Columbia River Regional Forum
SYSTEM CONFIGURATION TEAM
March 20, 2014
Final Minutes

1. Introduction and Review of Meeting Minutes

Today's SCT meeting was chaired by Bill Hevlin, NOAA Fisheries. Representatives of the COE, NOAA, Oregon, Idaho, CRITFC/Umatilla Tribe, BPA, NPCC, Yakama Nation, USFWS, and others participated. Copies of previous minutes, documents mentioned, and meeting sign-up sheets are available from Kathy Ceballos at 503-230-5420 or Bill Hevlin at 503-230-5415.

The SCT meeting was followed by a special FFDRWG meeting focused on adult passage at Lower Granite and the juvenile bypass renovation and outfall site selection.

SCT minutes will now be posted on the FPOM website. Drafts will be posted until final versions are available to replace them. Comments on the January 16 draft SCT minutes are due today, so they can be finalized.

2. John Day Dam Adult PIT Detection Installation

SCT discussed the proposed installation of an adult PIT tag detection system at John Day Dam. Mike Langeslay said the COE now has authorization to get a cost estimate for this project. Additional discussion is needed to explain how this project will fulfill BiOp requirements. Although it would be better to have detection in both ladders, cost would be reduced by installation in only one ladder. Installation of PIT detection equipment at JDA will be more challenging than it was at TDA.

3. Review of Proposed FY15 CRFM Work List and Budget

Randy Chong, COE, distributed copies of the proposed FY15 CRFM spreadsheet and gave an update on the President's FY15 budget. The request differs from previous years in that it has separate categories for salmon projects in the Columbia and Willamette river basins ($69 million) and Pacific lamprey recovery ($2 million), for a combined total of $71 million. That is a significant reduction from the FY14 CRFM budget of $24.57 million for the Willamette River, plus $72.883 million for the Columbia River and $4.1 million for lamprey recovery. This new listing of FY15 funding in three categories in the President's budget could create some extra steps in shifting funds among categories, Chong said.

Bob Rose, Yakama, asked for an update on what has been spent to date on lamprey recovery, as well as funds obligated. CRFM began paying for

lamprey recovery in 2007, Chong replied. In FY2008-2015 the Action Agencies spent $38.7 million on lamprey toward their $50 million commitment under the tribal accords. That leaves a little less than $4 million per year for FY16-18. Rose stated that Battelle has the capacity to create a tag for juvenile lamprey, but there might not be sufficient funding to cover full tag development during the current accord period. There's a proposal for a pilot study in 2017 costing several million that could provide valuable information for the next accord period. This will be discussed at the lamprey meeting April 14-16.

Discussion turned to individual line items:

- #3. Avian predation, $3.2 million – SCT discussed the status of avian management and island construction, and questioned how much more avian habitat is needed. Hevlin requested an update at a future SCT meeting on efforts to date to curb tern and cormorant predation inland and in the estuary.

- #4. Estuary studies, $855,000 – The PBUD for FY15 includes language to raise the cap on the COE's authority to fund estuary studies.

- #5. Ice Harbor performance verification monitoring, $12 million – This estimate is high because it's for two spill treatments (30% spill vs. 45 kcfs gas cap). A large part of the added cost is for tagging. Limiting it to one treatment would drop the cost by $5 million. Idaho advocated developing regional consensus on one treatment in order to conserve funding.

- #16. LGR adult ladder temperature interim measures, $600,000 – This line item will fund a contract to replace the pumps, extend the intake for the pumps, and extend the intake in front of diffuser #14. The goal is to finish the work by June 2015. This could require FPOM coordination to extend the in-water work period.

- #20. Lower river BiOp performance testing, $1.61 million – This includes $1.3 million for the PIT trawl plus closeout costs for testing at JDA and a plan to finish BON testing by 2016.

- #25. Reinstate 10-minute criteria for SNR intake gate closure, $150,000 – The current proposal is to modify the intake gate at the bottom. CRFM funds will pay for an analysis of structural feasibility. Once feasibility is determined, this will become an O&M line item.

  MCNary #19 Performance Verification Monitoring – Tom Lorz, CRITFC, asked whether the 2014 budget included funding for additional downstream arrays at MCN. Erick Hockersmith said FY14 funding covers 2 additional arrays upstream and 3 additional arrays downstream, with 3 nodes per array. Discussion is needed of where to place the arrays,

Fredricks and Fryer agreed. The arrays for the MCN study will be deployed in mid-April, with 3 nodes per array. The nodes will be in locations along the south shore where the river is lower.

- #34. Adult fishways at TDA, $16 million – This line item for construction of a backup AWS has been mentioned in the BiOp since 1995. Previous solutions were estimated as costing in the range of $40 million. The problem, Langeslay said, is that both fish units are needed to meet criteria, and at nearly 50 years old they are approaching the end of their design life, and a failure would create a significant adult passage problem.

4. Update on Spillway PIT Detection at Lower Granite (line item #11, $250,000)

Chong said the COE has enough money budgeted to finish the design this summer for LGR spillway PIT detection if the specifications don't change significantly. The tests at B2CC should be completed in May, we will know then whether the receiver will work, Trevor Conder said.

5. Schedule of Upcoming Meetings

- **April 17** – Next SCT meeting, if needed.
- **April 30** – SRWG research summary meeting (was moved ahead a day by SCT consensus to accommodate site visit at McNary on May 1).
- **May 28-29** – Walla Walla FFDRWG
- **No specific date yet** – Portland FFDRWG

6. Next SCT Meeting

If needed, the next SCT meeting will be April 17, otherwise it will be May 15 in Portland. These notes prepared by technical writer Pat Vivian.

FISH FACILITIES DESIGN REVIEW WORK GROUP
March 20, 2014
Draft Minutes

This meeting of the Fish Facilities Design Review Work Group was a continuation of the morning's SCT meeting. FFDRWG's agenda focused on passage improvements for juvenile and adult migrants at Lower Granite Dam.

1. Design of Lower Granite Juvenile Bypass Renovation and Biological Evaluation

Derek Fryer, COE, and Dave Trachtenberg, COE, led a discussion of the LGR juvenile bypass renovation design, and of the biological evaluation for 2014 which will begin on April 20, the first day of tagging for the overflow weir.

Phase 1a of the bypass renovation will consist of the replacement of one of the two existing 10 inch orifices in each gatewell with a 14 inch orifice. It will also include collection channel widening and new primary dewatering with an above ground transport flume to the separator. It should be finished by March 2016 and will require an extended outage of the current juvenile bypass system. For consideration in future planning, Hevlin said NOAA would like to see two 14-inch orifices in the gatewells of units one and two. This will probably be added as an SCT line item in the future, Trachtenbarg said. As the renovation nears completion the COE will request revisions to the FPP for operation of the new system.

2. Lower Granite Juvenile Outfall Site Selection

Much of today's FFDRWG session was spent evaluating criteria for Phase 1b, selection of a new outfall location for juvenile migrants at LGR. Sean Milligan, COE, gave a presentation on information compiled to date to pinpoint a viable outfall location. Data on currents, velocities and water depth narrowed the potential site to two locations in the LGR tailrace, called the upstream and downstream sites. Sean also covered field data analysis. He asked FFDRWG members to consider the following question:

> *Given the late date and schedule for completion, is it better to pick an outfall location now based primarily on field data analysis? Or would it be more prudent to wait for the model to confirm the available findings?*

Dave Trachtenbarg said the COE would like to stay on schedule to finish the outfall at the same time the collection channel is finished under phase 1a of the LGR juvenile bypass renovation. Sean gave a video presentation on immediate tailrace conditions and described the three main criteria for outfall site selection:

Depth – The outfall location should be at least 11' to allow plunge depth.

Velocity – Should be at least 4 fps or higher where fish are discharged in the tailrace. He presented velocity data and polygons showing an acceptable location under the seven operational conditions surveyed last spring/summer to collect tailrace field data:

1. 30 kcfs river with no spill. Velocity at elevation 633' is 2 fps.
2. 30 kcfs river with normal spill. Velocity at elevation 633' is 4 fps.

3. 30 kcfs with higher than normal spill and only 5 kcfs through the powerhouse (station service). Velocity is 2.5 fps with the RSW in service.
4. 55 kcfs with no spill. This produces a large potential area, but velocities are only 3 fps.
5. 55 kcfs with normal spill. This produces a relatively large area with velocities of 4 fps or greater. Use of unit 1 might extend the polygon.
6. 73 kcfs with normal spill. This also produces a relatively large area with velocities of 4 fps or greater.
7. 134 kcfs with normal spill (full powerhouse with higher than 20 kcfs spill). Under this scenario the outfall would function well located anywhere in the tailrace.

Direction of current – Sean also presented similar graphs for the seven base conditions. The outfall needs to be located away from the navigation channel. The upstream edges of the polygons tended to have higher velocities.

1. 30 kcfs river with no spill. Only a small area offers good downstream egress.
2. 30 kcfs river with normal spill. This produces a very skinny area of acceptable locations due to powerhouse eddies.
3. 30 kcfs with higher than normal spill and 5 kcfs through the powerhouse (station service). This also produces a very skinny area of acceptable locations due to eddies.
4. 55 kcfs with no spill. This polygon of acceptable locations was drawn conservatively.
5. 55 kcfs with normal spill. Also drawn conservatively.
6. 73 kcfs with normal spill.
7. 134 kcfs with normal spill (full powerhouse with higher than 20 kcfs spill).
8. Overlapping all 7 conditions.

Aggradation (loss of depth) is not a major concern at either the upstream or downstream site, although there is some occurring on the downstream edges of the polygons.

Sean summed up the tradeoffs involved in selecting a site:

The upstream location satisfies all criteria inside the polygon: 4 fps or faster current, depth of greater than 11’ at elevation 633’, and acceptable current patterns. This location offers the potential for the highest velocities to carry fish safely downstream. Because it is far from the barge dock on the south shore, this is the preferred site of the tow boaters. However, the upstream site might force fish across a shallow area over the shoal, putting them at risk of being caught up in an eddy. There was discussion about modifying this shallow area to enhance spawning and eliminate this issue.

The downstream location offers a safe path for fish through deep water although they would move almost immediately into a lower velocity area. A disadvantage of this location is its proximity to the barge loading facility, which would be costly ($3-4 million) to move. The tow boaters could support the downstream outfall location if they have assurance the loading facility would be moved in the future. Without that assurance, they favor the upstream site.

Discussion moved to whether or not it makes sense to decide on a location now so work can proceed, or wait a year so that modeling can occur before making a decision. The COE has not yet figured out how to validate the model across all seven base flow cases, Sean said. At 30 kcfs with no spill, the model seems to replicate field data closely. However, as flow volumes increase the model fails to depict eddies accurately, and at 75 kcfs there is no replication of the powerhouse eddy at all. Trevor Conder, NOAA, said it might be worth putting off a decision for another year to allow time for modeling. Sean asked whether other people were ready to decide on a location now.

Russ Kiefer, **Idaho**, said he did not think the region was ready to agree on one location today. Tom Lorz, **CRITFC**, said the upstream site has the most advantages. Hevlin said **NOAA** would like to see if modeling indicates eddy problems at the upstream site.

The drop-dead date for a decision to get the project started this year is April 1. A decision by then would make it possible for the outfall to be operating by spring 2016. Lack of a decision would push the completion date out to 2017. Lorz asked whether the COE is willing to risk design costs by going ahead with the upstream site and changing it later if the modeling isn't favorable. We'd risk wasting funds on design plus loss of a year in the schedule, Sean replied. He favored the upstream site for its higher velocities. So far the COE has spent about $900 thousand on modeling, and the schedule is too tight to design both options now and scrap one after the modeling is done.

Sean asked, if the decision were made now, which location would people choose?

- **BPA** – Supports the upstream site. A choice of the downstream site involves a potential commitment to move the barge loading facility.

- **NOAA** and **Oregon** – More is known about the downstream site, making it a better choice. It's important to keep fish out of eddies. If people prefer the upstream site, modeling will definitely be needed.

- **CRITFC** – The upstream site is better because it has higher velocities, and velocity is more important than depth. Furthermore, the downstream site could expose fish to eddies and push them back upstream under certain turbine operations.

Modeling is of more importance in selecting the upstream site. Trachtenbarg asked about the likelihood of getting the model calibrated over a range of conditions. Sean said flows of 55 kcfs or less could probably be modeled successfully while flows between 60-100 kcfs are uncertain.

There was agreement that either the upstream or downstream site would be preferable to the existing outfall location, which discharges fish into eddies on the north shore and makes them vulnerable to predators. However, neither the upstream or downstream site was a consensus choice because of the tradeoffs involved and lack of modeling information.

Trachtenbarg estimated that the upstream site would cost $10 million to develop, while the downstream site would cost $6 million plus another $3 million to move the barge loading dock. After further model tests at ERDC next week, FFDRWG will meet to discuss next steps re: modeling and outfall selection.

3. Lower Granite Spill and Powerhouse Operations in Response to Adult Passage Delay and Improvements to Provide Cool Water to the Ladder.

This discussion begin with consideration of the draft FPP change form which proposes temporary modification of spill and powerhouse operations to improve tailrace conditions should an adult delay develop next summer at Lower Granite. Chris Pinney, COE, said he has explored possible triggers for the change form. Sockeye are the most affected by low flow conditions and higher temperatures. Last summer the discrepancies between sockeye counts at Lower Granite and Little Goose started around July 1. Summer chinook counts also indicated a delay, with a conversion rate of 55% from Little Goose to Lower Granite. Steelhead are less affected because temperatures tend to wane by the time they pass. Generally, conversion rates last summer suggested that around 45% of the adults were held up from Little Goose to Lower Granite. It appears that at 18 degrees C fish will spend the night in the ladder but at 22 degrees C they turn around and exit the junction pool. Summer chinook will be counted this year from June 18-August 17, peak passage season.

Pinney showed FFDRWG data for several conditions:

- 75 kcfs flows (54 kcfs powerhouse and 20 kcfs spill). This is representative of spring spill. Modeling is needed of what happens in the tailrace during this condition.
- 55 kcfs flows (35 kcfs powerhouse and 20 kcfs spill).
- 55 kcfs flows with no spill, operating units 2-4 at the high end.
- 50% spill at 20-30 kcfs flows.
  30 kcfs flows with zero spill and full powerhouse (units 4 and 6).

Russ Kiefer said Idaho would not support a change form that establishes an automatic trigger for a specific operation. While Kiefer said the COE did a good job of addressing adult attraction last year, he warned against establishing a specific count differential to shut off the RSW and modify spill.

Ryan Laughery, COE, gave a presentation on plans to provide cooler water to the ladder and asked FFDRWG for input on conditions at the main ladder exit and diffuser #14 intake. The COE plans to put a chimney on diffuser #14 and replace the forebay pumps. The changes will be operational in June 2015. There was discussion whether a screen was needed at the diffuser intake, and about shrouding around the intakes to draw cooler water into the ladder.

Pump 2 will no longer have a purpose after the chimney is installed on diffuser #14. Laughery suggested modifying it to pull cold water to the ladder exit. This would give fish an opportunity to dive into cooler water when they enter the forebay.

Pinney said the intent of the change form is to establish a protocol in the FPP to follow when ladder temperature rises above the tailrace temperature and before an obvious adult delay occurs. The first action will be to turn on the forebay pumps to cool the ladder. The next step, if needed, will be to work with spill operations to alter tailrace hydraulics. Hevlin asked whether a temperature trigger would be useful, and Setter was reluctant to pick a specific temperature.

Lorz suggested that FPOM form a subcommittee to select the criteria for establishing triggers. There will be further conversation on this topic at the next FPOM meeting. These notes prepared by technical writer Pat Vivian.

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