Lewis River Hydroelectric Projects Settlement Agreement
Aquatic Coordination Committee (ACC)
Meeting Agenda

Date & Time: **Thursday, August 11, 2016**
9:00 a.m. – 3:30 p.m.

Place: **Merwin Hydro Control Center**
105 Merwin Village Court
Ariel, WA 98603

Contacts: **Frank Shrier: (503) 320-7423**

Time	Discussion Item
9:00 a.m.	Welcome ➢ Review Agenda and ACC 7/14/16 Meeting Notes ➢ Comment & Accept Agenda and 7/14/16 Meeting Notes
9:10 a.m.	Public Comment Opportunity
9:20 a.m.	Karchesky - Acclimation Pond options, what is sample size, variable years options, where to release fish in the fall
9:50 a.m.	Karchesky - Merwin ATE Study; should hatchery coho be tagged this year
10:00 a.m.	Study/Work Product Updates o M&E Update o Woodland Release Ponds/Permit - Status o Acclimation Ponds - Status o Merwin Upstream Passage – Status o Swift Floating Surface Collector – Status o Aquatic Fund Subgroup Effort - Update
10:30 a.m.	Safety[1] orientation for tour - Bring your lunch
10:45 a.m.	Depart for tour and plan to return to HCC by 3:00 p.m. o Crab Creek Acclimation Pond Site
2:30 p.m.	➢ Next Meeting's Agenda ➢ Public Comment Opportunity Note: all meeting notes and the meeting schedule can be located at: http://www.pacificorp.com/es/hydro/hl/lr.html#
3:00 p.m. – 3:30 p.m.	***Return to HCC and Adjourn***

1 Please bring rain gear and sturdy walking shoes for hiking in the forest. PacifiCorp will have 2 vehicles for transportation of up to 4 additional passengers. NO SHORTS PLEASE!

Join by Phone
+1 (503) 813-5252 [Portland, Ore.]
+1 (855) 499-5252 [Toll Free]
Conference ID: 848594

PLEASE BRING YOUR LUNCH

FINAL Meeting Notes
Lewis River License Implementation
Aquatic Coordination Committee (ACC) Meeting
August 11, 2016
Merwin Hydro Control Center & Field tour

ACC Participants Present (16)
Chris Karchesky, PacifiCorp
Frank Shrier, PacifiCorp
Mark Ferraiolo, PacifiCorp
Kim McCune, PacifiCorp
Brett Horton, PacifiCorp
Aaron Roberts, WDFW
Peggy Miller, WDFW
Pat Frazier, WDFW (via conference)
Michelle Day, NMFS
Ruth Tracy, USDA Forest Service
Bryce Michaelis, USDA Forest Service

Guests
Al Thomas, Columbian
Brett Horton, PacifiCorp
Dave Howe, WDFW
Sam Kolb, WDFW
Carol Serdar, WDOE

Calendar:

August 15, 2016	ACC Meeting (Aquatic Fund Subgroup)	Merwin Hydro
September 8, 2016	ACC Meeting	Merwin Hydro

Assignments from August 11, 2016	**Status**
McCune: Email a 7-day comment period to the ACC specific to approval of the 2016 Spring Chinook Acclimation Planting Schedule and Evaluation Plan.	**Complete – 8/12/16**
Horton: Submit a Woodland Release Pond permitting timeline to Michelle Day (NMFS) and the ACC.	**Complete – 8/15/16**

Assignments from July 14, 2016	**Status**
McCune: Email a 7-day comment period to the ACC specific to removal of the Muddy infiltration gallery, stilling well and all underground piping.	**Complete – 7/15/16**
Karchesky: Email draft acclimation fish release plan and evaluation strategy before August 11, 2016 ACC Meeting – to be discussed at the meeting.	**Complete - 8/11/16**

Assignments from May 12, 2016	Status
Tracy/Michaelis: Advise PacifiCorp what action is needed to remove the Muddy River infiltration gallery and re-evaluate the NEPA.	**Complete – 9/8/16**

Assignments from February 11, 2016	Status
Frazier: Submit extension request details to McCune for the 2013 Survey of BT Stream Habitat Aquatic Fund Project.	**Pending**

Opening, Review of Agenda and Meeting Notes
Frank Shrier (PacifiCorp) called the meeting to order at 9:10 a.m. and reviewed the agenda. No additions to the agenda were requested.

Shrier also reviewed the July 11, 2016 meeting notes and assignments. The meeting notes were approved with minor housekeeping changes at 9:15am.

Public Comment
None

Karchesky - Draft acclimation fish release plan and evaluation strategy
Chris Karchesky (PacifiCorp) reviewed a memorandum titled, "2016 Spring Chinook Acclimation Planting Schedule and Evaluation Plan (Draft), **Attachment A** provided to the ACC August 5, 2016, and asked if the ACC has any comments.

> *Plan Overview*
> *A total of approximately 34,000 acclimation Chinook are scheduled for direct release in fall 2016 (Table 1). Rather than releasing all these fish in large numbers over a short period of time, it is proposed a proportion of these fish be released in smaller groups over a slightly longer time frame this fall. It is thought that by decreasing the number of fish stocked per planting event, smolts may stay in the system longer and move downstream at a slower rate due to decreased densities. Releasing fish over a slightly longer timeframe will also allow for evaluation of whether timing of release affects residency time for fish released in the fall. That is, do fish released earlier in the fall remain in the tributary streams longer than those released later? ……*

The ACC discussed the allocation of fish tagged with Passive Integrated Transponder (PIT) tags in each release group and why none were being released in the upper Lewis River near Crab Creek. Karchesky explained that PacifiCorp does not have detection array in the lower Lewis River at this time and there is not much to gain other an anecdotal data if PIT tag fish were released there. Also, the primary focus of the evaluation is to determine whether fish are staying in the tributaries or just blowing out. That is best done with the existing detection arrays on the Muddy River and Clear Creek sites.

Bryce Michaelis (USDA Forest Service) suggested releasing a larger number of fish at Clear Creek. Karchesky expressed that the release numbers/locations are flexible and we can play with the numbers indicated in Table 2 below. Shrier said he would also like to see more fish released in Muddy River. Karchesky indicated that if fish numbers are increased then the PIT tag allocations would remain at about 25 percent.

The request for a change from this table was to reduce the upper Lewis River (at Crab Creek) numbers to 15,000 which is what PacifiCorp have been releasing historically and reallocate the 8,000 fish to the Muddy River and Clear Creek sites.

Table 2. Proposed 2016 Spring Chinook smolt release schedule for the five upper Lewis River Release sites. Number of PIT tagged fish within each release group is shown in parentheses.

Period	Muddy River	Clear Creek	Lewis River above Crab Creek	Drift Creek	Total
Sept. 5-9	1,000 (250) Bridge Site	1,000 (250)	0	500 (125)	2500
Sept. 12-16	0	0	0	0	
Sept. 19-23	1,000 (250) Upper Site	1,000 (250)	11,500 (0)	500 (125)	14000
Sept. 26-30	0	0	0	0	
Oct. 3-7	1,000 (250) Bridge Site	1,000 (250)	11,500 (0)	500 (125)	14000
Oct. 10-14	0	0	0	0	0
Oct. 17-21	1,000 (250) Upper Site	1,000 (250)	0	500 (125)	2500
Total	**4000 (1000)**	**4000 (1000)**	**23000 (0)**	**2000 (500)**	**33000 (2500)**

Pat Frazier (WDFW) said he wanted additional time to review but in the meantime do not PIT tag upper Lewis River fish unless he or Michelle Day (NMFS) says otherwise by August 19, 2016. McCune will send out the Plan again to all ACC participants for an additional 7-day review and comment period.

The ACC approved the 2016 Spring Chinook Acclimation Planting Schedule and Evaluation Plan with minor adjustments to the proportionate sample size.

Karchesky - Merwin ATE Study; should hatchery coho be tagged this year

Karchesky (PacifiCorp) reminded the ACC that PacifiCorp is scheduled to continue its evaluation of passage efficiency of adult coho salmon at the Merwin Trap this fall. Currently, this evaluation is temporally on hold in light of the predicted low returns of coho expected to the Lewis River this year. Aaron Roberts (WDFW) expressed that he thinks the coho numbers will be lower than 5,000 this year. The ACC is expected to make a decision regarding whether to tag coho this fall at the September meeting. McCune will add this topic to the September ACC agenda.

Karchesky also mentioned that he met with Ed Meyer (Fish Passage Engineer - NMFS) in August regarding putting a fyke in the Merwin Trap. The fyke would be installed at the transition pool between ladder entrance 1-4 and the fish crowder. This will prevent fish from backing out once they have ascended the fish ladder and an increase in collection efficiencies is expected. PacifiCorp, through consultation with Ed Meyer, is planning to install the fyke this fall.

Acclimation Pond Updates
Muddy River: Removal time line is during the August 2017 in-water work window.

Clear Creek: Shrier reported that the total cost to repair Clear Creek is $100,000 and cost to repair or remove Muddy is estimated to be $300,000. The immediate need is to take care of rip-rap at Clear Creek site. Michaelis and Karchesky will discuss a plan offline for its removal.

Study/Work Product Updates

M&E Update
Shrier informed the ACC attendees that the M&E Subgroup met August 10, 2016 and are very close to completing the document for its 90-day review and comment period. Two objectives remain and WDFW is working on tweaks to Objective 2.22. PacifiCorp plans to submit the document to the ACC for 90-day review by September 1, 2016. The bull trout group is working out the edits to Objective 2.17 during the 90-day review period.

Aquatic Fund Subgroup
The Subgroup is close to finishing the Priority Reaches document which requires completion by the end of August 2016. Next meeting is scheduled for August 15, 2016. The next round for the aquatic fund announcement will be sent September 2, 2016.

Woodland Release Ponds
Brett Horton (PacifiCorp) informed the ACC that PacifiCorp commented on the DNR aquatic land lease for submerged land lease and returned to the DNR August 9, 2016. The DNR wants only a 30-year lease and not the life of the Lewis River license. PacifiCorp requested this be edited to the life of the license among other edits. PacifiCorp is trying everything it can to start the Release Pond project by November 2016.

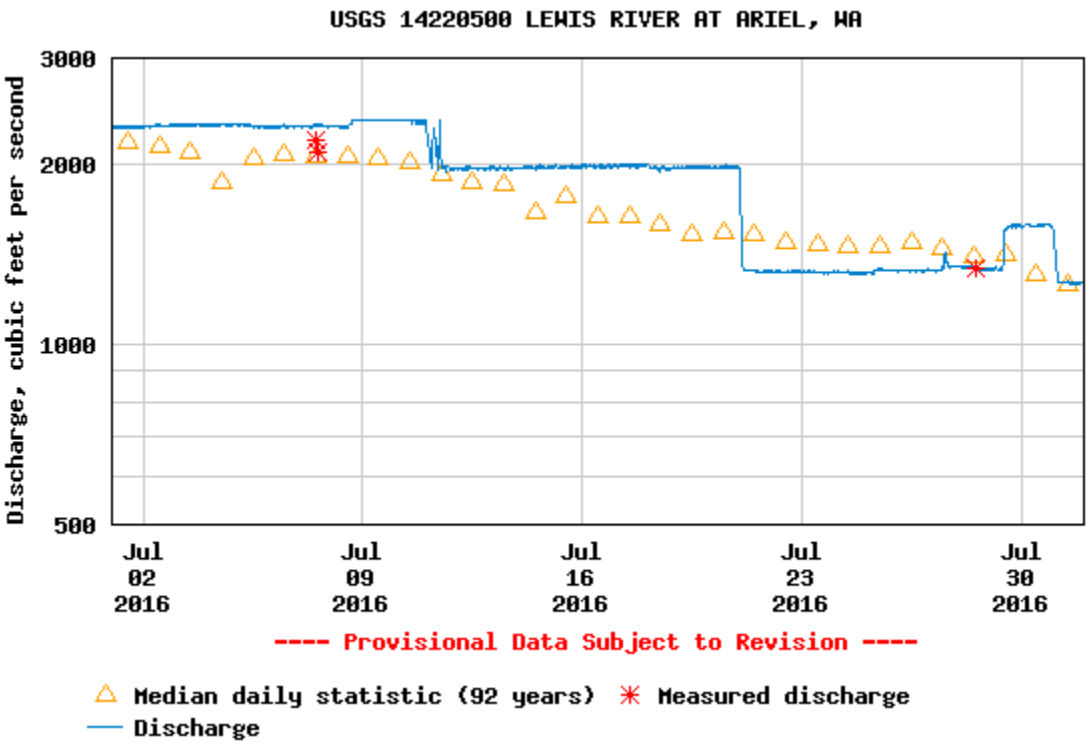
Michelle Day (NMFS) asked why so long to complete the Release Ponds and would like a timeline of the permitting activity.

Merwin Fish Collection Facility and General Operations (Attachment B)
During the month of July, a total 3,192 fish were captured at the Merwin Fish Collection Facility. The vast majority of these fish (99%) were summer steelhead while the few remaining comprised of mostly of sockeye and spring Chinook. All hatchery fish were given to Washington Department of Fish and Wildlife including twenty-two (22) hatchery spring Chinook for brood stock. Eight (8) coastal cutthroat greater than 13-inches were transported upstream of Swift Dam this month.

The Merwin Trap ran continuously through the month of July. PacifiCorp moved to a 5-day per week sorting schedule in June. Under these conditions, the fish lift and conveyance system remains operational seven (7) days a week, but fish are only sorted Monday through Friday. The trap will return to a seven (7) day per week sorting schedule once early-coho begin to arrive in August. The Auxiliary Water Supply (AWS) system, which can boost attraction flow up to 400 cfs, was operated daily in the month of July.

River flow below Merwin Dam remained at between approximately 2,300 to 1,200 cfs throughout the month of July.

Discharge, cubic feet per second



Upstream Transport (Attachment B)

For calendar year 2016, seven hundred sixty seven blank wire tag winter steelhead (three of which were captured at Lewis River Fish Hatchery), six hatchery coho (January 2016), and sixteen cutthroat trout greater than thirteen inches in length have been transported upstream.

Swift Floating Surface Collector (Attachment B)

A total of 510 fish were collected at the Swift FSC during the month of July; of which most were transported downstream. The majority (67 percent) of these fish were coho (n=340), followed by planted rainbow (n=136), steelhead fry (n=25), and cutthroat (n=4). No spring Chinook were collected. The Swift FSC was turned off for summer maintenance on July 14, 2016. The summer outage period was established by PacifiCorp with concurrence of the Lewis River Aquatic Coordination Committee in order to preform annual maintenance on the facility. During this time period, reservoir water temperatures are generally warm and fish migration numbers are low. The FSC will be returned to service mid-October once water temperature begin to cool and fish begin out-migrating again. Water temperature recorded at the FSC on July 14th was 17.9 ^{o}C.

Swift Floating Surface Collector Summer Outage

The Swift FSC was shut down for the summer outage period July 13, 2016. It is anticipated that the FSC will return to service around mid-October. Karchesky provided an update of the total number of juvenile out-migrants collected at Swift FSC from June 20 – July 13, 2016 and the total number of fish collected at the Swift FSC through July 13, 2016, as full detailed in **Attachment B.**

Depart for Crab Creek Acclimation Pond Site

Shrier conducted a safety orientation to inform the participants that the drive will be approximately 90 minutes. The tour will then include hiking the trail and review the gabion wall at the Crab Creek site. No PPE is required other than good hiking shoes. There are many tripping hazards and below the acclimation pond is very slippery. Bring water and carpool if possible. Parking is limited. There will be a brief stop at Cougar for lunch provisions.

Crab Creek:
A general discussion regarding the future of the Crab Creek acclimation site occurred. The primary topic of this discussion was how to restore fish passage after the damage of the December 2015 high flow event.

Upon review of the bedrock, large woody debris, concrete weir, current flow and potential for another high water event this winter the ACC decided to winterize the site, remove the pipe and see what happens over the winter. Site will be revisited next summer. (see photos below of structures as seen at the August 11, 2016 ACC meeting)

<Return to HCC; Meeting adjourned at 3:00 p.m. >

Agenda items for September 8, 2016

- August 11, 2016 Meeting Notes
- Study/Work Product Updates
- Adult Trap Collection Efficiency Evaluation – fall 2016 coho?
- Aquatic Fund announcement

Next Scheduled Meetings:

August 15, 2016 (Aquatic Fund Subgroup)	September 8, 2016
Merwin Hydro Control Center	Merwin Hydro Control Center
Ariel, WA	Ariel, WA
12:00 p.m. – 3:00 p.m.	9:00 a.m. – 3:00 p.m.

Meeting Handouts & Attachments:

- Meeting Notes from 7/13/16
- Agenda from 8/11/16
- **Attachment A –**2016 Spring Chinook Acclimation Planting Schedule and Evaluation Plan, dated August 5, 2016
- **Attachment B -** Lewis River Fish Passage Report (July 2016)

2016 Spring Chinook Acclimation Planting Schedule and Evaluation Plan

Prepared by PacifiCorp

August 24, 2016

Final

Background

Section 8.8.1 of the Lewis River Settlement Agreement states:

> "*Beginning upon completion of the Swift Downstream Facility, the Licensees shall place juvenile salmonid acclimation sites in areas reasonably accessible to fish hauling trucks and in practical areas in the upper watershed above Swift No. 1 Dam, as determined by the Licensees in Consultation with the Yakima Nation and the ACC…"*

To meet this requirement, three acclimation sites were constructed in the upper Lewis River basin upstream of Swift Reservoir. Two of these sites (Muddy River and Clear Creek Acclimation Ponds) were designed to take advantage of natural habitat by reconditioning side channels and using flow control structures to manage in-flow from the main river channel and to maintain adequate water elevation in the ponds. Construction of these sites was completed in fall 2013. The third site diverted water from Crab Creek, which served as inflow to a holding tank placed downstream near the confluence of Crab Creek and the Lewis River. The Crab Creek site was completed in fall 2015. The original intent of all three sites was to hold fish in the early spring for up to 6-weeks before allowing for volitional passage into the river. A total of 38,000 spring Chinook were originally to be stocked at Muddy River site, 19,000 at the Clear Creek site, and 15,000 at the Crab Creek site annually.

Due to a number of unforeseen challenges, these sites have not been utilized as intended. A procedural decision made by the Aquatic Coordination Committee (ACC) to begin releasing acclimation fish in the fall as opposed to holding them in the hatchery and releasing them the following spring has also complicated the use of these sites[1]. A brief summary describing each of these challenges is provided below:

- *Muddy River Acclimation Pond* – Following completion of the pond, the Muddy River site experienced too low of dissolved oxygen levels to support juvenile salmonid life (< 4 mg/L) due to high levels of iron-oxidation from iron bacteria. Aeration units were tried, but they did not increase dissolved oxygen to suitable levels. Pending actions to remedy the iron problem, acclimation fish were planted directly into the Muddy River. In December 2015, the infiltration gallery and water supply control structure to the pond were heavily damaged due to high water. After a site visit and information provided by the Gifford-Pinchot NF Staff on July 14, 2016, the ACC decided that the Muddy River Site would be decommissioned. No fish were ever stocked into this pond.

[1] During their June 2015 meeting, the ACC agreed that releasing acclimation fish earlier in the fall is a better strategy and more akin to the natural out-migration behavior that has been observed in the upper basin. It was also determined that fish released in the fall would be held a shorter amount of time in the hatchery and thus less susceptible to disease (i.e., Bacterial Kidney Disease – BKD) that has been observed in previous years.

- *Clear Creek Acclimation Pond* – Maintaining adequate inflow and pond elevation has been the largest challenge for this site. During spring 2014, approximately 9,000 smolts were stocked in to the Clear Creek Pond, however all fish were released the following week due to low river conditions and reduced inflow. In August 2015, rip-rap was added along the shore near the intake largely improve the structural integrity of the intake structure, but it was also thought to improve inflow. However, similar to the Muddy River Site, the Clear Creek Acclimation Pond sustained heavy damage during the December 2015 high water event. PacifiCorp in coordination with the ACC are in the process of deciding the future of this site.

- *Crab Creek Acclimation Pond* – This site has not been used since its completion in fall of 2015. The Crab Creek site was designed and permitted for spring rearing and release of fish. Fall releases may be difficult at this site due to the hydraulic regime of Crab Creek, which may limit the timeframe in which smolts may be held. PacifiCorp in coordination with the ACC are in the process of deciding the future of this site.

Because of the challenges faced with the holding ponds, the vast majority of acclimation fish have been directly released near the acclimation sites, but not held in the ponds. Since 2012, approximately 355,000 spring Chinook have been directly released into the upper basin (Table 1). All of these releases have been done using a large capacity fish hauling truck and releasing approximately 9,000 to 12,000 fish per load over a short period of time (1-2 days). Overall, information regarding the effectiveness of these releases is largely unknown. Data from PIT tag detections (USGS Crab Creek site) and downstream collection numbers at the Swift Floating Surface Collector suggest that a large portion of these fish move out of the upper basin into the reservoir relatively quickly[2]. Additional information on the residency time following release particularly for fish released during the fall would be helpful for directing future release strategies for the program as well as help make decisions regarding the future of the remaining acclimation sites.

Planting Schedule and Evaluation Plan (2016)

Overview

A total of approximately 34,000 acclimation Chinook are scheduled for direct release in fall 2016 (Table 1). Rather than releasing all these fish in large numbers over a short period of time, it is proposed a proportion of these fish be released in smaller groups over a slightly longer time frame this fall. It is thought that by decreasing the number of fish stocked per planting event, smolts may stay in the system longer and move downstream at a slower rate due to decreased

[2] Detection histories collected at the confluence of Crab Creek in spring 2013 indicated that approximately 60% of tagged acclimation Chinook emigrate within the first seven days following release and 98% within 60 days. Observations at the Swift Floating Surface Collection have noted the arrival of acclimation fish as early as four days after release.

densities. Releasing fish over a slightly longer timeframe will also allow for evaluation of whether timing of release affects residency time for fish released in the fall. That is, do fish released earlier in the fall remain in the tributary streams longer than those released later?

By utilizing a number of Passive Integrated Transponder (PIT) tag antennas presently located in the upper basin, downstream passage of these smaller groups can be monitored. Detection histories will be summarized to determine residency time upstream of the monitoring arrays for each release group. The data collected from PIT interrogations at each antenna will allow for biologist to infer the migration behavior of smolts post-release. These data will help determine the length of time in which smolts resided in their respective system, mean length of time spent in the system prior to outmigration, and whether there are significant differences in residence time among different plantings (i.e., date, system). The 2016 effort will be considered a pilot study and could be used to guide future evaluations designed to assess strategies for acclimation fish releases.

Table 1. A summary of spring Chinook releases as part of the Lewis River acclimation program since 2012.

Species	Brood Year	Plant Date	Number	Size (F/LB)	Plant Site
CK:SP	*2015*	*N/A*	*34,090*	*44.5*	*N/A*
CK:SP	2014	10/21/2015	14,739	23.3	Crab Cr
			33,261	23.3	Clear Cr
CK:SP	2013	3/3/2015	37,022	20.0	Crab Cr
		3/4/2015	72,644	20.0	Clear Cr
CK:SP	2012	10/7/2013	16,200	23.2	Crab Cr
		4/23/2014	18,416*	10.3	Clear Cr
		4/23/2014	21,012	10.6	Muddy R.
		5/1/2014	44,000	10.5	Clear Cr
CK:SP	2011	10/19/2012	15,440	23.0	Crab Cr
		4/1/2013	17,655	12.5	Muddy R.
		4/1/2013	13,665	12.5	Clear Cr
		4/3/2013	18,560	13.5	Clear Cr
		4/3/2013	18,560	12.2	Muddy R.
		4/4/2013	14,256	12.0	Crab Cr

**Note: Includes approximately 9,000 smolts released into the Clear Creek acclimation pond.*

Methods

Five upper basin locations will be used as release sites during the fall of 2016 effort. These locations are (Figure 1):

1. Clear Creek Bridge;
2. Upper Muddy River just upstream of the Smith Creek confluence;
3. Muddy River Bridge;
4. Drift Creek Bridge; and
5. Lewis River Bridge at Crab Creek

Acclimation fish will be released at each location beginning the first week of September, through mid-October (Table 2). Smolts will be released bi-weekly to minimize the effects of overcrowding within the release streams. Four groups of approximately 1,000 smolts each will be released at both the Clear Creek and Muddy River sites for a total of about 4,000 fish released. At the Drift Creek release site, four groups of about 500 fish each will be released for a total of 2,000 smolts. Drift Creek will receive fewer fish than the other two test sites due to its smaller overall size. The remainder of the smolts (23,000) will be considered surplus and be released at the Upper Lewis River Bridge at Crab Creek (15,000) and at the Muddy River Bridge (8,000) in a single group in early September (Table 2).

Approximately 25 percent each release group will be tagged with PIT tags and all tag codes will be identified for each group (Table 2). All fish will be tagged in the belly between the posterior tip of the pectoral fin and the anterior point of the pelvic girdle using methods outlined in CBFWA (1999). All tagged fish will be randomly selected and measured to fork length (mm); it is anticipated that fish will range in size from 90 mm to 160 mm. Tagged smolts will be held a minimum of 24 hours to fully recover and assess any delayed mortality before being released.

Downstream passage of PIT tagged fish will be monitored utilizing existing detection arrays located at the confluence of Clear Creek and the Muddy River, the confluence of the Muddy River and Lewis River, and lower Drift Creek (Figure 1). No detection array will be placed in the Lewis River due to logistical constraints associated with installation and maintenance, as well as expected low detection efficiency (consequently, no fish released in the upper mainstem Lewis River will receive PIT tags). All detection arrays will be downloaded weekly. Beacon tags will be used to monitor detection array operation and identify any outages.

Figure 1. Location of Muddy River, Clear Creek, Lewis River (Crab), and Drift Creek release site(s) and PIT antennae arrays.

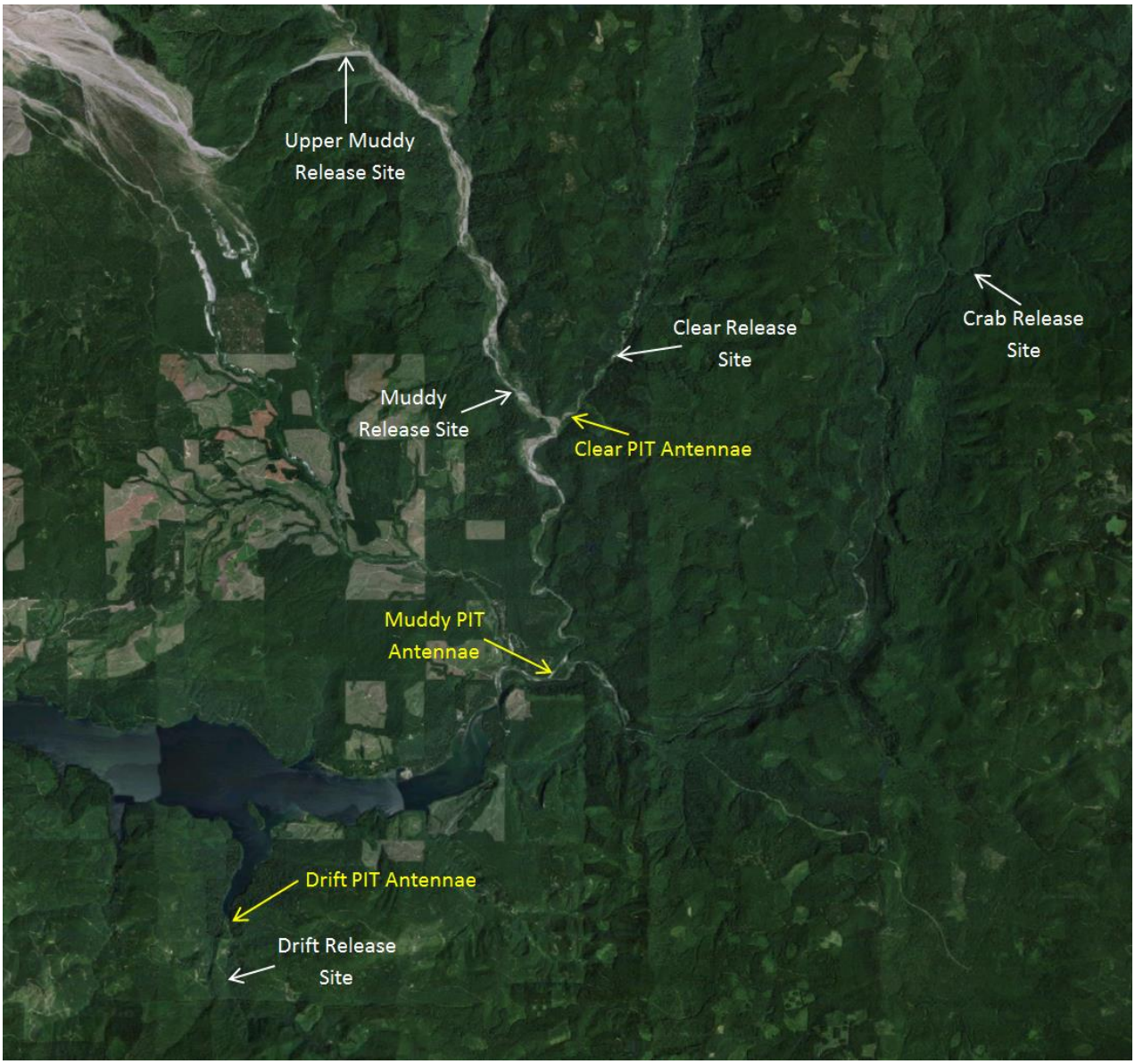


Table 2. Proposed 2016 Spring Chinook smolt release schedule for the five upper Lewis River Release sites. Number of PIT tagged fish within each release group is shown in parentheses.

Period	Muddy River	Clear Creek	Crab Creek	Drift Creek	Total
Sept. 5-9	1,000 (250) Upper Site 8,000 (500) Bridge Site	1,000 (250)	15,000 (0)	500 (125)	2500
Sept. 12-16	0	0	0	0	
Sept. 19-23	1,000 (250) Bridge Site	1,000 (250)	0	500 (125)	14000
Sept. 26-30	0	0	0	0	
Oct. 3-7	1,000 (250) Upper Site	1,000 (250)	0	500 (125)	14000
Oct. 10-14	0	0	0	0	0
Oct. 17-21	1,000 (250) Bridge Site	1,000 (250)	0	500 (125)	2500
Total	**12000 (1500)**	**4000 (1000)**	**15000 (0)**	**2000 (500)**	**33000 (3000)**

Date, time of day, and tag code will be stored for each detection. Detection data for each release group will be summarized across the monitoring period at each site. Residency time upstream of each monitoring site will be calculated for each tagged fish as the difference in date/time between release and detection downstream. To decrease the influence of outlying data points, upstream residency time will be evaluated based on median as opposed to mean time. Comparisons of median upstream residency time among release groups will be made using a standard median test (Conover 1999). Date of release, PIT interrogations at the antennae arrays, and date that tagged smolts are recaptured at the FSC will also be used to estimate residence time in Swift Reservoir.

Conover, W. J. 1999. Practical nonparametric statistics, 3rd edition. John Wiley and Son, Inc. New York, NY.

CBFWA (Columbia Basin Fish and Wildlife Authority). 1999. PIT Tag Marking Procedures Manual. Preparded by Columbia Basin Fish and Wildlife Authority, PIT Tag Steering Committee. Version 2.0. Pages 22.

Lewis River Fish Passage Report

July 2016

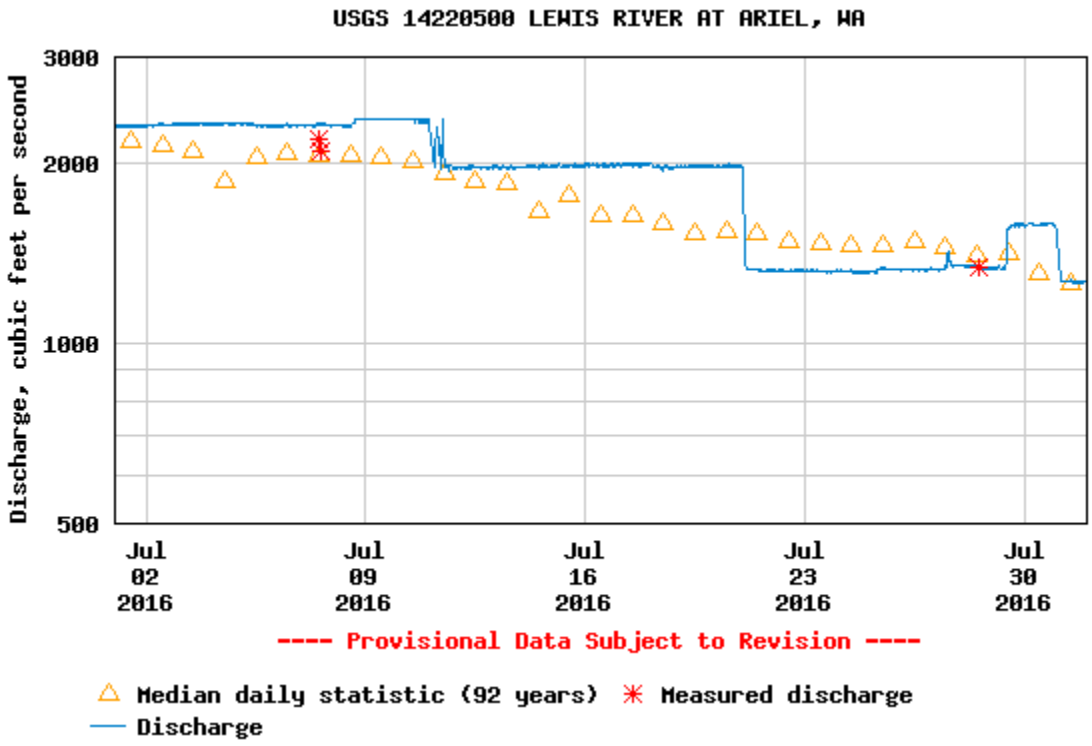
Merwin Fish Collection Facility and General Operations

During the month of July, a total 3,192 fish were captured at the Merwin Fish Collection Facility. The vast majority of these fish (99%) were summer steelhead while the few remaining comprised of mostly of sockeye and spring Chinook. All hatchery fish were given to Washington Department of Fish and Wildlife including twenty-two (22) hatchery spring Chinook for brood stock. Eight (8) coastal cutthroat greater than 13-inches were transported upstream of Swift Dam this month.

The Merwin Trap ran continuously through the month of July. PacifiCorp moved to a 5-day per week sorting schedule in June. Under these conditions, the fish lift and conveyance system remains operational seven (7) days a week, but fish are only sorted Monday through Friday. The trap will return to a seven (7) day per week sorting schedule once early-coho begin to arrive in August. The Auxiliary Water Supply (AWS) system, which can boost attraction flow up to 400 cfs, was operated daily in the month of July.

River flow below Merwin Dam remained at between approximately 2,300 to 1,200 cfs throughout the month of July.

Discharge, cubic feet per second



Upstream Transport

For calendar year 2016, seven hundred sixty seven blank wire tag winter steelhead (three of which were captured at Lewis River Fish Hatchery), six hatchery coho (January 2016), and sixteen cutthroat trout greater than thirteen inches in length have been transported upstream.

Swift Floating Surface Collector

A total of 510 fish were collected at the Swift FSC during the month of July; of which most were transported downstream. The majority (67 percent) of these fish were coho (n=340), followed by planted rainbow (n=136), steelhead fry (n=25), and cutthroat (n=4). No spring Chinook were collected. The Swift FSC was turned off for summer maintenance on July 14, 2016. The summer outage period was established by PacifiCorp with concurrence of the Lewis River Aquatic Coordination Committee in order to preform annual maintenance on the facility. During this time period, reservoir water temperatures are generally warm and fish migration numbers are low. The FSC will be returned to service mid-October once water temperature begin to cool and fish begin out-migrating again. Water temperature recorded at the FSC on July 14th was 17.9 ^{o}C.

Fish Facility Report
Merwin Adult Trap
July 2016

Reporting Date	Spring Chinook [1]											Early Coho																
	AD-Clip			RT Recap		Wild			TOTAL[2]			AD-Clip			RT Recap		CWT			Wild			Wild Recap			TOTAL[2]		
	M	F	JK	M	F	M	F	JK	M	F	JK	M	F	JK	M	F	M	F	JK	M	F	JK	M	F	JK	M	F	JK
01-Jul									0	0	0															0	0	0
02-Jul																												
03-Jul																												
04-Jul																												
05-Jul	2	1	1						2	1	1															0	0	0
06-Jul									0	0	0															0	0	0
07-Jul			1						0	0	1															0	0	0
08-Jul		1	1						0	1	1															0	0	0
09-Jul																												
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11-Jul																												
12-Jul	2	2	1						2	2	1															0	0	0
13-Jul									0	0	0															0	0	0
14-Jul									0	0	0															0	0	0
15-Jul	1								1	0	0															0	0	0
16-Jul																												
17-Jul																												
18-Jul	2	1							2	1	0															0	0	0
19-Jul									0	0	0															0	0	0
20-Jul	2								2	0	0															0	0	0
21-Jul									0	0	0															0	0	0
22-Jul	1								1	0	0															0	0	0
23-Jul																												
24-Jul																												
25-Jul									0	0	0															0	0	0
26-Jul									0	0	0															0	0	0
27-Jul		1							0	1	0															0	0	0
28-Jul		1							0	1	0															0	0	0
29-Jul	1								1	0	0															0	0	0
30-Jul																												
31-Jul																												
Monthly	**11**	**7**	**4**	**0**	**0**	**0**	**0**	**0**	**11**	**7**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Annual	**161**	**169**	**53**	**0**	**0**	**7**	**8**	**1**	**168**	**177**	**54**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Reporting Date	Late Coho															S. Steelhead						W. Steelhead							
	AD-Clip			CWT			Wild			RT Recap			TOTAL[2]			Fresh		Recap		Wild		AD-Clip		BWT		RT Recap		Wild	
	M	F	JK	M	F	JK	M	F	JK	M	F	JK	M	F	JK	M	F	M	F	M	F	M	F	M	F	M	F	M	F
01-Jul													0	0	0	38	41	8	8										
02-Jul																													
03-Jul																													
04-Jul																													
05-Jul													0	0	0	96	144	29	85	1									
06-Jul													0	0	0	18	21	2	6										
07-Jul													0	0	0	29	41	5	12										
08-Jul													0	0	0	38	59	13	21										
09-Jul																													
10-Jul																													
11-Jul																													
12-Jul													0	0	0	103	150	27	69										
13-Jul													0	0	0	21	26	9	6										
14-Jul													0	0	0	15	34	9	13										
15-Jul													0	0	0	29	28	10	13										
16-Jul																													
17-Jul																													
18-Jul													0	0	0	78	132	49	90		1								
19-Jul													0	0	0	27	53	13	26										
20-Jul													0	0	0	39	62	17	32										
21-Jul													0	0	0	27	46	14	17										
22-Jul													0	0	0	41	52	12	17										
23-Jul																													
24-Jul																													
25-Jul													0	0	0	105	50	161	90	1	2								
26-Jul													0	0	0	14	31	7	23										
27-Jul													0	0	0	42	95	8	19										
28-Jul													0	0	0	73	106	20	36										
29-Jul													0	0	0	32	15	63	26										
30-Jul																													
31-Jul																													
Monthly	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**865**	**1186**	**476**	**609**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Annual	**6**	**8**	**0**	**2**	**3**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**9**	**11**	**1**	**1223**	**1630**	**559**	**712**	**3**	**4**	**458**	**487**	**403**	**414**	**52**	**44**	**26**	**23**

Reporting Date	Fall Chinook									Sockeye		Chum		Pink		Cutthroat (>13 inches)	Cutthroat (< 13 inches)	Rainbow (< 20 inches)	Bull Trout (> 13 inches)	Bull Trout (< 13 inches)	Daily Total
	AD-Clip			Wild			Recap														
	M	F	JK	M	F	JK	M	F	JK	M	F	M	F	M	F						
01-Jul										1											**96**
02-Jul																					
03-Jul																					
04-Jul																					
05-Jul										1						1					**361**
06-Jul																					**47**
07-Jul																					**88**
08-Jul											1										**134**
09-Jul																					
10-Jul																					
11-Jul																					
12-Jul											1										**355**
13-Jul											1										**63**
14-Jul											1										**72**
15-Jul										1											**82**
16-Jul																					
17-Jul																					
18-Jul										2	1										**356**
19-Jul										1	2					1					**123**
20-Jul										2											**154**
21-Jul										1						2					**107**
22-Jul										1	1					3					**128**
23-Jul																					
24-Jul																					
25-Jul											1					1					**411**
26-Jul																					**75**
27-Jul											1										**166**
28-Jul											1										**237**
29-Jul																					**137**
30-Jul																					
31-Jul																					
Monthly	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**11**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**3192**
Annual	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	**13**	**0**	**0**	**0**	**0**	**16**	**0**	**18**	**0**	**0**	**6516**

[1] Only hatchery verses wild distinctions are currently being made. All hatchery fish are labeled as "AD-Clip".

[2] Total counts do not include recaptured salmon.

Fish Facility Report

Swift Floating Surface Collector

July 2016

	Coho			Chinook			Steelhead				Cutthroat			Bull	Planted	
Day	fry	parr	smolt	fry	parr	smolt	fry	parr	smolt	kelt	fry	< 13 in	> 13 in	Trout	Rainbow	Total
01	1	1	34	0	0	0	0	0	0	0	0	0	0	0	24	**60**
02	125	11	20	0	0	0	0	0	1	0	0	1	0	0	21	**179**
03	5	2	4	0	0	0	0	0	1	0	0	1	0	0	24	**37**
04	50	7	4	0	0	0	0	0	0	0	0	2	0	0	36	**99**
05	20	3	0	0	0	0	0	1	1	0	0	0	0	0	17	**42**
06	0	6	1	0	0	0	0	0	1	0	0	0	0	0	10	**18**
07	0	6	0	0	0	0	0	0	0	0	0	0	0	0	2	**8**
08	0	11	0	0	0	0	2	0	0	0	0	0	0	0	2	**15**
09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10	0	13	2	0	0	0	12	0	0	0	0	0	0	0	0	**27**
11	0	14	0	0	0	0	11	0	0	0	0	0	0	0	0	**25**
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
15																
16																
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Monthly	201	74	65	0	0	0	25	1	4	0	0	4	0	0	136	**510**
Annual	717	10705	48312	0	565	2857	27	64	2076	47	5	1014	33	39	5170	**71631**

BERKSHIRE HATHAWAY ENERGY