



Grant County
PUBLIC UTILITY DISTRICT
Excellence in Service and Leadership

Fall Chinook Work Group

Tuesday, 4 March 2014

Grant PUD (USBOR Building)

Ephrata, WA

Technical members

| | |
|-------------------------|--------------------------------|
| Paul Wagner, NMFS | Joe Skalicky/Don Anglin, USFWS |
| Jeff Fryer, CRITFC | Paul Ward/Bob Rose, YN |
| Holly Harwood, BPA | Brett Swift, American Rivers |
| Keith Truscott, CPUD | Tom Kahler, DPUD |
| Bill Tweit, WDFW | Paul Hoffarth, WDFW |
| Patrick McGuire, WDOE | John Clark, ADFG |
| Russell Langshaw, GCPUD | Todd Pearsons, GCPUD |
| Steve Hemstrom, CPUD | |

Attendees: (*Denotes Technical member)

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|------------------------------|--------------------------------|
| Russell Langshaw, GCPUD* | Geoff McMichael, Battelle |
| Scott Bettin, BPA (Phone) | Patrick McGuire, WDOE* (Phone) |
| Paul Hoffarth, WDFW* (Phone) | Tom Kahler, DPUD* |
| Tracy Hillman, Facilitator | |

Action Items:

1. Tracy Hillman will distribute the Harnish et al. 2014 publication on Hanford Reach fall Chinook salmon productivity to the FCWG.
2. Russell Langshaw will provide the FCWG with a draft study plan for assessing density dependence in the Hanford Reach.
3. Paul Hoffarth will prepare a final memo that describes egg retention of fall Chinook in the Hanford Reach through 2013.
4. Russell Langshaw will prepare a summary report on Phase II studies.
5. Russell Langshaw will conduct retrospective analysis on historical stranding and entrapment work.

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 one additional agenda item (Wanapum Dam Spillway Issue).
- III. **Approval of Meeting Minutes**
 - The February Meeting Minutes were reviewed and approved.
- IV. **Review of Action Items** - Action items identified during the February meeting were discussed.
 - Tracy Hillman will send the draft predation report to the FCWG today. The FCWG will review the report and provide comments to Tracy and Russell Langshaw by Tuesday, 18 February 2014. Tracy will compile the comments and send them to Blue Leaf. It is hoped that Blue Leaf will have a final report to the FCWG by Tuesday, 4 March 2014. **Complete.**
 - Tracy Hillman will send the proposal prepared by Battelle and funded by the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund to the FCWG today. This study should help assess the effects of predation within Lake Wallula. **Complete.**
 - Russell Langshaw will provide the FCWG with a draft study plan for assessing density dependence in the Hanford Reach. **Ongoing.**
 - Paul Hoffarth will prepare a final memo that describes egg retention of fall Chinook in the Hanford Reach through 2013. **Ongoing.**
 - The FCWG will identify Phase III studies. **Ongoing.**
 - Russell Langshaw will conduct retrospective analysis on historical stranding and entrapment work. **Ongoing.**
- V. **Wanapum Dam Spillway Issues**

Russell Langshaw shared with the FCWG the issues associated with Wanapum Dam. He indicated that on 25 February, Grant PUD observed movement in monolith pier #4 (Russell showed photos of the sidewalk and railing on the surface of the dam). On 26 February, divers found a ~65-foot long horizontal fracture in the spillway. The crack opened about 1.5-2.0 inches. On 26 February, Grant PUD initiated a Level B Emergency Action Plan, which included seven goals. Some of those goals include stabilizing the structure, identifying the cause of failure, dropping the forebay water level to relieve pressure on the dam, and maintaining generation. Russell indicated that Grant PUD is coordinating with FERC and consultants, and that Grant PUD has set

up resource teams to deal with different aspects of the problem. One team, the fish, wildlife, and water quality team is responsible for dealing with adult and juvenile fish passage and survival.

Russell noted that the normal pool elevation is 571 feet. In order to relieve pressure on the dam, the pool elevation was dropped incrementally to 543 feet. Russell said that with the drop in water surface elevation, the crack is closing. If it doesn't close completely, the pool may need to be dropped below 543 feet. Russell also pointed out that Rock Island Reservoir has been drawn down and that Rock Island Dam is not generating any power. All the water entering Rock Island Reservoir is being spilled at Rock Island Dam. He also noted that Rocky Reach Reservoir has been dropped about five feet.

Russell stated that the fish, wildlife, and water quality team is focused on fish passage and survival. Currently, both fishways at Wanapum are inoperable. The ladders require at least a water surface elevation of 562 feet to be operable. One plan is to install three large pumps at the left-bank ladder to provide adult passage. Most of the fish that pass Wanapum Dam pass through the left-bank ladder. If this approach is successful, Grant PUD will install pumps at the right-bank ladder. They hope to have the pumps up and running by about mid-April. If this is not successful, the alternative is to implement trap-and-haul at Priest Rapids Dam. This will require some modifications to the OLAFT. This is not a preferred approach because of the large number of fish transport trucks needed and the long travel time (i.e., fish will be collected at the OLAFT and released upstream of Rock Island Dam). Russell noted that most adult fish pass Wanapum Dam after 15 April.

Russell said that there is currently no problem with juvenile passage at Wanapum Dam. The bypass was designed to operate at water surface elevations down to 540 feet. At this elevation, flow down the bypass is about 5 kcfs. Russell indicated that juveniles can also pass through the seven available turbine units. He did note that there may be some total dissolved gas issues because of spill.

Russell reported that Priest Rapids Dam is still meeting flow constraints for the Hanford Reach. The minimum protection flow is currently 65 kcfs. Around 22 March, emergence and rearing constraints will start (i.e., the daily delta constraints). Peak emergence is expected to occur around the third week in April. Maintaining protection flows in the Hanford Reach is a priority for Grant PUD.

Russell indicated that the resource team is also considering potential turbidity and sediment issues associated with refilling the reservoir. Grand Coulee is holding water that will help refill both Wanapum and Rock Island reservoirs.

VI. Phase I Study Updates

Production Simulation Model – Russell Langshaw indicated that there are no new updates on the production simulation model. Cedar Morton will revisit funding opportunities in spring 2014. Cedar is also looking at PATH as a modeling tool.

Geoff McMichael said that the Hanford Reach fall Chinook salmon productivity work was recently published in the Canadian Journal of Fisheries and Aquatic Sciences. Tracy Hillman will distribute the publication to the FCWG.

VII. Phase II Study Plan Updates

Predation Report – Tracy Hillman indicated that he received edits from Jeff Fryer on the draft predation report. Tracy forwarded those edits to Blue Leaf Environmental. Russell Langshaw indicated that he also had some edits/comments that he shared with Blue Leaf. Blue Leaf is working with Russell on finalizing the report. They will send it to the FCWG sometime next month.

Geoff McMichael indicated that the high consumption rates associated with walleye seemed counter to available information. Russell Langshaw noted that the Battelle tagging study should provide information on the importance of predation on juvenile fall Chinook leaving the Hanford Reach. Tracy Hillman said that the FCWG will talk about the recommendations identified in the report during the next FCWG meeting.

Density Dependence – Russell Langshaw said that he is still working on a study plan to address the density dependence that was identified in the productivity assessment. He is looking at relationships among abundance, growth, survival, and productivity. He is also trying to compile information on condition factors. He noted that relationships between pre-smolts and egg abundance are mostly linear, indicating density independent effects. In addition, he did not find a relationship between condition factor in June and egg abundance, but did find a relationship between condition factor in September and egg abundance. These analyses were based on Upper Columbia subyearling Chinook. Russell indicated that he will try and provide the FCWG with a draft study plan in April or May 2014.

Russell stated that Todd Pearsons has organized a symposium at the AFS meeting in Vancouver, WA, that focuses on carrying capacity and density dependence. Several presenters will be describing the presence of density dependence in fish populations and the importance of carrying capacity in the management of fish species.

Redd Superimposition – Paul Hoffarth will provide a final memo to the FCWG that identifies the number of eggs retained by fall Chinook

in the Hanford Reach through 2013. The final memo is due March 2014. This work will satisfy the egg-retention objective of Phase II studies. Egg retention work will continue in the future and the results will be reported in the annual Priest Rapids Hatchery Monitoring and Evaluation reports.

VIII. Phase III Studies

Tracy Hillman asked if the FCWG has given additional thought to Phase III studies. Russell Langshaw reiterated that the following studies will likely occur during Phase III: (1) fall Chinook productivity modeling every five years, (2) ongoing egg retention sampling to address density dependence effects, and (3) updating the models used in stranding and entrapment assessments. Russell said that he will review the Study Plan to see if there are other studies that may be initiated during Phase III. He also indicated that he will prepare a summary report on Phase II studies (similar to the Phase I summary document). The FCWG agreed to continue to discuss Phase III studies.

IX. HRWG Activities

Update on Protection Flows – Russell Langshaw said that all temperature and flow data are displayed in the Fixed Site Monitoring – Monthly Summary files on the Grant PUD Water Quality Website (<http://www.gcpud.org/naturalResources/fishWaterWildlife/waterqualityMonitoring.html>). The temperature unit tracking spreadsheet is found under “Fixed Site Monitoring – Monthly Summary.”

Russell reported that emergence is predicted to occur around 22 March. Peak emergence should occur around the third week of April. So far, fish have reached about 918 ATUs. Hatching is mostly complete. There were no violations in protection flows during the incubation period.

Stranding and Entrapment Retrospective Analysis – Russell Langshaw said that he did not have time to work on the retrospective analysis in February. He hopes to explore the use of hurdle models. The hurdle model is a two part process. The first part models the presence/absence of Chinook within entrapment sites. This is usually accomplished with multiple logistics regression or discriminant analysis. If a pattern is found (successfully jumped the first hurdle), then the second part is to model the numbers of fish entrapped in sites with fish presence. This could be accomplished with regression techniques. The hurdle model may be a simpler and more easily explainable approach than the zero-inflated negative binomial distribution model. His next update will be in April.

X. Next Meeting: Tuesday morning, 1 April 2014 at Grant PUD in Ephrata, WA.