



# COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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## MEMORANDUM

TO: Technical Management Team members  
FROM: Kyle Dittmer, *Hydrologist-Meteorologist*, Dept. Fish Management  
DATE: October 23, 2019  
RE: Summary of Pool Operations – 2019 Fall Season Treaty Fishery

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CRITFC submitted one System Operation Request (2019-C2) to the U.S. Army Corps of Engineers to support 2019 fall season treaty fishing. CRITFC requested criteria: (1) 1.5-foot elevation bands, as a hard constraint, and (2) stable pool elevations during each week of treaty fishing. The Corps committed to a 1.5-foot range hard constraint. The Corps was 100% compliant at the 1.5-foot range and near or at 100% at the 1-foot range (i.e., former CRITFC criteria) as summarized in the table below.

<b>2019</b>			
1 foot range:	Bonneville Pool	The Dalles Pool	John Day pool
AUG 26 - 28	100%	100%	100%
SEPT 2 - 5	100%	100%	100%
SEPT 9 - 12	96%	100%	99%
SEPT 16 -19	100%	100%	100%
SEPT 23 - 26	100%	100%	100%
OCT 3 - 5	100%	100%	100%
average:	<b>99%</b>	<b>100%</b>	<b>100%</b>
2018 fall season average:	100%	100%	100%
1.5 foot range:	Bonneville Pool	The Dalles Pool	John Day pool
AUG 26 - OCT 5	100%	100%	100%
2018 fall season average:	100%	100%	100%

Graphical pool elevation data show pool fluctuations – Figures 1 and 2. The Bonneville pool had 0.2 – 1.2 foot swings (compared to 0.4 – 0.8 foot swings in autumn 2018). The Dalles pool had 0.2 – 0.8 foot swings (compared to 0.3 – 1.0 foot swings in autumn 2018). John Day pool had 0.2 – 0.9 foot swings (compared to 0.2 – 0.7 foot swings in autumn 2018).

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There has been interest expressed by the tribal fishers and Commissioners as to the amount of pool elevation bounce during the treaty fishery periods vs. non-fishing periods that occurred during the late summer/autumn season. One way to objectively quantify the variability in the elevation bounce is to use the statistical metric *standard deviation* (SD). SD measures the departure of data points from the mean of the sampled data. A low SD value indicates less bounce as compared to a high SD which shows higher variation and swings.

Using the observed pool elevation data that is collected each fishing season, the SD was computed for the days/hours of the treaty fishery and for the days/hours leading up to the first fishery, the interim days/times, and the days following the last fishery. Results for the fall 2019 season are shown below in the table:

<b>FALL 2019</b>					
Standard Deviation					
Treaty-fishing:	John Day		The Dalles		Bonneville
AUG 26 - 28	0.249		0.211		0.152
SEPT 2 - 5	0.121		0.209		0.187
SEPT 9 - 12	0.211		0.179		0.285
SEPT 16 -19	0.170		0.152		0.294
SEPT 23 - 26	0.171		0.148		0.124
OCT 3 - 5	0.114		0.179		0.143
average:	<b>0.172</b>		<b>0.180</b>		<b>0.198</b>
Regular operations:					
AUG 24 - 26	0.110		0.208		0.144
AUG 28 - SEPT 5	0.174		0.190		0.324
SEPT 5 - 9	0.274		0.168		0.883
SEPT 12 - 16	0.132		0.169		0.311
SEPT 19 - 23	0.104		0.116		0.551
SEPT 26 - OCT 3	0.175		0.259		0.508
OCT 5 - 7	0.083		0.079		0.110
average:	<b>0.150</b>		<b>0.170</b>		<b>0.404</b>
Percent change:	15%		6%		-51%

It interesting to note: (1) The SD showed minor-to-moderate increases at JDA and TDA dams, but substantial decrease at BON dam for the treaty fisheries vs. the regular operations, which suggests that the BON pool elevation bounces are less during the treaty fishing days/times, (2) The percent change reflects the 2019 hydro-system conditions: adequate regional power supplies, no major power emergencies, and very few daily heat spikes (driven by high air temperatures) during the summer/early autumn season of 2019. This year was an *excellent* fishing season – tribes appreciate the efforts by COE/BPA staff and thank them to keep the lower Columbia pools in a stable condition during these short treaty fishing periods.

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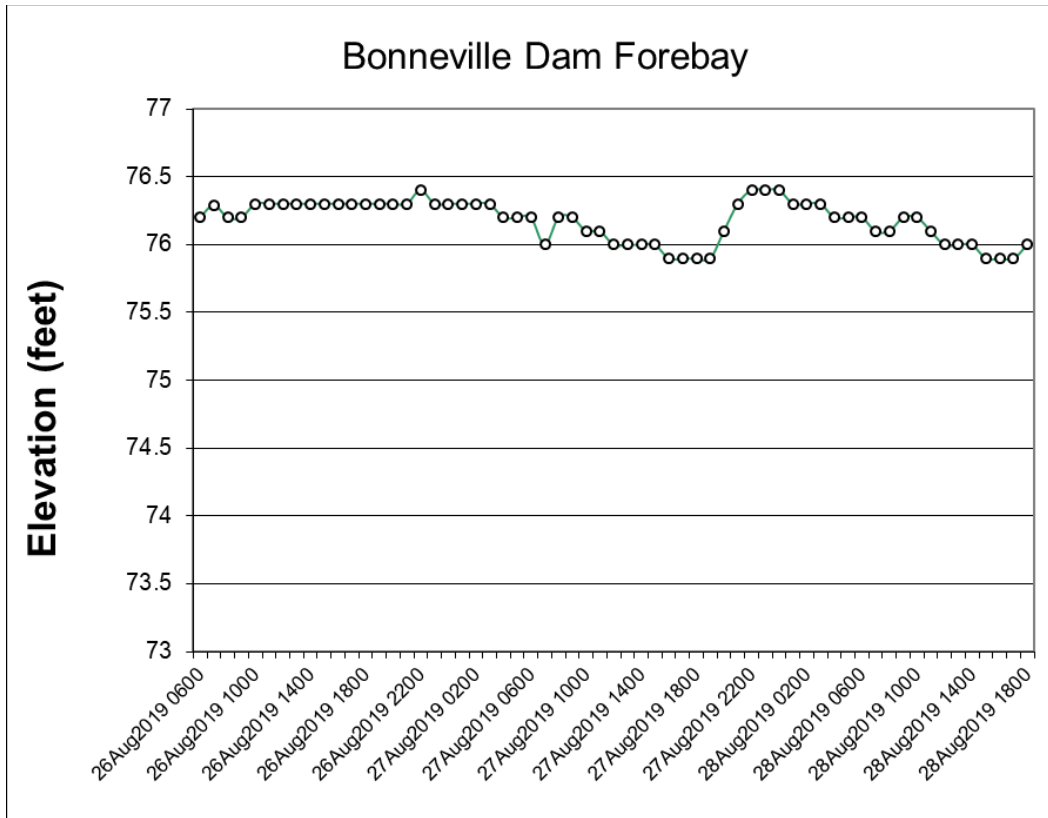


Figure 1. Observed BON pool elevations during August 26 - 28, 2019 fall season treaty fishing.

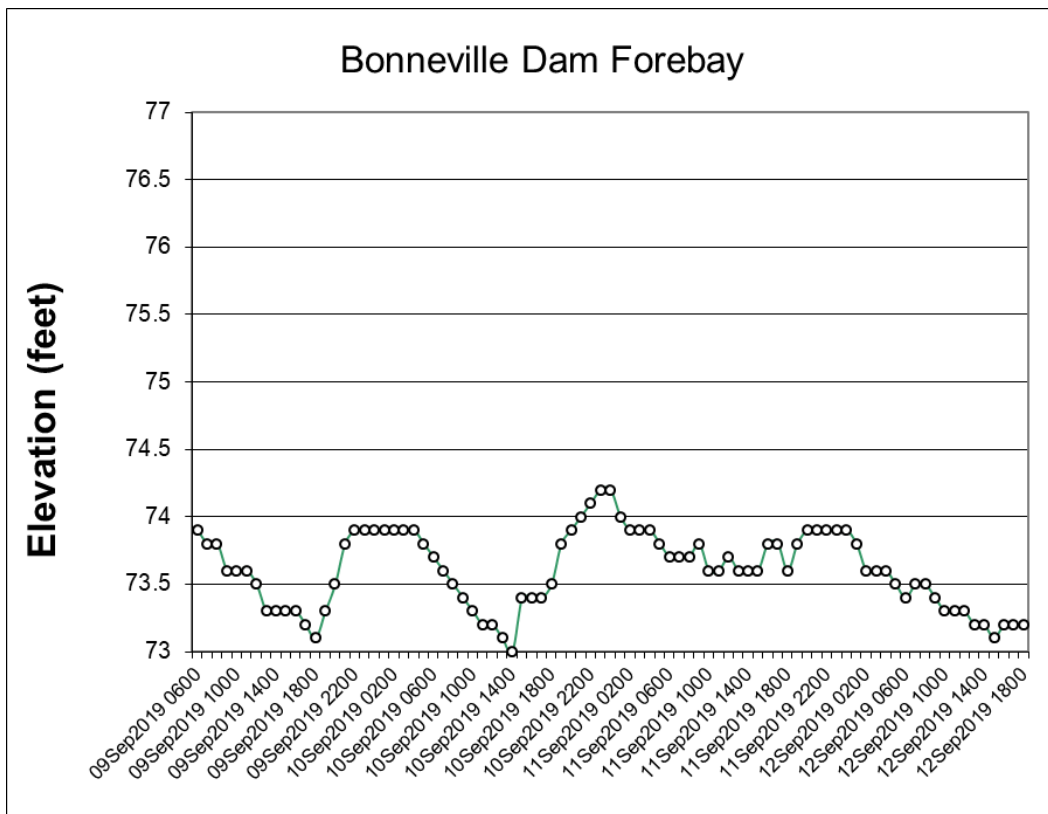


Figure 2. Observed BON pool elevations during September 9 - 12, 2019 fall season treaty fishing.