



Grant County
PUBLIC UTILITY DISTRICT
Excellence in Service and Leadership

Fall Chinook Work Group

Tuesday, 8 October 2019

Grant PUD (USBOR Building)

Ephrata, WA

Technical members

Paul Wagner/Claire McGrath, NMFS	Joe Skalicky/Don Anglin, USFWS
Jeff Fryer, CRITFC	Paul Ward, YN
Holly Harwood, BPA	Brett Swift, American Rivers
Tom Kahler, DPUD	Steve Hemstrom, CPUD
Bill Tweit, WDFW	Paul Hoffarth, WDFW
Breean Zimmerman, WDOE	Dani Evenson, ADFG
Peter Graf, GPUD	Todd Pearsons, GPUD

Attendees:

Peter Graf, GPUD	Claire McGrath, NMFS (phone)
Paul Hoffarth, WDFW (phone)	Paul Wagner, NMFS (phone)
Ryan Harnish, PNNL (phone)	Tom Kahler, DPUD
Jeff Fryer, CRITFC	Rod O'Connor, GPUD (phone)
Dani Evenson, ADFG (phone)	Scott Bettin, BPA (phone)
Tracy Hillman, Facilitator	

Action Items:

1. Peter Graf will provide updates on the HRFCPPA Periods and Flow Constraints.
2. FCWG members will review the draft 2019 HRFCPPA Report and provide edits/comments to Peter Graf by Friday, 1 November 2019.
3. Peter Graf will work with Grant PUD administrative staff on uploading FCWG/HRWG documents to the Grant PUD website.

Meeting Minutes

- I. **Welcome and Introductions** – Tracy Hillman welcomed attendees to the meeting. Attendees introduced themselves.
- II. **Agenda Review** – The agenda was reviewed and approved with the addition of a discussion on US v OR versus Hanford Reach Fall Chinook Harvest Management Agreement.
- III. **Review of Action Items** - Action items identified during the 30 April 2019 meeting were discussed.
 - Peter Graf will provide updates on the HRF CPPA Periods and Flow Constraints. **Ongoing. Peter continues to provide updates on protection periods and flow constraints.**
 - Peter Graf will work with Grant PUD administrative staff on uploading FCWG/HRWG documents to the Grant PUD website or to a SharePoint site. **Ongoing. Peter is looking into uploading documents onto the Grant PUD website.**

IV. HRWG Activities

2018-2019 Protection Program Draft Annual Report – Peter Graf said the draft report was distributed to the FCWG/HRWG on Monday, 1 October 2019. Members have a 30-day review period. Thus, comments are due to Peter on 1 November 2019.

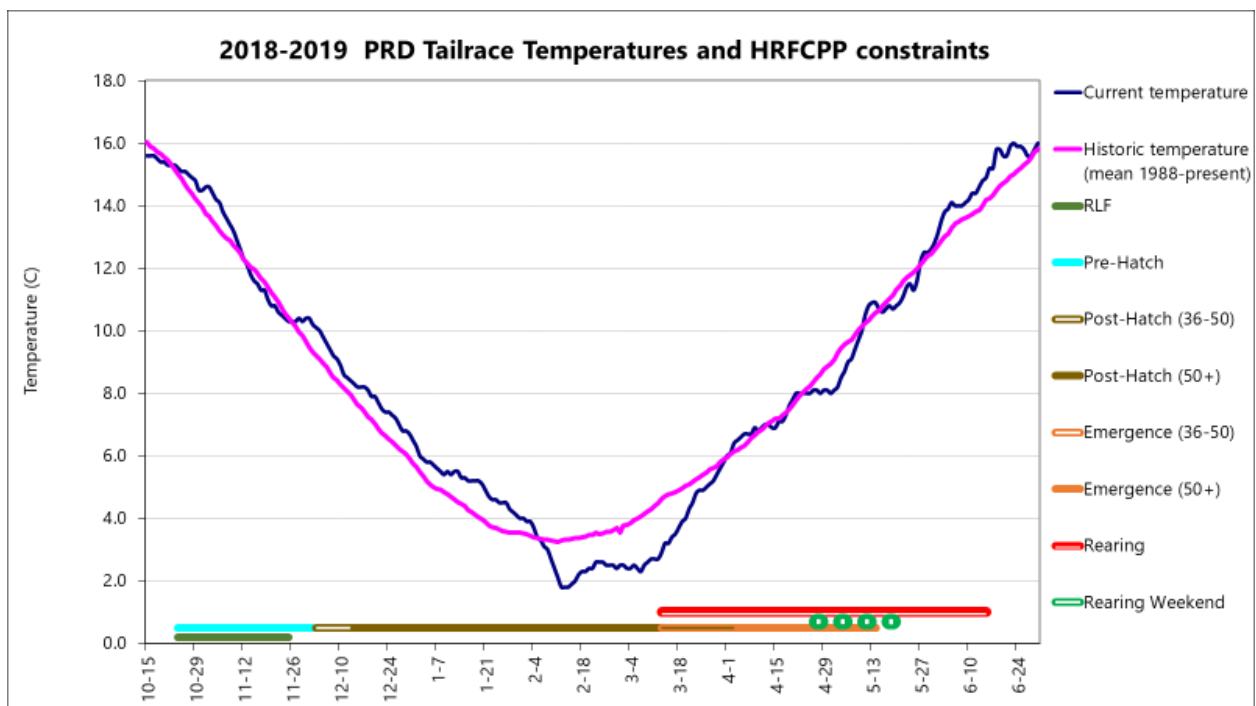
Peter explained that the draft report is similar to past reports and focuses on flow constraints and spawning on Vernita Bar, while the Priest Rapids Hatchery M&E report provides biological information. He said the draft Priest Rapids Hatchery M&E report should be available soon. Peter then gave a brief overview of information and results contained in the draft 2018-2019 Protection Program report.

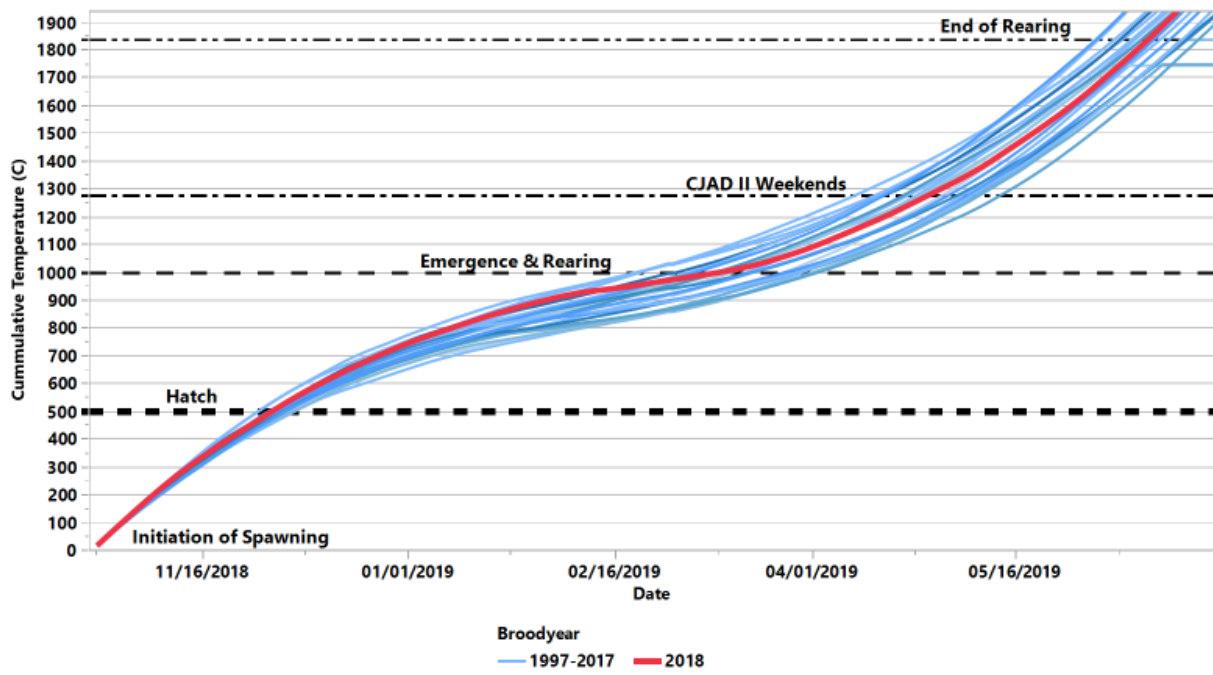
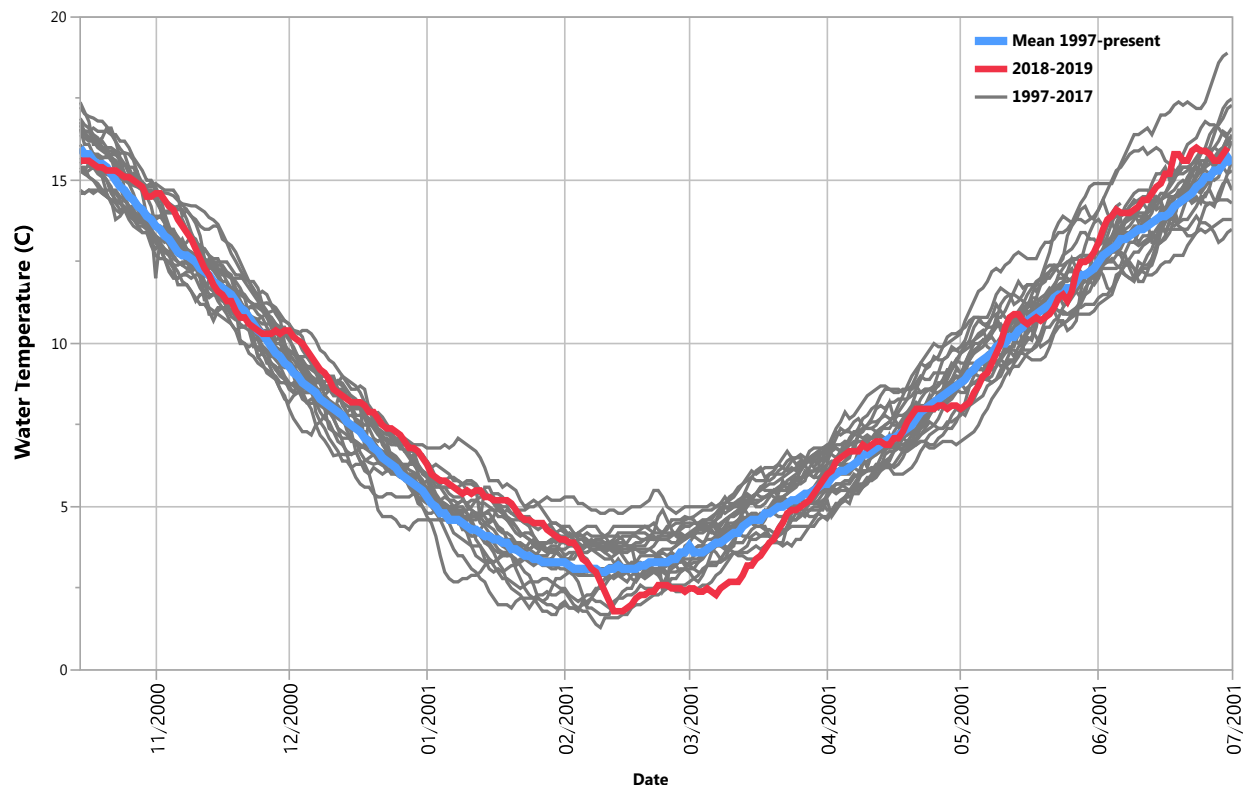
As an overview, Peter provided the following table showing the protection periods and primary flow constraints. Importantly, all flow targets and constraints were met.

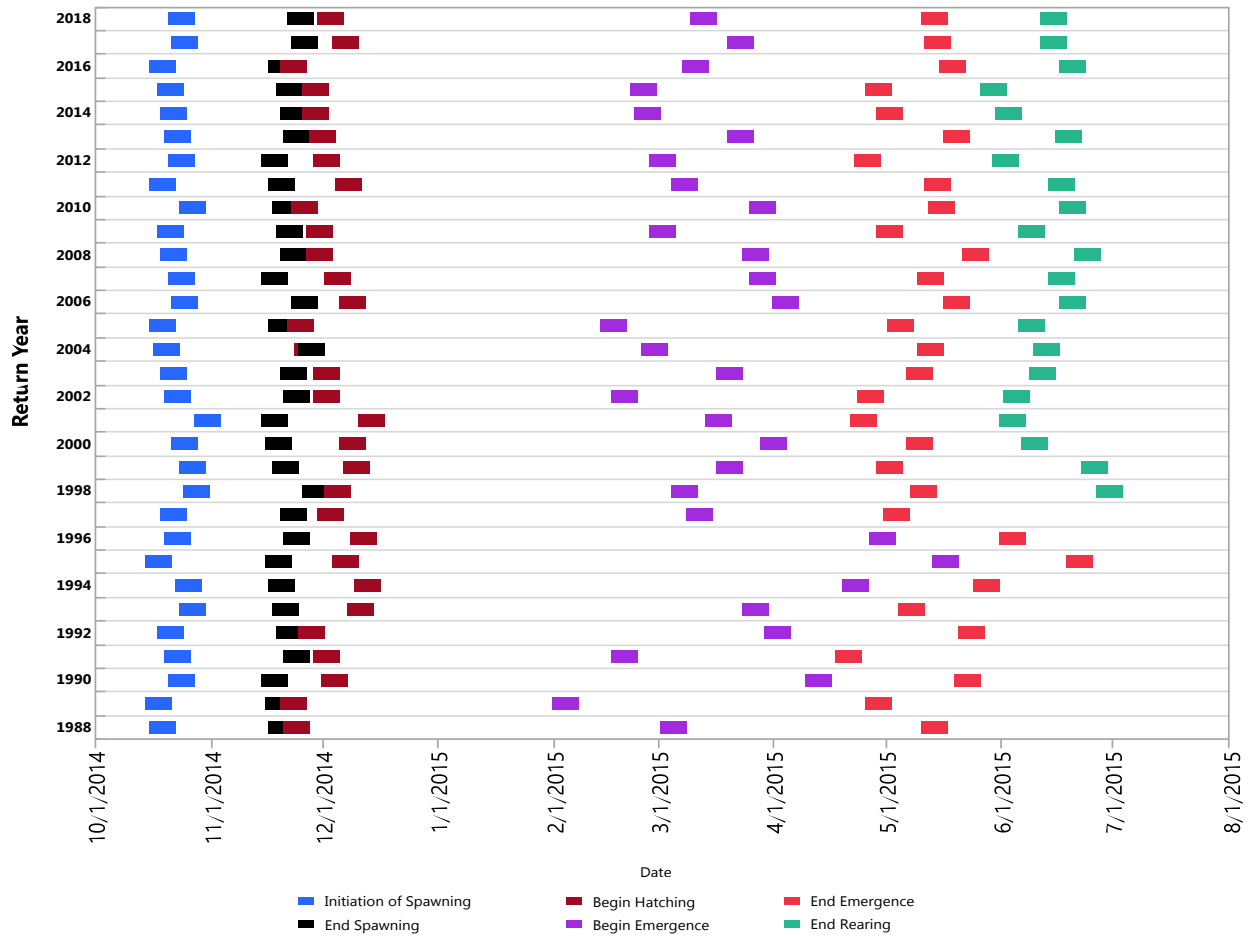
2018-2019 Protection Season Periods

HRFCPPA Period	Begin	End	Primary Flow Constraint
Spawning Period	10/24/2018	11/25/2018	• 55 – 70 kcfs during daylight hours.
Pre-Hatch Period (above and below 50 kcfs)	10/24/2018	12/2/2018	• No less than 36 kcfs for 8 hours on weekdays and 12 hours on weekends, no two consecutive periods.
Post-Hatch Period (below 50 kcfs)	12/3/2018	12/13/2018	• No less than 15 cm below the 50 kcfs elevation.
Post-Hatch Period (above 50 kcfs)	12/14/2018	3/8/2019	• No less than 15 cm below the Critical Elevation (65 kcfs).
Emergence Period	3/13/2019	5/14/2019	• No less than the Critical Elevation (65 kcfs).
Rearing Period	3/13/2019	6/15/2019	• See flow fluctuation table in Figure 1.
Weekend Constraints	4/27/2019	5/19/2019	• Weekend minimum flow no less than the daily hourly minimum from Mon-Thursday of the previous week.

Peter then talked about the temperature regime during the protection season. He noted that fall 2018 was unusually warm, while the late winter period was unusually cold. As a result, timing for emergence and rearing was mostly normal (see following figures).



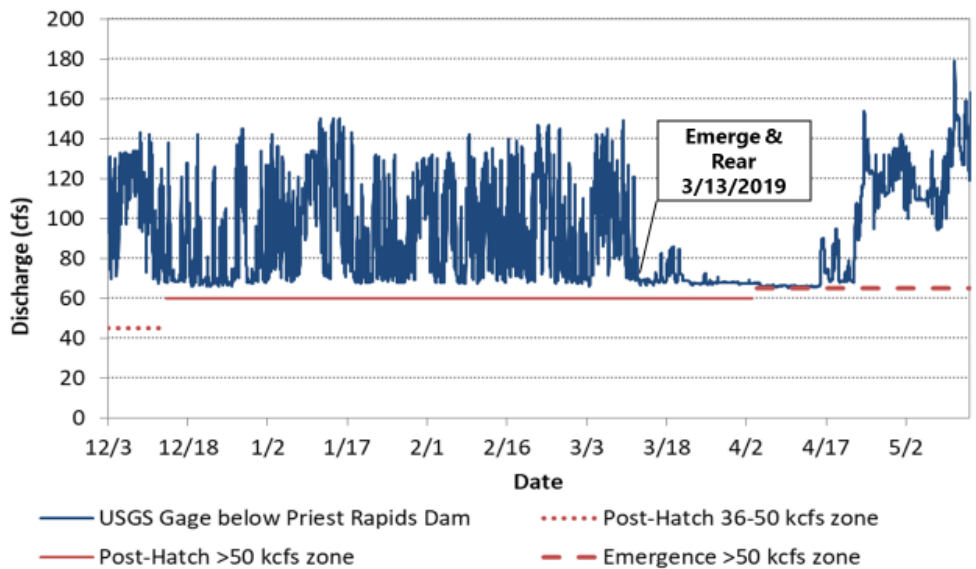




Peter also described the flow conditions during the protection period. He said emergence and rearing began on 13 March 2019 and pointed out the unusual low flows during emergence and rearing. He said emergence ended on 14 May and rearing ended on 15 June (see figures below).

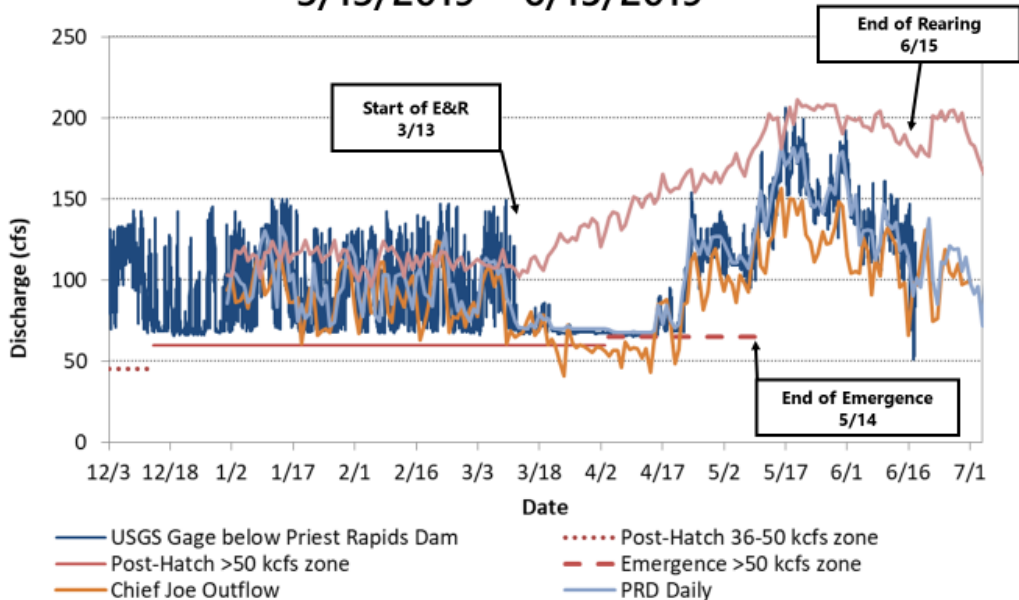
Protection Level Flows

12/3/2018 – 5/13/2019



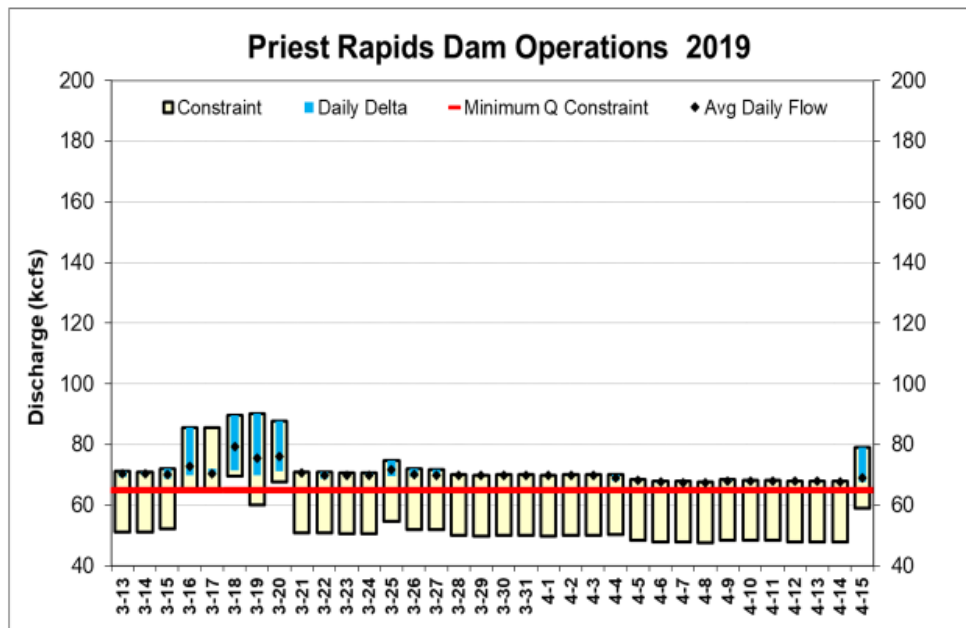
Flows during Emergence and Rearing

3/13/2019 – 6/15/2019

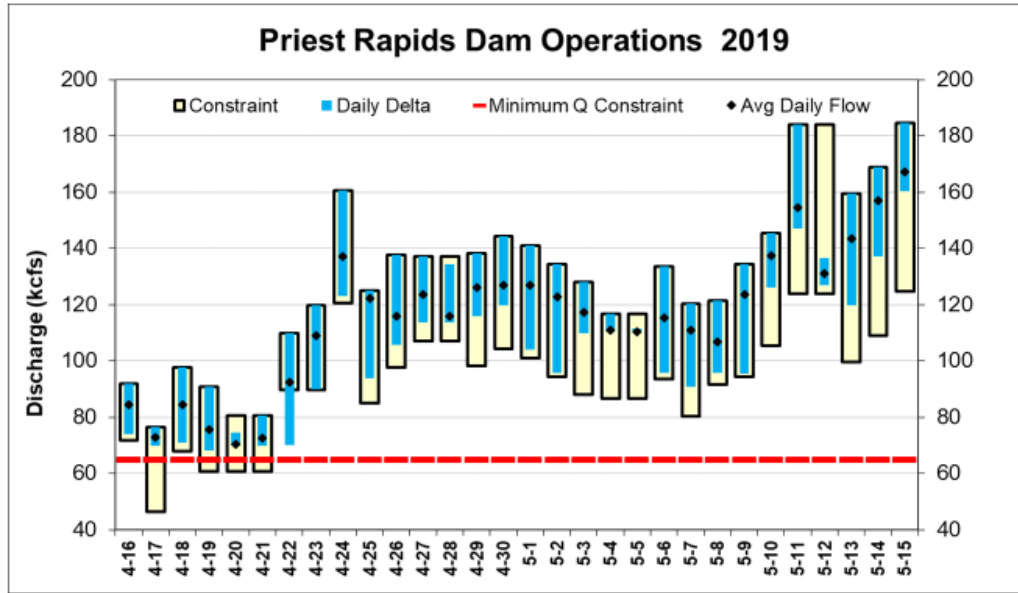


Peter then shared the following figures, which show discharge and daily flow fluctuation constraints. He noted that where there appears to be a daily flow fluctuation violation, those occurrences were on a Monday and the flows increased beyond the daily delta constraint (determined by Sunday's inflow). Flow fluctuations beyond the daily delta constraint in an upward direction are permitted on Mondays and therefore there were no violations. That is, fluctuations in flow that exceed daily constraints but occurs above the minimum flow constraint is okay on Mondays. Fluctuations that exceed daily constraints and are below the minimum flow constraint are what we are trying to avoid. The latter did not occur during dam operations in 2019.

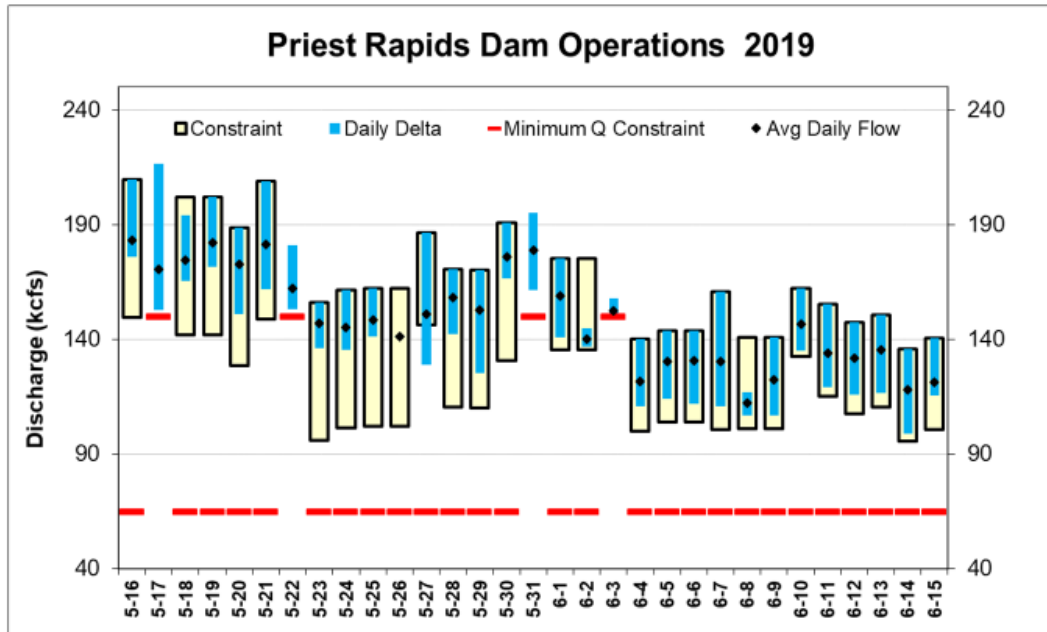
Discharge and Constraints during E & R



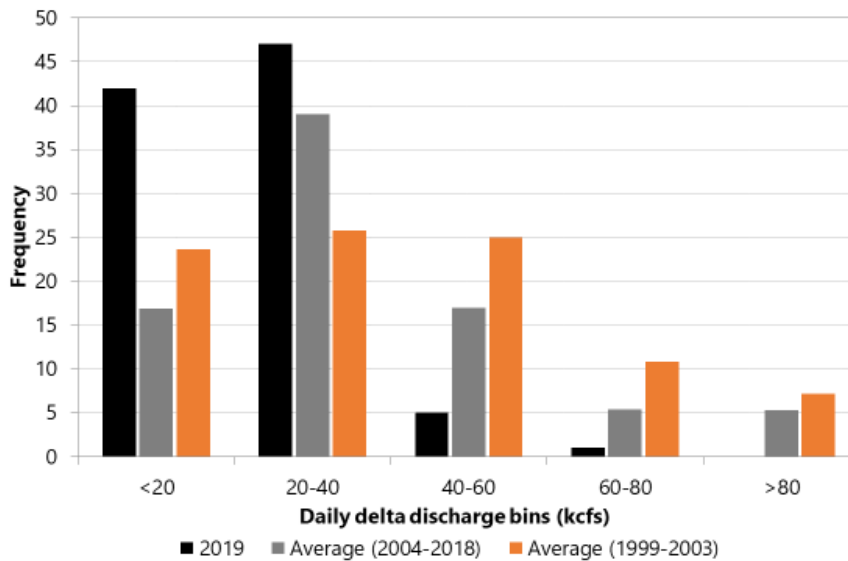
Discharge and Constraints during E & R



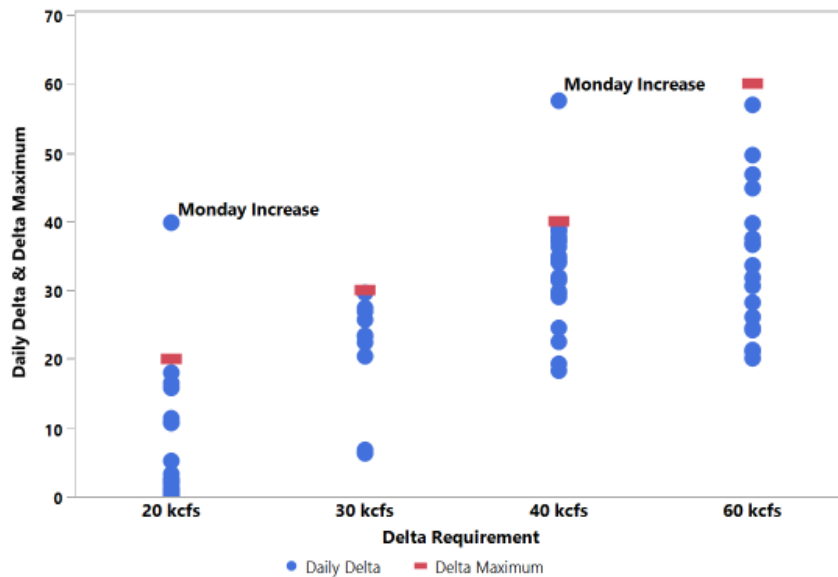
Discharge and Constraints during E & R



Flow Fluctuations during E & R



Flow Fluctuation Criteria & Performance



Peter concluded by stating that flow management operations during the 2018-2019 season were highly successful and he reiterated that there were no flow violations during the 2018-2019 protection period.

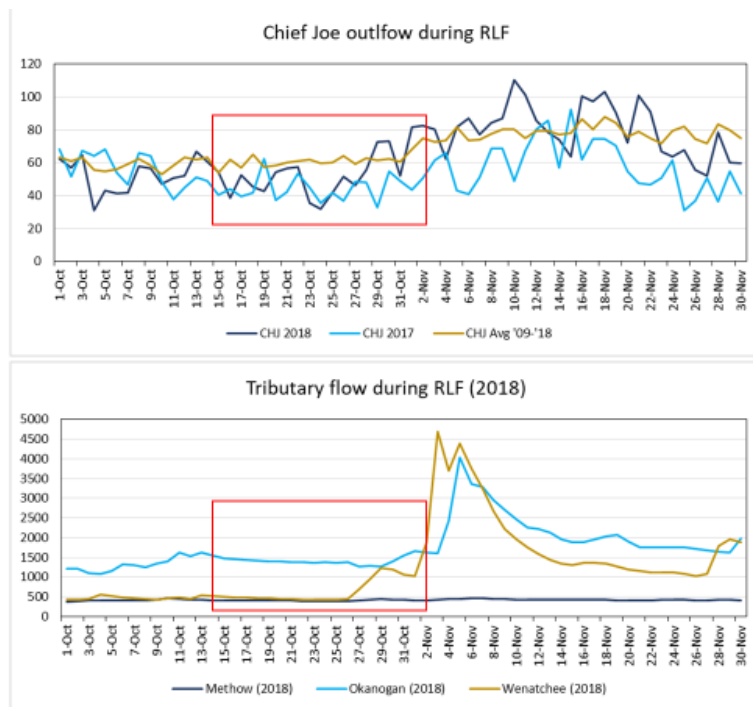
He reminded members that comments on the draft report are due to him on 1 November 2019.

2019 Estimated Fall Chinook Escapement – Paul Hoffarth said the run forecast for fall Chinook is about 93,000 fish (includes both wild and hatchery fish). Based on Paul’s recent forecast, about 54,000 natural-origin fall Chinook should escape to the Hanford Reach this year. He noted this escapement is similar to last year.

Paul said the Hanford Reach spawning escapement goal is about 31,000 natural-origin Chinook; thus, the fall Chinook fishery is currently open. Paul said the Harvest Management Plan allows for a 10% allocation at low escapements (<34,500 fish). At escapements greater than 34,500 fish, harvest allocation increases. This year, the harvest quota is about 14,000 fish. So far, about 8,000 have been harvested. Fishing in the upper spawning area will close on 15 October, while fishing in the lower area will close on 31 October.

2019-2020 Protection Program Update – Peter Graf reported that Reverse Load Factoring (RLF) began on 15 October. He identified some of the issues with RLF and river flows in 2017 and 2018 (see figure below). He noted the RLF target is 55-70 kcfs. However, low flows in recent years have resulted in “reverse” reverse load factoring (i.e., low flows below 55 kcfs at night to store water for the 55 kcfs target during the day). Given low flow limitations and the fact that RLF is intended to keep salmon spawning at lower elevations, Peter asked if they could start the spawning period with a lower RLF target. He proposed a target of 50-65 kcfs. Paul Hoffarth said this will not affect fall Chinook spawning. ***All members present agreed to the RLF target of 50-65 kcfs.***

- RLF Target = 55-70.
- Low flows in recent years resulted in 'reverse' reverse load following.
- Start spawning with lower target: 50-65.
- Goal of RLF is to keep spawning low.



Peter said they (Grant PUD and WDFW) will conduct their first spawning survey on Vernita Bar on 20 October 2019. They will conduct surveys every Sunday after the 20th until five or more redds are observed above and below the 50 kcf elevation (five redds are required for the Initiation of Spawning). The last survey is scheduled for 24 November. If necessary, a supplemental survey will be conducted on 1 December. Peter reminded members that spawning surveys are needed to determine the Critical Elevation.

Peter indicated that all temperature and flow data will be displayed on the Grant PUD website: <https://www.grantpud.org/water-quality>

US v OR versus Hanford Reach Fall Chinook Harvest

Management Agreement – Paul Hoffarth pointed out inconsistencies between the Hanford Reach Fall Chinook Harvest Management Agreement and US v OR. Paul said the current escapement goal of 60,000 fall Chinook at McNary Dam causes the fall Chinook escapement on the Hanford Reach to collapse. An escapement goal of 87,000-150,000 at McNary Dam would provide an ideal escapement to the Reach.

2019 CRITFC Tagging Activities – Jeff Fryer gave a presentation on tagging activities on the Reach in 2019 (see Attachment 1). Jeff noted that since 1987, CRITFC has coordinated a project to ad-clip and tag 200,000 juvenile fall Chinook with coded wire tags (CWTs) on the Hanford Reach. They have met this goal in 18 out of the 32 years. He

added that before 2017, hatchery fish were released from the Priest Rapids Hatchery after tagging was completed. Since 2017, however, hatchery fish have been released both before and after tagging.

Jeff then described methods for collecting and tagging juvenile Chinook, including culling procedures. They cull injured Chinook, non-Chinook species, and Chinook smaller than 48 mm and larger than 80 mm for coded wire tagging, further sorting into two size groups: 48-60 mm and 60-80 mm.

In 2019, crews tagged and released 224,981 juvenile Chinook. Jeff said this year mortality was low and about 79.5% of the Chinook captured were of taggable size. He said the number of fish processed the first week was small; however, the number processed after the first week increased significantly. Success this year was based on a moderately high abundance of juvenile Chinook on the Reach with above average flows, and a relatively high percentage of juvenile Chinook of taggable size. He noted some concerns, which included low daily output of tagged fish because of less productive new crew members. There was also a high tag-loss rate this year.

Jeff then described PIT-tagging efforts on the Reach. He summarized tagging methods and noted that only fish between 60 and 80 mm were PIT tagged (no fish >80 mm are tagged). He indicated that survival of PIT-tagged fish from release to McNary Dam was the lowest on record (~23%). He noted that survival of tagged hatchery fish from their release site to McNary Dam was also the lowest on record (~41%).

Jeff then described the estimated number of Priest Rapids hatchery fish processed by the tagging crews. He said 2.4-11.8% of the hatchery fish released from the five different rearing ponds were less than 80-mm long. Using different methods to estimate the number of hatchery fish handled by his crews, Jeff said between 17,641 and 25,895 hatchery fish were handled by the tagging crews in 2019. He said catching and handling this many hatchery fish significantly impacts the tagging project.

Jeff also described the amount of time that it took PIT-tagged Chinook to travel from the release site to McNary Dam. On average, tagged wild fish traveled from the release site to McNary Dam in 23 days; tagged hatchery fish traveled from their release site to McNary Dam in 20 days. Jeff also tracked travel times from release to John Day Dam. Tagged wild fish averaged 43 days from release to John Day, while tagged hatchery fish averaged 23 days from release to John Day.

Jeff identified non-target species captured during the tagging study. Most non-target species included whitefish, northern pikeminnow, shiners, stickleback, peamouth, sculpin, and suckers. Several other non-target species were also captured.

Jeff described the loss of tagged juvenile Chinook from avian predation. He indicated that about 3-5% of the PIT-tagged Chinook were lost to avian predation during the period 2013-2018. He said relatively high numbers of PIT tags are found on Badger Island.

Jeff concluded by stating that the tagging effort was successful in 2019. He noted that tag-loss rate was high this year, but mortality was typical for the project. He added that the early releases of hatchery fish had effects on the tagging effort by increasing the number of fish the crews had to process. In addition, they were unable PIT tag fish larger than 80 mm. Jeff recommended that the hatchery program release hatchery fish after the wild fish are tagged. If releases occur early, managers should try to grow the fish to over 80 mm before releasing them. Jeff said he would be interested in a hatchery release about 3-4 days before the end of the tagging project so he could observe how hatchery releases affect their project on a day-by-day basis.

Jeff said they will be tagging again in 2020. They will have 250,000 CWTs and 10,000 PIT tags for next year. They also have funding to evaluate avian predation. The proposed schedule is to tag fish with CWTs on 28 May to 9 June 2020. PIT tagging is scheduled for 2-5 June 2020.

V. Priest Rapids Hatchery Activities

2018 Priest Rapids Hatchery M&E Report – Paul Hoffarth indicated the 2018 draft Priest Rapids Hatchery M&E Report should be available for review soon. Peter Graf said Todd Pearsons will send the draft report to Tracy Hillman, who will then provide it to the FCWG for a 30-day review.

Priest Rapids Hatchery 2019 Updates – Paul Hoffarth said the hatchery programs should have no problem collecting the necessary number of broodstock this year. He indicated that 650 natural-origin Chinook will be collected at the OLAFT this year. They have already collected 500 natural-origin Chinook there. The rest of the broodstock will be collected by anglers on the Reach.

Paul indicated that jack numbers are rising. This generally means larger returns of adults in the future.

When asked about marking, Paul responded that all Ringold fish are tagged. About 44% of the Priest Rapids Program fish are tagged; however, all are otolith marked.

VI. Studies on the Reach

Tracy Hillman asked if there were any studies conducted in the Project Area that would benefit the FCWG/HRWG.

Dani Evenson reported that Geoff McMichael submitted a follow-up proposal that will evaluate metrics of growth in otolith samples of natural-origin recruits. The purpose of the study is to test the hypothesis that early freshwater growth of Hanford Reach Fall Chinook salmon is related to adult spawner and/or subsequent juvenile abundance (density dependent effects). The project will determine whether the prior-year adult escapement and/or pre-smolt abundance of juvenile fall Chinook salmon on the Hanford Reach is related to early freshwater growth in these fish. Geoff intends to include additional ages in the analyses, which should provide a unique opportunity to evaluate whether juvenile freshwater rearing habitat carrying capacity may be limiting the growth of juvenile fall Chinook salmon on the Hanford Reach.

Ryan Harnish said he is helping with the Hanford Natural Resource Damage Assessment. He recently used his stock-recruitment analyses to evaluate the level of contaminants needed to affect egg to pre-smolt fall Chinook productivity. His analyses indicate a 9% mortality would significantly reduce fall Chinook productivity on the Reach.

VII. Next Meeting: The FCWG will next meet on Tuesday, 7 April 2019.