup> Commercial = 40% <sup>a</sup>	27,765 (70.6%)	22,500 (70.6%)	19,846	950	92.4% <sup>b</sup>	0.266% <sup>c</sup>	3,977	132
Recreational = 65% <sup>d</sup> Commercial = 35% <sup>d</sup>	28,194 (75.3%)	22,500 (75.3%)	20,452	928	95.0% <sup>b</sup>	0.301% <sup>c</sup>	4,532	151
Recreational = 70% Commercial = 30%	27,644 (82.7%)	22,500 (82.7%)	20,495	924	95.2% <sup>b</sup>	0.303% <sup>c</sup>	4,543	151
Recreational = 80% Commercial = 20%	27,034 (96.7%)	22,500 (96.7%)	21,593	907	100.0%	0.323% <sup>c</sup>	4,841	161

<sup>a</sup> This scenario is the “base case” under the current policy of the Oregon Fish and Wildlife Commission.

<sup>b</sup> The mainstem commercial fishery cannot use all its share of the US v Oregon Management Guideline because it runs out of ESA impacts.

<sup>c</sup> all unused ESA-impacts come from the recreational fishery

<sup>d</sup> This scenario is the “base case” under the current policy of the Washington Fish and Wildlife Commission.

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**SPRING CHINOOK – Issue 5: Allocation of unused commercial impacts for spring Chinook**  
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Summary of Example 2

The analysis above is based on the harvest reform strategies that were modeled preceding the policies/rules adopted by the two states in 2013. Based on this modeling exercise, the number of unmarked fish that would have escaped fisheries from unused ESA impacts ranged from 132-161. During 2013-2018, the Snake River Wild spring Chinook averaged 12.7% of the Upriver spring Chinook and Upper Columbia Wild spring Chinook averaged 2.4% of the Upriver run. Applying these proportions to the modeled unused fish would equate to a savings of 17-20 Snake River Wild and 3-4 Upper Columbia Wild spring Chinook.

This hypothetical analysis assumed full prosecution of both recreational and commercial fisheries within the Commission allocations and *U.S v. Oregon* management guidelines, as well as no transfer of unused impacts from sport to commercial. As described above, modelled hatchery removals and wild fish savings may not be realized due to other issues affecting prosecution of the fisheries.