Fall Chinook Work Group

Tuesday, 4 June 2013

Grant PUD Headquarters 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
Jim Bellatty, WDOE	John Clark, ADFG
Russell Langshaw, GCPUD	Todd Pearsons, GCPUD
Steve Hemstrom, CPUD	

Attendees: (*Denotes Technical member)

Tom Skiles, CRITFC (phone)	Russell Langshaw, GCPUD*
Stacy Remples, WDFW (phone)	Paul Wagner, NMFS* (phone)
Tom Kahler, DPUD* (phone)	Tracy Hillman, Facilitator

Action Items:

1. **Paul Hoffarth will contact Matt Mesa to see if the USGS predation study plan can be shared with the FCWG.**
2. **Tracy Hillman will send Tom Skiles the draft outline for the predation report.**
3. **Russell Langshaw will provide Paul Hoffarth with hourly flow data for Rock Island and Priest Rapids dams.**
4. **Russell Langshaw will conduct retrospective analysis on historical stranding and entrapment work and identify issues for discussion during the next FCWG meeting.**

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.

III. Approval of Meeting Minutes

- The May Meeting Minutes were reviewed and approved.

IV. Review of Action Items - Action items identified during the May meeting were discussed.

- Paul Hoffarth will contact Matt Mesa to see if the USGS predation study plan can be shared with the FCWG. **Ongoing; Leah Sullivan has been in communication with Matt Mesa.**
- Russell Langshaw will share the FCWG's comments and recommendations on the predation report outline with Leah Sullivan at Blue Leaf Environmental. **Complete.**
- Russell Langshaw will provide Paul Hoffarth with hourly flow data for Rock Island and Priest Rapids dams. **Ongoing.**
- Russell Langshaw will conduct retrospective analysis on historical stranding and entrapment work and identify issues for discussion during the next FCWG meeting. **Ongoing.**

V. Phase I Study Updates

A. Productivity Assessment – The final productivity report is complete and has been posted to Box.net.

B. Egg to Fry Survival – The final egg-to-fry study report is complete and has been posted to Box.net.

C. Dam Passage Fallback – The final dam passage fallback report is complete and has been posted to Box.net.

D. Hydrodynamic Model – The final hydrodynamics model report (methods and a catalogue of what is available) is complete and has been posted to Box.net.

E. Production Simulation Model – Russell Langshaw said that Cedar Morton, a doctoral student at Simon Fraser University, is seeking funding from B.C. Hydro to use on the Production Simulation Model. He is also planning to meet with Grant PUD and Battelle in the near future.

VI. Phase II Study Plan

Phase II Draft Study Plan – Russell Langshaw said that he shared the FCWG comments on the draft outline for the predation report with Leah Sullivan, Blue Leaf Environmental. Leah has contacted Matt Mesa with USGS to discuss the predation work being conducted by the USGS. Russell indicated that Blue Leaf is on track to provide a draft report by 31 July 2013. The FCWG will have a 30-day comment period.

VII. HRWG Activities

Update on Protection Flows – Russell Langshaw said that the protection program for the rearing period began on 2 March 2013 and ended on 2 June. He noted that it was a good season and operations did an excellent job managing flows. There were only two violations. An exceedance occurred on 8 March, because BPA changed their drafting plan during the weekend. The second exceedance occurred during the weekend of 20 and 21 April.

Russell reported 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."

Stranding and Entrapment Retrospective Analysis – Russell Langshaw said that he had little opportunity to work on the entrapment data during the last month. However, he should have time this month to resume evaluation of the data. He will be examining the use of the zero-inflated negative binomial and poisson distributions. The zero-inflated negative binomial appears appropriate because of the large number of zeros in the data set (most entrapments have no fish), and the occurrence of large numbers of fish within a randomly selected entrapment is rare. Russell will provide results during the next FCWG meeting. Recall that Russell is doing this work to more accurately estimate the number of fish that die in entrapments and to reduce the level of uncertainty in the estimate.

Stranding and Entrapment Field Work – Stacy Remples, WDFW, shared with the Working Group the recent results from the stranding and entrapment studies (see Attachment 1).

Entrapments: From 8 through 21 May, field crews visited 37 transects to conduct entrapment sampling. A total of 75 entrapments were sampled. Chinook were present in 17 entrapments. A total of 207 Chinook were collected during the two-week sampling period, yielding

an average of 6.8 Chinook per sampled entrapment. The highest concentration of entrapped Chinook was in Segment 5. Fates were recorded for 37 of the 75 sampled entrapments.

In sum, as of 2 March, a total of 538 entrapments have been sampled within 257 transects. A total of 1,968 Chinook fry have been sampled. Fates have been recorded for 245 of the 538 observed entrapments.

Stranding: For stranding, 7 of the 21 transects visited by the field crews during the two-week survey period had insufficient flow fluctuations to assess stranding. Crews sampled 115 plots totaling 8,435 m^2 of shoreline. Twenty-three stranded Chinook were collected during this sampling period.

In sum, as of 2 March, a total of 142 stranding transects have been visited. Sampling did not occur at 27 of the 142 transects because of insufficient flow fluctuations. Within the remaining 115 transects, crews sampled 567 plots equating to 28,625 m^2 of shoreline area. A total of 55 stranded Chinook have been collected.

WDFW will complete the current two-week sampling period, even though the protection program for the rearing period ended on 2 June.

Hanford Reach PIT-Tagging Project – Jeff Fryer is currently tagging wild fall Chinook on the Hanford Reach. He plans to tag 200,000 fish with CWTs and 5,000 with PIT tags. Grant PUD has provided funding and a crew to help with tagging fish for an additional week.

VIII. Next Meeting: Tuesday, 2 July 2013 at Grant PUD in Ephrata, WA.

Attachment 1

Summary of Hanford Reach Juvenile Fall Chinook Stranding and Entrapment Surveys

WDFW

8 – 21 May 2013

From May 8, through May 21, field crews visited 37 transects to conduct entrapment sampling (Table 1). Entrapments were present in 22 of the 37 transect visited with a total of 75 entrapments sampled. River fluctuation did not allow for entrapment formation at eight of the transects visited. Flows ranged from 155,400 cfs on May 14, to 270,600 cfs on May 10, with an average daily flow of 210,300 cfs for this bi-weekly period. The largest river fluctuation occurred on May 11, with a minimum recorded discharge from Priest Rapids Dam of 156,300 cfs and a maximum discharge of 253,000 cfs.

Table 1. Entrapments Sampled: May 8, – May 21, 2013

Segment	Total Transects Visited	Entrapments Present		Entrapments Sampled
		Yes	No	
1	9	5	4	13
2	3	2	1	6
3	5	5	2	23
4	3	2	1	12
5	3	3	0	7
6	2	1	1	1
7	5	3	2	12
8	7	1	6	1
Totals	**37**	**22**	**17**	**75**

Chinook were present in 17 of the entrapments sampled (Table 2). A total of 507 Chinook were collected from these entrapments. For this two week sampling period, the average number of Chinook per entrapment was 6.8, with the highest concentration occurring in Segment 5.

Table 2. Entrapments with Chinook: May 8, – May 21, 2013

Segment	Entrapments w Chinook	Chinook Present Total	Chinook per Entrapment
1	3	8	0.6
2	1	38	6.3
3	0	0	0.0
4	7	87	0.0
5	4	369	52.7
6	0	0	0.0
7	1	4	0.3
8	1	1	0.0
Totals	**17**	**507**	**6.8**

Of the entrapments evaluated during this bi-weekly period, known fates have been recorded for 37 of the 75 observed (Table 3); 12 reflooded, 14 drained and 11 were considered lethal with a water temperature exceeding 27°C at the time of re-visitation. Of the 17 entrapments that contained Chinook, six reflooded, six drained and four entrapment fates remained unknown.

Table 3. Entrapment Fates: May 8, - May 21, 2013

	Entrapment Fates			
Segment	**Unknown**	**Reflood**	**Drain**	**Temp >27C**
1	3	1	9	0
2	2	1	0	3
3	21	1	1	0
4	5	3	1	2
5	3	3	1	0
6	0	1	0	0
7	2	2	2	6
8	0	0	0	0
Totals	**36**	**12**	**14**	**11**

For this bi-weekly sampling period unidentified sculpin species were the most abundant non-salmonid species collected. Other fish present in entrapments during this period included northern pikeminnow, stickleback and redside shiners (Table 4).

Table 4. Other fish species collected: May 8, - May 21, 2013

	Other Species				
Segment	**NPM***	**RSS****	**Stickleback**	**Sculpin**	**Total**
1	0	0	0	3	**3**
2	23	5	0	0	**28**
3	0	0	0	1	**1**
4	0	0	0	20	**20**
5	0	0	0	0	**0**
6	0	0	0	0	**0**
7	0	0	0	0	**0**
8	0	0	0	0	**0**
Totals	**23**	**5**	**0**	**24**	**52**

* Northern pikeminnow

** Redside shiners

Entrapment Summary: March 2, – May 21, 2013

As of May 21, 257 transects were visited with 538 entrapments sampled. The total number of Chinook collected thus far is 1,968 fish. Fates of entrapments have been recorded for 245 of the 538 observed (Table 5.).

Table 5. Entrapment Summary: March 2, – May 21, 2013

Segment	Transects Visited	Entrapments Present		Entrapments Sampled	Entrapments w Chinook	Chinook Present Total	Chinook per Entrapment	Entrapment Fates			
		Yes	No					Unknown	Reflood	Drain	Temp >27C
1	55	36	17	158	13	198	1.3	66	8	46	1
2	48	34	14	130	28	424	3.3	63	28	35	7
3	45	20	27	86	19	460	5.3	62	13	23	1
4	25	12	13	58	14	221	3.8	34	14	17	2
5	14	7	9	46	14	472	10.3	28	13	3	0
6	4	2	2	2	0	0	0.0	0	1	1	0
7	35	23	16	52	15	188	3.6	34	5	19	6
8	31	3	28	6	2	5	0.8	1	2	3	0
Totals	**257**	**137**	**126**	**538**	**105**	**1,968**	**3.7**	**288**	**84**	**147**	**17**

Stranding Survey: May 8, – May 21, 2013

For the bi-weekly sampling period May 8, through May 21, the stranding crew visited 26 transects. A total of seven transect lines did not have sufficient river fluctuations to assess stranding (Table 6). The number of plots sampled was 115 for a total area of 8,435 m^2. Chinook were collected from one of the 115 plots sampled, for a total of 23 fish.

Table 6. Stranding: May 8, – May 21, 2013

Segment	Transects Visited	Transects Sampled		Plots (#)	Area Sampled	Species			
		Yes	No			Chinook	NPM*	**RSS	Sculpin
1	6	5	1	25	1832	0	0	0	0
2	1	0	1	0	0	0	0	0	0
3	2	2	0	13	951	0	0	0	0
4	6	5	1	41	3017	23	0	1	1
5	1	1	0	3	221	0	0	0	1
6	0	0	0	0	0	0	0	0	0
7	10	6	4	33	2414	0	0	0	0
8	0	0	0	0	0	0	0	0	0
Totals	**26**	**19**	**7**	**115**	**8,435**	**23**	**0**	**1**	**2**

*Northern Pikeminnow

** Redside shiners

Stranding Summary: March 2, – May 21, 2013

As of May 21, 142 transects have been visited. River fluctuations were not sufficient at 27 of the 142 transects to allow sampling. From the remaining 115transects, 567 plots were sampled for a total area assessment of 28,625 m^2. A total of 55 Chinook, one northern pikeminnow, four three-spine sticklebacks, one redside shiner, two unidentified sculpin species and one unidentified sucker species were collected.

Table 7. Stranding Summary: March 2, – May 21, 2013

Segment	Transects Visited	Transects Sampled		Plots (#)	Area Sampled	Species					
		Yes	No			Chinook	NPM*	Stickleback	Sucker	RSS**	Sculpin
1	34	29	5	135	6292	8	0	3	0	0	0
2	34	30	4	132	7290	4	1	0	0	0	0
3	12	8	4	41	1760	1	0	0	0	0	0
4	15	10	5	96	5543	23	0	0	0	1	1
5	5	5	0	25	1096	1	0	1	0	0	1
6	2	1	1	8	264	0	0	0	0	0	0
7	33	27	6	122	5851	18	0	0	1	0	0
8	7	5	2	8	529	0	0	0	0	0	0
Totals	**142**	**115**	**27**	**567**	**28,625**	**55**	**1**	**4**	**1**	**1**	**2**

*Northern pikeminnow
**Redside shiners