

## Memorandum

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To: Wells, Rocky Reach, and Rock Island HCP  
Coordinating Committees

Date: February 28, 2018

From: John Ferguson, HCP Coordinating Committees Chairman

cc: Kristi Geris

**Re: Final Minutes of the January 23, 2018 HCP Coordinating Committees Meeting**

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The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan (HCP) Coordinating Committees met at the Grant PUD Office in Wenatchee, Washington, on Tuesday, January 23, 2018, from 9:00 to 11:45 a.m. Attendees are listed in Attachment A to these meeting minutes.

### Action Item Summary

- Kristi Geris will coordinate with Tracy Hillman (HCP Hatchery Committees Chairman) and will notify the HCP Coordinating Committees of the date the HCP Hatchery Committees plan to tour the new Wells Fish Hatchery (tentatively scheduled for spring 2018; Item I-C).
- Douglas PUD will further review run-timing data for wild and hatchery yearling Chinook salmon with regard to Wells Dam bypass operation dates and will report back to the HCP Coordinating Committees (Item I-C).
- Chelan PUD will request approval of the 2018 Rock Island and Rocky Reach HCP Action Plan during the HCP Coordinating Committees meeting on February 27, 2018 (Item III-A).
- Lance Keller will provide fish rescue numbers for Rock Island and Rocky Reach dams, to Kristi Geris for inclusion in the meeting minutes and distribution to the HCP Coordinating Committees (Item III-B). *(Note: Keller provided these numbers following the meeting on January 23, 2018, which Geris distributed to the HCP Coordinating Committees on January 24, 2018.)*
- Scott Carlon will verify who is currently the National Marine Fisheries Service (NMFS) point of contact for issuing Section 10 incidental take permits for steelhead (Item III-B).
- John Ferguson will notify Tracy Hillman about HCP Coordinating Committees discussions regarding potential modifications to Section 10 incidental take permits to allow 12- to 18-inch steelhead collected in fish ladders during fish rescues associated with fishway winter maintenance outages to be sampled for coded wire tags (CWTs) and identified as to their source (Item III-B). *(Note: Ferguson discussed this with Hillman via email on January 26, 2018.)*
- Douglas PUD will request approval of the 2018 Wells HCP Action Plan during the HCP Coordinating Committees meeting on February 27, 2018 (Item IV-A).
- The Wells HCP Coordinating Committee will submit a vote via email on the Draft 2018 Wells Dam Gas Abatement Plan and Bypass Operating Plan to Tom Kahler (and copy Kristi Geris) no

later than February 12, 2018 (Item IV-D). *(Note: the Wells HCP Coordinating Committee approved the plan prior to the deadline, as described under the Decision Summary.)*

- Douglas PUD and the Wells HCP Coordinating Committee will complete the following action items associated with the Douglas PUD 2020 Verification Survival Study (Item IV-E):
  - Keely Murdoch will provide smolt-to-adult return (SAR) data, based on CWTs, for coho salmon released and recaptured at Wells Dam.
  - Tom Kahler will ask John Skalski (Columbia Basin Research) to calculate sample size ranges needed, based on SARs, to achieve precision standards for Wells summer Chinook salmon, Winthrop spring Chinook salmon, and Methow coho salmon; and Kahler will determine if these ranges result in capacity issues at Wells Fish Hatchery.
  - Kirk Truscott will determine the feasibility of using Winthrop spring Chinook salmon from Chief Joseph Hatchery for the study, including transferring the fish to Wells Fish Hatchery for rearing.
  - Tom Kahler will determine whether there are permitting issues for rearing study fish at Wells Fish Hatchery.
  - The Wells HCP Coordinating Committee will continue discussing what potential biological risks exist associated with management of verification survival study fish when they return to spawn.
- Kristi Geris will coordinate with Sarah Montgomery (HCP Hatchery Committees support staff) and Julene McGregor (Douglas PUD Information Systems Staff) to add Betsy Bamberger (Douglas PUD Fish Health and Evaluation Specialist) to select HCP Hatchery Committees email distribution lists and provide Bamberger with visitor access to the HCP Hatchery Committees extranet site, as approved by the HCP Coordinating Committees (Item IV-F). *(Note: Geris contacted Montgomery and McGregor, as discussed, on January 24, 2018.)*
- The HCP Coordinating Committees meeting on February 27, 2018, will be held **in-person** at the Grant PUD Wenatchee Office in Wenatchee, Washington (Item V-B).

## Decision Summary

- The Wells HCP Coordinating Committee representatives approved via email the 2018 Wells Dam Gas Abatement Plan and Bypass Operating Plan, as follows: U.S. Fish and Wildlife Service (USFWS) approved on January 25, 2018; Douglas PUD, NMFS, Washington Department of Fish and Wildlife (WDFW), and the Colville Confederated Tribes (CCT) approved on January 26, 2018; and the Yakama Nation (YN) approved on February 2, 2018 (Item IV-D).

## Agreements

- HCP Coordinating Committees representatives present agreed to add Betsy Bamberger, the new Douglas PUD Fish Health and Evaluation Specialist, to select HCP Hatchery Committees

email distribution lists and provide Bamberger with visitor access to the HCP Hatchery Committees extranet site (Item IV-F).

## Review Items

- The Draft 2017 Wells Post-Season Bypass Report (including the appended Draft 2017 Wells Dam Passage Dates Analysis) was distributed to the Wells HCP Coordinating Committee by Kristi Geris on December 29, 2017. The draft report is available for a 60-day review period, with edits and comments due to Tom Kahler by February 27, 2018 (Item IV-C).
- The Draft 2018 Wells HCP Action Plan was distributed to the Wells HCP Coordinating Committee by Kristi Geris on January 22, 2018. The draft plan is available for a 30-day review period, with edits and comments due to Tom Kahler by February 21, 2018 (Item IV-A).
- The Draft 2017 Rocky Reach Juvenile Fish Bypass System Report, Draft 2017 Rock Island Smolt and Gas Bubble Trauma Evaluation Report, Draft 2018 Rocky Reach Juvenile Fish Bypass System Operations Plan, Draft 2018 Rock Island Bypass Monitoring Plan, and Draft 2018 Rock Island and Rocky Reach HCP Action Plan were distributed to the Rock Island and Rocky Reach HCP Coordinating Committees by Kristi Geris on January 22, 2018. The draft documents are available for a 30-day review period, with edits and comments due to Lance Keller by February 21, 2018 (Items III-A and III-C).
- The Draft 2018 Rock Island and Rocky Reach Fish Spill Plan was distributed to the Rock Island and Rocky Reach HCP Coordinating Committees by Kristi Geris on February 1, 2018. The draft document is available for a 30-day review period, with edits and comments due to Lance Keller by March 2, 2018 (Item III-C).
- The Draft 2017 Wells HCP Annual Report was distributed to the Wells HCP Coordinating Committee by Kristi Geris on February 7, 2018. The draft report is available for a 30-day review period, with edits and comments due to Kristi Geris by March 7, 2018 (Item VI-A).
- The Draft 2017 Rock Island and Rocky Reach HCP Annual Reports were distributed to the Rock Island and Rocky Reach HCP Coordinating Committees by Kristi Geris on February 14, 2018. The draft reports are available for a 30-day review period, with edits and comments due to Kristi Geris by March 15, 2018 (Item VI-A).

## Finalized Documents

- There are no documents that have been recently finalized.

## I. Welcome

### A. Review Agenda (John Ferguson)

John Ferguson welcomed the HCP Coordinating Committees and reviewed the agenda. Ferguson asked for any additions or changes to the agenda. The following revisions were requested:

- Tom Kahler added: 1) Wells Dam fishway maintenance update; and 2) HCP Hatchery Committees email distribution list and extranet access – Betsy Bamberger.
- Scott Carlon added Columbia River sockeye salmon stocks and whirling disease.

### B. Meeting Minutes Approval (John Ferguson)

The HCP Coordinating Committees reviewed the revised draft December 12, 2017 meeting minutes. Kristi Geris said she added under the review items the several documents that were recently distributed for review. She said all other comments and revisions received from members of the Committees were incorporated into the revised minutes. Tom Kahler requested one more addition under the Douglas PUD 2020 Survival Verification Study agenda item, explaining that historically, Douglas PUD has not needed to use acoustic tags because there has been no need to determine route-specific survival at Wells Dam. This was discussed during the meeting on December 12, 2017, but was inadvertently not included in the minutes. This addition was made, as requested.

HCP Coordinating Committees members present approved the December 12, 2017 meeting minutes, as revised.

### C. Last Meeting Action Items (John Ferguson)

Action items from the HCP Coordinating Committees conference call on December 12, 2017, and follow-up discussions, were as follows. (*Note: italicized text corresponds to agenda items from the meeting on December 12, 2017*):

- *Kristi Geris will coordinate with Tracy Hillman and will notify the HCP Coordinating Committees of the date the HCP Hatchery Committees plan to tour the new Wells Fish Hatchery (tentatively scheduled for spring 2018; Item II-C).*  
This action item will be carried forward.
- *Chelan PUD will provide the Final 2017 Rock Island and Rocky Reach Fish Spill Program Report to Kristi Geris for distribution to the HCP Coordinating Committees (Item II-C).*  
Lance Keller provided the final report to Geris following the HCP Coordinating Committees meeting on December 12, 2017, which Geris distributed to the HCP Coordinating Committees on December 13, 2017.
- *The Rock Island HCP Coordinating Committee will submit edits, comments, or indication of no comments on the Application for Non-Capacity Amendment for Coyote Dunes, to Jeff Osborn*

*(Chelan PUD) and Lance Keller (and copy Kristi Geris) no later than December 15, 2017 (Item III-B).*

All Rock Island HCP Coordinating Committee representatives responded to Chelan PUD by December 14, 2017.

- *Kristi Geris will resend the email detailing the Application for Non-Capacity Amendment for Coyote Dunes for review, to the Rock Island HCP Coordinating Committee (Item III-B).*

This email was re-distributed to the HCP Coordinating Committees by Geris on December 13, 2017.

- *Lance Keller will verify internally that Chelan PUD has addressed cultural resource impacts, if any, associated with the Application for Non-Capacity Amendment for Coyote Dunes (Item III-B).*

Keller verified that Chelan PUD has initiated the appropriate actions regarding addressing potential cultural resource impacts associated with this amendment, as explained in an email distributed to the HCP Coordinating Committees by Keller following the meeting on December 12, 2017, and by Kristi Geris on December 13, 2017.

- *Douglas PUD will further review run-timing data for wild and hatchery yearling Chinook salmon with regard to Wells Dam bypass operation dates and will report back to the HCP Coordinating Committees (Item IV-B).*

This action item will be carried forward.

- *The Wells HCP Coordinating Committee will submit edits and comments on the Draft 2017 Wells Dam Passage Dates Analysis to Tom Kahler no later than January 5, 2018 (Item IV-B).*

This will be discussed during today's meeting.

- *Douglas PUD will provide a matrix outlining the pros and cons for potential study species to use in the Douglas PUD 2020 Survival Verification Study (including such details as species selection, release location, and tag type), for further discussion and decision in January 2018 (Item IV-C).*

Tom Kahler provided this matrix to Kristi Geris on January 17, 2018, which Geris distributed to the HCP Coordinating Committees that same day. This will be further discussed during today's meeting.

## II. HCP Tributary and Hatchery Committees Update

### A. HCP Tributary and Hatchery Committees Update (Tracy Hillman)

Tracy Hillman updated the HCP Coordinating Committees on the following actions and discussions that occurred during the HCP Tributary Committees meeting on January 11, 2018:

- *Policies and Procedures for Funding Projects:* The HCP Tributary Committees reviewed and edited sections of the Policies and Procedures document for clarity and to reflect a more logical order.

- *Operating Procedures:* Chelan PUD designated Catherine Willard as the voting member and Scott Hopkins as the alternate on the Rock Island and Rocky Reach HCP Tributary Committees. The YN designated Brandon Rogers as the alternate on all three HCP Tributary Committees (Wells, Rocky Reach, and Rock Island).
- *Icicle-Peshastin Irrigation District and City of Leavenworth Fish Screens Project:* The HCP Tributary Committees received a General Salmon Habitat Program proposal from WDFW titled, "Icicle-Peshastin Irrigation District and City of Leavenworth Fish Screen Project." WDFW and Trout Unlimited provided a presentation describing the project. The purpose of the project is to bring both the Icicle-Peshastin Irrigation District (IPID) and City of Leavenworth screens into compliance to protect all fish species and life stages from injury, entrainment, and mortality. The diversions are located at river mile 5.8 on Icicle Creek. The proposed work will complement the Icicle Creek – Boulder Field – Wild Fish to Wilderness Project. The total cost of the screening project is about \$2.4 million. The sponsor requested \$476,000 from HCP Plan Species Account Funds. Although the HCP Tributary Committees support fish passage, the application was found to be incomplete and additional information was requested, including: 1) IPID and the City of Leavenworth need to demonstrate the ability to fund the project, including incorporating respective contributions as line items in the budget; and 2) there can be no strings attached to the funding and implementation of the project. The latter is regarding a letter IPID provided stating, "This agreement would have to have an incidental take permit and hold harmless agreement to cover our continued diversion with our current screens until our new screens are constructed at no cost to the Districts." The HCP Tributary Committees found this to be unacceptable and requested a letter from IPID stating that installation of the screens is not contingent on any other agreements. Once the requested additional information is received, the HCP Tributary Committees will reevaluate the proposal.
- *Upper Columbia Science Conference:* The conference will be held January 24 and 25, 2018, in Wenatchee, Washington, and is hosted by the Upper Columbia Salmon Recovery Board.
- *HCP Tributary Committees Meeting Dates:* The HCP Tributary Committees will continue to meet on the second Thursday of each month in 2018.
- *Next meeting:* There will be no meeting in February 2018. The next meeting of the HCP Tributary Committees will be on March 8, 2018.

Hillman updated the HCP Coordinating Committees on the following actions and discussions that occurred during the HCP Hatchery Committees meeting on January 17, 2018:

- *Coho Salmon Statement of Agreement:* The Rock Island and Rocky Reach HCP Hatchery Committees approved the draft Statement of Agreement (SOA) regarding Chelan PUD's coho salmon obligation. This SOA included the funding arrangement with the YN. The SOA

describing the methodology for meeting Chelan PUD's coho salmon obligation was approved last November 2017.

- *Request for Steelhead Gametes for 2018 Egg-to-Emergence Evaluation:* Chelan PUD requested steelhead gametes to conduct a steelhead egg-to-emergence survival study in the habitat channel of the Chelan River. This study is a requirement of their Federal Energy Regulatory Commission (FERC) license. The HCP Hatchery Committees agreed that Douglas PUD will provide Chelan PUD with four female and four male surplus hatchery-by-hatchery (HxH) steelhead collected from the volunteer channel at Wells Fish Hatchery in spring 2018. Chelan PUD will spawn the fish at Eastbank Fish Hatchery, incubate the fish to the eyed-egg stage, and use the fish in the survival study. John Ferguson asked about the genesis for this requirement. Hillman explained that this study is part of the FERC license requirement for operating Chelan Falls Dam. He said a habitat channel was built near the tailrace in the Chelan River, and Chelan PUD needs to conduct egg-to-fry studies to verify the habitat is serving its proposed purpose. Hillman said he believes these studies are required for both steelhead and summer/fall Chinook salmon. He said the study has been completed for summer/fall Chinook salmon, and now Chelan PUD is completing the study for steelhead.
- *Draft 2018 Rock Island and Rocky Reach HCP Action Plan:* The Rock Island and Rocky Reach HCP Hatchery Committees approved the hatchery portion of the plan.
- *Steelhead Acclimation:* As required by their permit, Chelan PUD is proposing to evaluate residualism using 25,000 HxH steelhead that were destined for Blackbird Pond. These fish would be moved from the "Enzyme-Linked Immunosorbent Assay (ELISA)" pond, which is supplied with Chiwawa River water, to Raceway No. 2, which is supplied with Wenatchee River water. Raceway No. 2 currently supports HxH and wild-by-wild steelhead, which are differentially marked. The 25,000 HxH fish will be split into three size groups (small, medium, and large), with each group marked differently. Chelan PUD and WDFW will prepare a release plan for review. The HCP Hatchery Committees approved the transfer of HxH steelhead from the "ELISA" pond to Raceway No. 2.
- *Brood Year 2017 Chelan Falls Summer Chinook Salmon Culling:* Due to high ELISA levels in female summer Chinook salmon broodstock for the Chelan Falls Summer Chinook Salmon Program, WDFW asked permission from the Rock Island and Rocky Reach HCP Hatchery Committees to cull eyed-eggs from females with ELISA values greater than 0.12. This equates to culling about 35,000 eyed-eggs. As a result of higher than expected ELISA values, relatively high pre-spawn mortality, and less than expected fecundities, the program will likely fall short of its release goal of 576,000 smolts. The Rock Island and Rocky Reach HCP Hatchery Committees approved the culling.
- *Draft 2018 Wells HCP Action Plan:* The Wells HCP Hatchery Committee is reviewing the hatchery portion of the action plan and will likely approve the plan in February 2018.

- *Wells and Methow Fish Hatcheries Transition:* Douglas PUD has fully staffed both the Wells and Methow fish hatcheries and hired Betsy Bamberger as their fish health expert. The Wells Fish Hatchery modernization is mostly complete and National Pollutant Discharge Elimination System permits are in place. The HCP Hatchery Committees will likely hold a meeting at the new facility in April or May 2018.
- *Twisp River Steelhead:* Last year, the Wells HCP Hatchery Committee convened a subgroup charged with developing management strategies for steelhead conservation programs in the Methow River Basin that would increase effective population size and allow local adaptation of Twisp steelhead. The subgroup submitted a memo to the Wells HCP Hatchery Committee outlining four alternatives, and the Committee agreed to implement Alternative 3 (the preferred alternative) as a pilot study in 2018. This preferred alternative balances effective population size with factors enhancing local adaptation.
- *National Marine Fisheries Service Consultation Update:* The Wenatchee steelhead permit was issued and the Biological Opinion (BiOp) for the unlisted programs in the upper Columbia River was signed on December 26, 2017. NMFS is still waiting on approval of the Section 10 permit.
- *U.S. Fish and Wildlife Service Bull Trout Consultation Update:* All Section 7 consultations are complete.
- *Timeline of Changes in Hatchery Programs:* The HCP Hatchery Committees are still working on timelines of major hatchery program changes for spring Chinook salmon, summer Chinook salmon, steelhead, and sockeye salmon. The timelines will inform statistical analyses for the 5-year statistical and 10-year comprehensive reports.
- *Chief Joseph Hatchery Update:* The summer/fall Chinook salmon broodstock experienced significant mortalities because of columnaris disease. Natural-origin fish suffered higher mortalities than hatchery-origin fish. As a result, the program will not release subyearlings; rather, all fish will be released as yearlings. Columnaris is a recurring issue at Chief Joseph Hatchery and is likely related to the warm temperatures of their well water (61°F or 16°C). Hatchery staff are working to reduce stressors. Ferguson suggested drilling deeper wells. Kirk Truscott said the wells are deep already. He said temperature probes are installed in the wells, and some are colder than others. He said October is when columnaris is an issue, which is a time of year when all available water is needed, and water from each well all goes to the same head box where it is mixed. He said the CCT are considering operational modifications to reduce stress, including potentially dividing the adult holding ponds to minimize handling effects. He said the CCT may also pursue securing funding from the Bonneville Power Administration (BPA). He recalled when piping was installed to convey colder water to the head box, the CCT made it clear to BPA they were deferring, not eliminating, facilities in the design to better manage water temperatures; therefore, accessing additional water may be an



option. Mike Tonseth (WDFW) asked if this additional water is considered pathogen free?  
 Truscott said it is.

- *Next meeting:* The next meeting of the HCP Hatchery Committees will be on February 21, 2018.

### III. Chelan PUD

#### A. Draft 2018 Rock Island and Rocky Reach HCP Action Plan (Lance Keller)

Lance Keller said the Draft 2018 Rock Island and Rocky Reach HCP Action Plan was distributed to the Rock Island and Rocky Reach HCP Coordinating Committees by Kristi Geris on January 22, 2018. The draft plan is available for a 30-day review period, with edits and comments due to Keller by February 21, 2018. Keller said the plan is similar to past years, with only two differences (additions) from the 2017 plan: 1) update the HCP Coordinating Committees on Rocky Reach Dam large unit repairs; and 2) update the HCP Coordinating Committees on Rock Island Dam Powerhouse 1 Turbine Units B1 to B4 repairs.

Chelan PUD will request approval of the 2018 Rock Island and Rocky Reach HCP Action Plan during the HCP Coordinating Committees meeting on February 27, 2018.

#### B. Rocky Reach and Rock Island Adult Fishway Maintenance Updates (Lance Keller)

Lance Keller reviewed maintenance updates at Rocky Reach Dam and Rock Island Dam, as follows:

##### Rocky Reach Dam

Keller recalled, during the HCP Coordinating Committees meeting on December 12, 2017, discussing that the upper adult fish ladder at Rocky Reach Dam was taken offline for annual winter maintenance on December 11, 2017, and a fish rescue was conducted in the upper ladder that same day. He said on December 19, 2017, the lower ladder was dewatered for maintenance and a fish rescue was performed that same day. Keller reviewed the species that were recovered from the lower ladder, as follows:

Species	Stage/Length	Clip	Count
Pacific lamprey	adult	NA	48
Rainbow/steelhead	NR	ad-present	14
	NR	ad-clipped	16
	14 inches	ad-clipped	5
	16 inches	ad-clipped	2
	18 inches	ad-clipped	1
Whitefish	NR	NA	150
Sucker	NR	NA	75
Pikeminnow	NR	NA	8
Shiner	NR	NA	2

Species	Stage/Length	Clip	Count
Chiselmouth	NR	NA	6
Sculpin	NR	NA	3
Chinook salmon	juvenile	ad-present	1

**Notes:**

ad: adipose

NA: not applicable

NR: not reported

Keller said he will provide fish rescue numbers for Rocky Reach and Rock Island dams to Kristi Geris for inclusion in the meeting minutes and distribution to the HCP Coordinating Committees. *(Note: Keller provided these numbers following the meeting on January 23, 2018, which Geris distributed to the HCP Coordinating Committees on January 24, 2018.)*

Keller recalled, during the HCP Coordinating Committees meeting on December 12, 2017, discussing the high number of rainbow/O. mykiss (*Oncorhynchus mykiss*) rescued from the upper ladder at Rocky Reach Dam. Keller said he reviewed the numbers and typically O. mykiss dominates. He said he believes hatchery fish have been more common opposed to wild fish, and although he cannot speak to life stage with certainty, the fish are in the 12- to 18-inch range.

Mike Tonseth asked if Chelan PUD has considered lethal removal of O. mykiss? He said he believes there may be value in removing CWTs to try identifying source. Keller said this is an interesting question he has never considered. He said unless the fish is a pikeminnow, Chelan PUD returns rescued fish to the river. Tom Kahler noted that the new Section 10 incidental take permits for steelhead have not yet been issued and suggested incorporating a provision in the new permits. Tonseth said he sees no issues with this, noting that this may fall under adult management. Keller added that it seems obvious these fish are not anadromous. Kahler asked who currently is the NMFS point of contact for issuing Section 10 incidental take permits for steelhead? Scott Carlon said he can find out.

John Ferguson said he will also notify Tracy Hillman about HCP Coordinating Committees discussions regarding potential modifications to Section 10 incidental take permits to allow 12- to 18-inch steelhead collected in fish ladders during fish rescues associated with fishway winter maintenance outages to be sampled for CWTs and identified as to their source. *(Note: Ferguson discussed this with Hillman via email on January 26, 2018.)*

Keller said currently, the lower ladder at Rocky Reach Dam is still dewatered. He said maintenance is underway. He said the contractor repairing the 30-inch raw water valve is onsite and everything is progressing as planned. He said the lower ladder should be back to service by the end of February 2018.

Rock Island Dam

Keller recalled that the right ladder at Rock Island Dam was taken offline for annual winter maintenance on December 4, 2017. He said the ladder was back in service on December 15, 2017. He said during this short outage, engineers completed an inspection of the ladder, including inspecting the new sluice gate, RO4, installed during the 2015/2016 winter maintenance. He said everything tested well with the new gate.

Keller said the left ladder at Rock Island Dam was taken offline for annual winter maintenance on December 18, 2017, and was back in service on January 15, 2018. Keller reviewed the species that were recovered from the left ladder, as follows:

Species	Stage/Length	Clip	Count
Pacific lamprey	ammocoete	NA	1
Rainbow/steelhead	NR	ad-present	13
Red sided shiner	NR	NA	2
Chinook salmon	adult	ad-present	1
		ad-clipped	1
Carp	adult	NA	1

**Notes:**

ad: adipose  
 NA: not applicable  
 NR: not reported

Keller said the center ladder at Rock Island Dam was taken offline for annual winter maintenance on January 8, 2018, and a fish rescue was conducted in the center ladder that same day. Keller reviewed the species that were recovered from the center ladder, as follows:

Species	Stage/length	Clip	Count
Rainbow/steelhead	NR	ad-present	13
		ad-clipped	1
Sucker	NR	NA	1
Sculpin	NR	NA	1

**Notes:**

ad: adipose  
 NA: not applicable  
 NR: not reported

Keller said the center ladder will be returned to service next week. He said the mechanic crew is currently verifying the integrity of the recently rehabilitated lower ladder attraction water valves. He

added that all maintenance at Rocky Reach and Rock Island dams could be complete by the first week in February 2018.

### **C. Draft Rock Island and Rocky Reach 2017 Reports and 2018 Study Plans (Lance Keller)**

Lance Keller said the Draft 2017 Rocky Reach Juvenile Fish Bypass System Report, Draft 2017 Rock Island Smolt and Gas Bubble Trauma Evaluation Report, Draft 2018 Rocky Reach Juvenile Fish Bypass System Operations Plan, and Draft 2018 Rock Island Bypass Monitoring Plan were distributed to the Rock Island and Rocky Reach HCP Coordinating Committees by Kristi Geris on January 22, 2018. The draft documents are available for a 30-day review period, with edits and comments due to Keller by February 21, 2018.

Keller said additional upcoming documents for review include the Draft 2017 Pikeminnow Removal Program Report, and the Draft 2018 Rock Island and Rocky Reach Fish Spill Plan. He said the latter is included in a FERC-required Rocky Reach Dam Operations Plan and therefore has time sensitivity associated with it. *(Note: the Draft 2018 Rock Island and Rocky Reach Fish Spill Plan was distributed to the Rock Island and Rocky Reach HCP Coordinating Committees by Geris on February 1, 2018. The draft document is available for a 30-day review period, with edits and comments due to Keller by March 2, 2018.)*

## **IV. Douglas PUD**

### **A. Draft 2018 Wells HCP Action Plan (Tom Kahler)**

Tom Kahler said the Draft 2018 Wells HCP Action Plan was distributed to the Wells HCP Coordinating Committee by Kristi Geris on January 22, 2018. The draft plan is available for a 30-day review period, with edits and comments due to Kahler by February 21, 2018.

Kahler said the Wells HCP Hatchery Committee reviewed the hatchery portion of the action plan last week; however, that portion has since changed. He said the HCP Coordinating Committees portion is located on the first page of the action plan. John Ferguson asked if anything has changed from last year. Kahler said the only new item is the survival verification study. Kahler asked the Wells HCP Coordinating Committee to review the action plan, let him know if there is anything to add, and Douglas PUD will request approval of the 2018 Wells HCP Action Plan during the HCP Coordinating Committees meeting on February 27, 2018.

Kirk Truscott asked if there will be any additional passive integrated transponder (PIT)-tag antennas installed in 2018. Kahler said additional PIT-tag antennas might be installed at the outlets of all four dirt ponds. He said currently, Pond 4 is monitored as fish are pumped into trucks. He said fish in Ponds 2 and 3 are conveyed into a raceway and released from the raceway to Columbia River via the

Wells Fish Hatchery volunteer channel, and Pond 1 is a direct release into the Columbia River via the volunteer channel. He said currently, there is no way to monitor these direct releases into the river, but there is a desire to. He said there is a convenient location behind the screen, but this location might be noisy. He said another possible location is in the pipe where it dumps into the volunteer channel; however, this location is not ideal because it empties to the volunteer channel just upstream of one of the weirs. He said there has been some consideration in extending the pipe to the corner; however, sometimes this area gets inundated by 10 to 15 feet of water (tailwater). Ferguson asked what is driving the need for PIT detections? Kahler said various permits held by Douglas PUD require the District to evaluate, by any means possible, whether fish are residualizing. He said tag detection at release is important to understand because fish are placed in ponds in the fall; however, it is unknown how many tagged fish actually leave each pond.

Kahler said, with regard to the PIT detection system installed in Spill Bay 2, Douglas PUD wants to leave this system as is and collect a few years of data before changing anything. He said Douglas PUD will never wire up the entire spillway. He said if anything, additional antennas might be installed at the far other end, at Spill Bay 10 (the other top-spill bay). Ferguson asked if this is where the thalweg is located, and Kahler said yes. Kahler said he is interested to see how the detection system in Spill Bay 2 performs this year, because last year there was a lot of involuntary spill and subyearlings were likely passing Wells Dam via that route. He said additionally last year, maintenance was being performed on Turbine Units 1, 2, and 4, and Spill Bay 2 is located over Turbine Unit 2, so there was a problem with attraction flow in that area. Andrew Gingerich (Douglas PUD Aquatic Settlement Work Group Technical Representative) asked when the PIT detection system in Spill Bay 2 was in service last year. Kahler said it was in service at the start of the bypass season, but at that time last year, the project was already spilling.

## **B. Wells Dam Fishway Maintenance Update (Tom Kahler)**

Tom Kahler said currently, the west fishway at Wells Dam is offline for winter maintenance and will be back in service on January 24, 2018. He said the east fishway will be taken out of service next week and is the shorter of the two maintenance outages. He recalled longer and shorter maintenance outages for each fishway rotate every year. He said this year, the shorter routine maintenance is planned for the east fishway. He said a little more than 2 weeks are noted for this maintenance in the Draft 2018 Wells HCP Action Plan.

## **C. Wells Dam 2017 Post-Season Bypass Report (Tom Kahler)**

Tom Kahler said the Draft 2017 Wells Post-Season Bypass Report (including the appended Draft 2017 Wells Dam Passage Dates Analysis) was distributed to the Wells HCP Coordinating Committee by Kristi Geris on December 29, 2017. The draft report is available for a 60-day review period, with edits and comments due to Kahler by February 27, 2018. Kahler said similar to past years' reports, the first

page is a summary of bypass operations and the rest of the document is the passage dates analysis. John Ferguson recalled discussing this document over the last few meetings, notably with regard to separating out wild versus hatchery fish. Ferguson said Douglas PUD has an action item to further review run-timing data for wild and hatchery yearling Chinook salmon with regard to Wells Dam bypass operation dates and will report back to the HCP Coordinating Committees. Kahler said he is still working on this action item.

#### **D. 2018 Wells Dam Gas Abatement Plan and Bypass Operating Plan (Tom Kahler and Andrew Gingerich)**

Kristi Geris recalled the Draft 2018 Wells Dam Gas Abatement Plan and Bypass Operating Plan was distributed to the Wells HCP Coordinating Committee by Geris on January 16, 2018. The draft plan is available for review with an email vote due to Tom Kahler (and copy Geris) by February 12, 2018.

Kahler said when Douglas PUD obtained the new FERC license in 2012, the license stipulated that a gas abatement plan and bypass operating plan are due to FERC each year by February 28. He said the requirement is to submit a combined document, but approval from the Wells HCP Coordinating Committee is only needed on the bypass operating plan. He said the license requires only "consultation" with the Wells HCP Coordinating Committee on the gas abatement plan.

John Ferguson asked if anything has changed in these plans from last year. Kahler said no, the plans are identical to last year. Andrew Gingerich said these same plans have been produced and implemented since 2013. He recalled that last year, Jim Craig submitted comments to make the document stronger, but the document is largely the same iteration each year with small changes based on comments received.

The Wells HCP Coordinating Committee will submit a vote via email on the Draft 2018 Wells Dam Gas Abatement Plan and Bypass Operating Plan to Kahler (and copy Geris) no later than February 12, 2018.

*(Note: the Wells HCP Coordinating Committee representatives approved via email the 2018 Wells Dam Gas Abatement Plan and Bypass Operating Plan, as follows: USFWS approved on January 25, 2018; Douglas PUD, NMFS, WDFW, and the CCT approved on January 26, 2018; and the YN approved on February 2, 2018.)*

#### **E. Wells Project 2020 Survival Verification Study - Study Species (Tom Kahler)**

Tom Kahler said the task at hand is to select a study plan species to represent all yearling spring-migrating HCP Plan species. He said discussions to date have included identifying various pros and cons of each species, and the HCP Coordinating Committees suggested that Douglas PUD provide a matrix outlining the pros and cons for potential study species to use in the Douglas PUD 2020

Survival Verification Study (including such details as species selection, release location, and tag type), for further discussion. Kahler said he provided a Comparison Matrix of Potential Study Subjects for the Wells Project 2020 Survival Verification Study (Attachment B) to Kristi Geris on January 17, 2018, which Geris distributed to the HCP Coordinating Committees that same day. Kahler said in reviewing Attachment B, it seems obvious why Douglas PUD is proposing to use yearling summer Chinook salmon for the study. He said this species is the simplest, has a lot of advantages, and very few disadvantages.

Mike Tonseth asked how many study fish are needed, and what is the proposed detection methodology. Kahler said the sample size for the 2010 survival study was approximately 80,000 fish. He said this sample size easily met the precision targets for juvenile survival and met (although it was close) the precision targets for the delayed mortality requirement. He said Douglas PUD may propose a larger sample size for the 2020 study, suggesting perhaps 85,000 fish. He said sample size will ultimately be based on the results of a power analysis, SARs, and which stocks are used for the study. He said PIT tags will be used, which are required in order to evaluate delayed mortality.

Kahler said on January 19, 2018, he requested that mid-Columbia River coho and summer Chinook salmon SARs be added to the SAR estimator tool on the Columbia River Data Access in Real Time database (DART) site ([http://www.cbr.washington.edu/dart/query/pit\\_sar\\_esu](http://www.cbr.washington.edu/dart/query/pit_sar_esu)). He said as of yesterday, January 22, 2018, these data have been added and are available for review. He noted, however, there is no way to exclude mini jacks from the SAR estimates. He explained that SARs drive sample size when evaluating delayed mortality, and based on the new data available in DART, PIT-tag-based spring Chinook salmon SARs are approximately half those of yearling summer Chinook salmon SARs, not the approximately 1/10th reported in the matrix, which value was based on SARs derived from CWTs (see under spring Chinook salmon cons in Attachment B). He asked if the YN use CWTs for coho salmon. Keely Murdoch said CWTs have been used in past years; however, the YN are transitioning to parentage-based tagging. Murdoch said she believes only CWTs have been used to date, but she would need to verify this. She added that a draft 2016 report, which contains SARs data for coho salmon will be available for review soon.

Kahler reviewed SAR data off of DART using the SAR category "Rocky Reach (All) to Bonneville Adult" (i.e., adult returns to Bonneville Dam of juveniles detected at the Rocky Reach Juvenile Fish Bypass System [RRJFBS]), based on PIT-tags, and compared those with CWT-based SARs reported in the 2016 annual monitoring and evaluation report for hatchery programs funded by Douglas PUD. He said, however, because the study will employ PIT-tags, and PIT-tag returns will be used to estimate delayed mortality, the PIT-tag data provides the relevant information for determining sample size and comparing candidate study subjects. He said data based on CWTs are not identical to PIT-tag data.

Tonseth said he anticipates the sample size required for spring Chinook salmon (springers) would be higher than for summer/fall Chinook or coho salmon. He asked about the number of PIT detections at RRJFBS for springers. Kahler said detections range from 4,028 to 11,055 for spring Chinook salmon and from 4,900 to 42,000 for summer Chinook salmon.

John Ferguson asked what SAR was used in the power analysis for the 2010 study. Kahler said he cannot recall and would need to review the report.

Kahler said he does not believe there were many PIT-tagged summer Chinook salmon (summers) above Wells Dam at the time of the 2010 study. Tonseth said there would have been from the Carlton and Similkameen programs.

Kahler continued reviewing Attachment B. Murdoch noted that coho salmon usually always come back as 3-year-olds.

Tonseth asked if the Wells HCP Coordinating Committee has considered tagging additional springers from the segregated harvest program at Chief Joseph Hatchery. He said using these fish would have the same benefits as using summers; however, instead of producing additional summers for the study, the verification study would use however many additional springers are already being produced upstream at Chief Joseph Hatchery. He said these fish could be released at the mouth of the Okanogan River, mouth of the Methow River, and downstream of Wells Dam, without the Endangered Species Act (ESA)-related issues associated with using fish from the Methow Safety-Net and Okanogan River Section 10(j) programs.

Kirk Truscott said the CCT would have to think about this with regard to risk and logistics. He added that there is no history of SARs for these fish. Kahler said without SARs, understanding sample size will be tricky. He said Douglas PUD conducts this study every 10 years and suggested if springers from Chief Joseph Hatchery are not used in 2020, this idea can be further discussed and evaluated for use in the 2030 study. Truscott said whatever species is chosen, there should be equal release strategies, and the releases should also be volitional. Kahler said Douglas PUD randomly assigns fish to a release container so there is no bias with rearing vessels. Truscott said the CCT holds all fish in one large pond, which at full program is about 700,000 fish. Kahler asked if Chief Joseph Hatchery is setup to segregate out a proportion of those fish, and Truscott said probably not.

Ferguson asked where the summers will come from, and Kahler said from Wells Fish Hatchery. Tonseth said another concern with summers is the BiOp recently issued for upper Columbia River summer Chinook salmon did not include fish for the verification study. Kahler said summers for this study will come out of Douglas PUD's yearling production, so the fish will already be permitted.



Ferguson recalled discussing in past meetings that a decision is needed no later than February 2018. Truscott asked why the urgency? Kahler clarified that at least 85,000 fish will be used from the 320,000-fish program. Truscott said if the study fish are part of the 320,000-fish program, making a decision by February 2018 is not an issue for the annual Broodstock Collection Protocols.

Truscott questioned the release location at the mouth of the Okanogan River, noting that Wells Project effects reach farther (up to 14 miles) upstream than just at the mouth. He said this may not be a true accounting of Project-level mortality out of the Okanogan Basin. Kahler said the Wells HCP stipulates releasing at the mouth. Ferguson added, for comparability, the release locations should be the same places as in the 2010 study. Kahler also clarified that Project effects extending 14 miles into the Okanogan River are only under extreme conditions, and conditions in the reach are typically really turbid anyway. Andrew Gingerich added that the challenges the Okanogan River faces is not just because of Project influence, but rather a host of other environmental changes which have occurred over the last several decades.

Truscott questioned using Wells Fish Hatchery stock for release at the mouth of the Okanogan River with regard to straying into the Okanogan River. He suggested possibly reviewing past CWT recovery data to determine how many fish from the 2010 study may have strayed into the Okanogan River. Tonseth said WDFW may have the same concern with releases at the mouth of the Methow River. He said Chinook salmon do not seem to have as strong of a sense for homing compared to steelhead when truck-planted. Truscott added that Wells Fish Hatchery stock are a more domesticated stock. He said the issue associated with reviewing the spawning contribution data from 2010 is that the 2010 study fish were only PIT-tagged, not CWT-tagged. Tonseth suggested reviewing adipose-clipped, not CWT-tagged fish, and assume those were Wells Fish Hatchery stock. Truscott said if he finds something interesting he will bring it back to the HCP Coordinating Committees.

Kahler said if the Wells HCP Coordinating Committee proposes using spring Chinook salmon from Chief Joseph Hatchery, this will need to be reviewed and approved by Douglas PUD policy staff. Kahler asked about transferring the study fish to Wells Fish Hatchery when the fish are ready to pond out to the acclimation sites. Truscott said the CCT will likely be opposed to this because the fish will then likely home to Wells Dam. Tonseth said this also increases the risk of straying to the Methow River. Kahler said there is so much riding on a survival study, he has a strong reluctance for someone else raising study fish for a Douglas PUD study. Jim Craig asked if Douglas PUD could use both springers from Chief Joseph Hatchery and summers from Wells Fish Hatchery. Craig said if something happens to one stock, use the other. Tonseth noted this is still predicated on the CCT being able to do this. Truscott said even if these fish could be separated, this still means releasing a non-listed fish at the confluence of a river where the goal is to increase endemic species. He said he is not sure the CCT want to do this.

Kahler said the results of this survival study have the potential to affect compensation; however, survival is evaluated as a multi-year average, so results would need to be extreme to affect compensation. Ferguson asked if Douglas PUD has calculated what level of survival in the 2020 study would result in the Project no longer being in compliance. Kahler said the verification study estimate can be no less than 93% survival, and if the survival is 93% in 2020, the resulting 5-year estimate would be 95.6%. He said if Douglas PUD fails to achieve 93%, the study can be repeated two more times, and then can result in operational changes if the standard is not achieved. Lance Keller said this can also result in phase designation changes.

Murdoch said in Attachment B, under coho salmon, the bullet indicating "Coho have a tendency to rear in reservoirs upstream of McNary Dam rather than exhibit obligatory migratory behavior" is not consistent with the YN data. She said it does occur; however, it is about 0.1%. She asked if this is just a belief of some managers, or does Douglas PUD have data she has not seen. Kahler said this statement is based on the Turtle Rock Program. Murdoch said she does not believe this is true anymore. She recalled the Turtle Rock Program had many issues, which is why it was discontinued. Kahler said this statement does not necessarily represent coho salmon programs today; however, it has happened in the past. Murdoch said the YN have release data from Wells Dam and she recalls those fish did really well. She said she will provide these data, even though they are based on CWTs.

Craig asked if Douglas PUD chooses to study springers and the study fails, is the retest done with springers again? He cautioned making sure there is sufficient broodstock, if needed. Tonseth said if the same species is consistently used to reflect survival for any other yearling-sized species, this makes a broad assumption without other data. He said when evaluating long-term, mitigation responsibilities, as some point, managers need to step outside of the box and use other HCP Plan species to be sure assumptions are true. Kahler said to date, Douglas PUD has conducted 2 years of steelhead and 2 years of summer Chinook salmon survival studies. Murdoch said the YN need to further discuss this internally and prefers not to vote today. She said she likes the idea of studying untested species like springers and coho salmon; however, she also understands these come with more risks. She said she likes coho salmon because no regional PUD has studied coho salmon. She said she does not feel any of these species choices will cause huge issues, and she is curious what other Wells HCP Coordinating Committee representatives are thinking.

Ferguson recalled from the HCP Coordinating Committees meeting on October 24, 2017, the discussion that there are no coho salmon in the Okanogan River, and if this species is chosen there will only be a Methow River release. Kahler clarified the Wells HCP indicates that Project survival will be studied using yearling Chinook salmon and steelhead originating from the Okanogan Basin. He said the HCP does not prevent releases of coho salmon at the mouth of the Okanogan River, but it also does not say coho salmon should be released at the mouth of the Okanogan River.

Tonseth said he still likes the idea of using spring Chinook salmon and suggested using springers from the Methow Safety-Net Program, even though these fish are ESA-listed. He said this program includes 600,000 juveniles—200,000 Section 10(j) Okanogan River and 400,000 Methow River fish. He suggested planning ahead to produce and PIT-tag 30,000 Section 10(j) Okanogan River fish, so releasing fish at the mouth of the Okanogan River will now be a non-issue. He said using 30,000 fish from Winthrop National Fish Hatchery will represent the Methow River releases. He said this plan gets over the hurdles discussed regarding use of Chief Joseph program springers. Ferguson asked about permit issues. Tonseth said there are only permit issues for releases within the tailrace. Kahler said considering SARs, this plan to use spring Chinook salmon may double the required sample size, which may result in capacity issues at Wells Fish Hatchery.

Ferguson asked what next steps are needed to use a new species for the 2020 study. Tonseth said it seems Douglas PUD needs to figure out what the sample sizes will be. Kahler said he can coordinate with John Skalski on this. Ferguson said this may not be one number; rather, a range depending on recent ocean conditions.

Truscott said summer Chinook salmon seem to be the easiest choice and are consistent with past studies. Kahler said coho salmon seem to be the next easiest. Murdoch said spring Chinook salmon seem to be the most difficult choice and have possible permitting issues. Tonseth said from a permitting standpoint, the biggest issue is raising spring Chinook salmon at Wells Fish Hatchery, which is inconsistent with the intent of the current permit.

Douglas PUD and the Wells HCP Coordinating Committee will complete the following action items associated with the Douglas PUD 2020 Verification Survival Study:

- Murdoch will provide SAR data, based on CWTs, for coho salmon released and recaptured at Wells Dam.
- Kahler will ask John Skalski to calculate sample size ranges needed, based on SARs, to achieve precision standards for Wells summer Chinook salmon, Winthrop spring Chinook salmon, and Methow coho salmon; and Kahler will determine if these ranges result in capacity issues at Wells Fish Hatchery.
- Truscott will determine the feasibility of using Winthrop spring Chinook salmon from Chief Joseph Hatchery for the study, including transferring the fish to Wells Fish Hatchery for rearing.
- Kahler will determine whether there are permitting issues for rearing study fish at Wells Fish Hatchery.
- The Wells HCP Coordinating Committee will continue discussing what potential biological risks exist associated with management of verification survival study fish when they return to spawn

Craig said he will also discuss this topic with USFWS hatchery staff.

Tonseth said perhaps the most efficient path forward is to use summers for this check-in in 2020, and if data are consistent with the 2010 study, make a commitment to select an alternate species for the next check-in in 2030. He said this gives the HCP Coordinating Committees time to work out the details and is also a plan to make sure assumptions are consistent across all species.

Chad Jackson said he is also supportive of using summer Chinook salmon for the 2020 check-in, but agrees with Tonseth about the need to memorialize the commitment to evaluate other species at the next check-in. Tonseth noted that another consultation will be underway by then, and it would be good to have these components included in the new permits, instead of back-tracking. Ferguson suggested the Wells HCP Coordinating Committee discuss developing an SOA at a future meeting to memorialize the discussions, decision, basis for the decision, and any future commitments.

#### **F. HCP Hatchery Committees Email Distribution List and Extranet Access – Betsy Bamberger (Tom Kahler)**

Tom Kahler said Greg Mackey (Douglas PUD HCP Hatchery Committees Representative) requested to add Betsy Bamberger, the new fish health specialist at Wells Fish Hatchery, to select HCP Hatchery Committees email distribution lists and provide Bamberger with access to the HCP Hatchery Committees extranet site. HCP Coordinating Committees representatives present agreed to add Bamberger to select HCP Hatchery Committees email distribution lists and provide Bamberger with visitor access to the HCP Hatchery Committees extranet site.

Kristi Geris will coordinate with Sarah Montgomery (HCP Hatchery Committees support staff) and Julene McGregor (Douglas PUD Information Systems Staff) to add Bamberger to select HCP Hatchery Committees email distribution lists and provide Bamberger with visitor access to the HCP Hatchery Committees extranet site, as approved by the HCP Coordinating Committees. *(Note: Geris contacted Montgomery and McGregor, as discussed, on January 24, 2018, and Bamberger was added to the distribution list and extranet site.)*

## **V. NMFS**

### **A. Columbia River Sockeye Salmon Stocks and Whirling Disease (Scott Carlon)**

Scott Carlon asked if there are known cases of whirling disease in Columbia River sockeye salmon stocks. Mike Tonseth explained that whirling disease is caused by the parasite, *Myxobolus cerebralis*, which attacks the cartilage of the head and spine of mainly trout and salmon. Tonseth recalled some research being conducted on this in the Columbia River Basin; however, the results were inconclusive. He said he believes the research was prompted by potential cases in the lower Columbia River. Kirk Truscott said he believes whirling disease has been detected in resident fish. Carlon said he

asked because Oregon Department of Fish and Wildlife (ODFW) is considering obtaining adult sockeye salmon from Priest Rapids Dam for release in the Deschutes River. Tonseth asked where these discussions are taking place. Carlon said nothing is official yet; rather, ODFW is only thinking about pursuing this.

## VI. HCP Administration

### A. Draft 2017 HCP Annual Reports (John Ferguson)

John Ferguson said the Draft 2017 Wells HCP Annual Report will be distributed to the HCP Coordinating Committees by Kristi Geris for a 30-day review on Wednesday, February 7, 2018. Ferguson said the Draft 2017 Rock Island and Rocky Reach HCP Annual Reports will be distributed for a 30-day review on Thursday, February 15, 2018. *(Note: please coordinate review of the reports with respective HCP Tributary and Hatchery Committees representatives, as needed.)*

The Draft 2017 Wells HCP Annual Report was distributed to the Wells HCP Coordinating Committee by Kristi Geris on February 7, 2018. The draft report is available for a 30-day review period, with edits and comments due to Kristi Geris by March 7, 2018.

The Draft 2017 Rock Island and Rocky Reach HCP Annual Reports were distributed to the Rock Island and Rocky Reach HCP Coordinating Committees by Kristi Geris on February 14, 2018. The draft reports are available for a 30-day review period, with edits and comments due to Geris by March 15, 2018.

### B. Next Meetings (John Ferguson)

The next scheduled HCP Coordinating Committees meeting is on February 27, 2017, to be held in-person at the Grant PUD Wenatchee Office in Wenatchee, Washington.

The March 27 and April 24, 2018 meetings will be held by conference call or in-person at the Grant PUD Wenatchee Office in Wenatchee, Washington, as is yet to be determined.

## VII. List of Attachments

Attachment A List of Attendees

Attachment B Comparison Matrix of Potential Study Subjects for the Wells Project 2020 Survival Verification Study

**Attachment A**  
**List of Attendees**

Name	Organization
John Ferguson	Anchor QEA, LLC
Kristi Geris	Anchor QEA, LLC
Tracy Hillman <sup>++</sup>	BioAnalysts
Lance Keller <sup>*</sup>	Chelan PUD
Tom Kahler <sup>*</sup>	Douglas PUD
Andrew Gingerich	Douglas PUD
Scott Carlon <sup>*</sup>	National Marine Fisheries Service
Jim Craig <sup>*</sup>	U.S. Fish and Wildlife Service
Chad Jackson <sup>*</sup>	Washington Department of Fish and Wildlife
Mike Tonseth	Washington Department of Fish and Wildlife
Patrick Verhey <sup>*†</sup>	Washington Department of Fish and Wildlife
Kirk Truscott <sup>*</sup>	Colville Confederated Tribes
Keely Murdoch <sup>*</sup>	Yakama Nation

Notes:

- \* Denotes HCP Coordinating Committees member or alternate
- † Joined by phone
- †† Joined by phone for the HCP Tributary and Hatchery Committees Update