Attachment L

Dolores River Dialogue -- Technical Committee
August 5, 2009
Monthly Meeting

Next Meeting: Tuesday, 9/15/09, 9:am to 12:30 p.m.

Present: Brooke Childry, AmeriCorps Member, Chester Anderson, Greg Espegren (phone), Mely Whiting, Randy Carver, Jim Siscoe, Mike Preston, Ann Oliver, Carolyn Dunmire, Chuck Wanner, David Graff, Ken Curtis, Jim Fisher, Vern Harrell, Amber Clark and Marsha Porter-Norton, facilitator.

Opening: The agenda was adjusted to include the Flagstaff conference.

Meeting Notes: Several changes were made to the previous month's meeting notes and they were not approved. Marsha will get clarifications from Jim Siscoe. They will be discussed at the next meeting.

AmeriCorps: Brooke Childry was introduced as the new Americorpse Member. She is supervised by Chester and housed at MVIC. Her work is with the DRD. Chester and Brook are working on a work plan and will bring it back to the DRD-TC. Brook went into her background. She has a combined agriculture and science degree.

2009 Spill: Mike Preston elaborated on the handouts related to the 2008 and 2009 spill. At the last DRD meeting, time ran short. Mike made the point that it was unfortunate that the planned fish shocking didn't happen this year but it was not because Jim White, CDOW and the DWCD were not communicating. The timing of this year's run off was unpredictable and very difficult to manage due to the nature of the early heat, disappearance of low snow and eight layers of dust that accelerated the run off. Mike said Jim and the DWCD were in constant contact around when the fish shocking was going to happen. Due to weather, the peak happened three weeks early and it just didn't work out. Of course, having Jim become stranded is not desirable as 400 cfs is needed for fish shocking…at least 2 days at this level, but ideally 4. This is an equipment issue more than a fish shocking issue, David told everyone. David brainstormed that maybe the fish shocking should be moved up earlier every year, such as in April.

Mike further explained that while indicators exist that go into the forecast for a run off and spill, they can be unpredictable and 2009 was especially so. Also, Ken said some conditions that affect a run off are not in the official forecast. Ann asked when a decision was made to fill the reservoir first and then spill. Mike said this decision was made early on and that actually, at one point, it was thought there would be no spill. In March, it was known that this would be a low snow year.

Carolyn again expressed that for rafters that while there were 14 raft-able days, what rafters want is a minimum of 1,000 cfs and two weeks notice. Mike and Ken said this isn't always possible given all the factors they explained about forecasts, the weather, etc. Carolyn said this should be something to shoot for in the future. Mike said next year the DWCD may very well say: *This is what we are doing. Rafters: make your own decisions about your trip.* The communication part of this is very tricky, Mike relayed and the DWCD is rethinking how it communicates information about spills. Perhaps in medium to low water years, absolutely no promises are

made. Of course, in high water years, everything is much easier to manage. Mike said he felt there were good rafting days but it was unpredictable.

Vern said the goal is to fill the reservoir as quickly as possible each year and with as much water as is possible. Mike noted that the fish pool "clock" is turned off during spills. Ann stated that she felt the spill this year created a shock on the fish, in terms of when it was done and the temperature of the water (being cold). Data is not yet in on the affect. David said part of this management relates to the risks that the water managers are wanting and able to take. "What is the risk threshold the DWCD and BofR and Spill Committee are willing to take?", he posed as a policy question. Jim Siscoe noted that his low snow model he's been working on could be one more layer of predictability and could help manage the risk better. Mike noted that the DWCD was trying the best it could to accommodate everyone but mother nature dictated the factors this year. He ended by saying learning should occur to manage things next year, and develop associated and improved communication techniques through which the variables are communicated and various interests can make their plans and draw conclusions.

Flagstaff Conference: The October conference in Flagstaff is a go. Ideas were solicited for workshop content which focuses on integrating science and management on the Colorado Plateau. Anyone from the DRD-TC wishing to go needs to contact Carolyn and a deadline was set. If someone has a problem with expenses, that can likely be worked out. She agreed to gather ideas for the abstract which is very soon. (Note: the abstract Carolyn submitted is available through a request to her.)

Lower Dolores: The Lower Dolores Plan Working Group was discussed in depth in terms of the processes that will be used to help the group arrive at their recommendations and conclusions. Marsha handed out a document that laid out some concepts and recommendations. There was much discussion. It was agreed, based on a recommendation from Ann and Marsha (with consult from Steve Beverlin), that at the next meeting Ann will present detailed information about the reaches (starting with 1 and 2) and the status of ORVs in the reaches. Then, small groups will form to begin to tackle management questions and overall protection tools. After these small groups are convened around all five reaches, Ann and Marsha will organize all the input by reach.

The DRD-TC needs to eventually get agreement on a decision making process for the larger group to use. Some are concerned about voting because they perceive they are outnumbered. Mely suggested a process by which a caucus is developed of interests who have even numbers votes. Another suggestion Mike gave was that the small groups could be given a list of alternatives and get red dots and blue dots (red meaning unfavorable and blue meaning favorable). Marsha said she has several other decision making tools available for groups but the DRD-TC needs to really get clear on the end game: What is the outcome we're looking for here? Steve Beverlin has told Ann and Marsha that a report expressing any consensus reached along with documentation of the full range of ideas, alternatives and concerns would be most helpful as well as answering the *why* questions. If people do or do not like something, explaining *why* this is the case ~~ is most helpful to the USFS/BLM. The point was made several times that related to the WSR issue specifically, the larger group needs to be really educated about the fact is they don't find a workable alternative, suitability will defacto become the tool. So, the group should be pushed specifically on this issue to try to find a workable alternative, several noted. Chuck and Amber mentioned that an NCA has been discussed as one of those possible alternatives. Everyone was asked to continue to think about a fair and equitable way for the larger group to move to conclusions. This agenda item will be continued and concluded in September.

Mely asked how the Lower Dolores process fits with the DRD and its goals. There was a long discussion. Essentially, the DRD and DRD-TC's work will continue past the Lower Dolores Plan Working Group. The Lower Dolores Plan Working Group is about giving recommendations to the USFS/BLM some of which relates directly to what the DRD has been about – ways to improve the Lower Dolores' ecological conditions while honoring water agreements/uses. In some cases, the DRD may take the Lower Dolores Group's work and integrate it in. (Note: To further address this question, please refer to the grant written to the CWCB for the Lower Dolores Plan Working Group project. The grant goes into extensive background on how the DRD became involved and other relevant history. It's in the Lower Dolores notebooks and available from Marsha or Mike upon request.)

Finally, a request was made and there was general agreement that the DPLO-ID Team needs to be more involved in the Lower Dolores Plan Working Group. The concern expressed is that the group will do a lot of work and write a report and the ID Team will get it "cold" and could, under some circumstances, possibly disregard some of the main work without early buy in and understanding of the Lower Dolores Plan Working Group, it's goals, it's processes, etc. Marsha said she will address this with Steve.

Video: A proposal was put forth by a video producer who inquired if the DRD wanted one done on the Lower Dolores or the work of the DRD. The group said no, at this time, there is too much going on.

Retreat: Marsha will send out suggested dates for a fall DRD-TC retreat. Be looking on email to respond to potential dates.

Big Gyp Project: The CWCB grant scope of work will be discussed at a future meeting more in-depth.

Flow and Temperature Presentation: Time was running short and several people had to leave. Chester gave a presentation about his temperature and flows work presentation to a smaller group. He will be placed on the agenda ***first*** at the next meeting for a recap. The notes from that meeting are below.

Submitted by Marsha Porter-Norton

Summary of Chester Anderson's presentation/discussion with DRD-TC members August 5, 2009 (following regular DRD-TC meeting)

Chester presented analysis of water temp data in relation to air temp and flows, analysis of algal growth, and of DO in relation to temperature, and his hypothesis that it would be better to avoid releases from the nutrient rich bottom of the reservoir via the bypass pipe, but rather to use the higher outlet works and his hypothesis that SLOW 3 might still be below the thermocline in late summer and in the spring (thereby eliminating the danger of releasing non-native fish from the reservoir into the river).

Temperature and Flows

Conclusions:

- <100 - 200cfs, air temperature drives water temperature @ Bradfield Bridge.
- >100-200 cfs, discharge from McPhee influences water temp @ Bradfield even during warm periods of July/august early September.

- Current data lacks much information in the 100-200cfs range, thus the current gap in the predictive temperature model.
- Flow management in July, August and early September seems to be key to maintaining critical water temp in reach 1 within a favorable range (avoiding chronic/acute temperatures) for cold water fishery.

Recommended Next Step:

- Gather and organize rest of temperature/flow data and create model for flow and air temp to help guide releases for cold water fishery below McPhee.
- Continue to refine model utilizing temperature flow data being gathered by Ken Curtis.

Discussion:

- Ken noted that it might be possible to move June water to July to help avoid July/august rise in water temp.
- Need to look at BOR data (Kirk Lashmett). Not sure how well organized it is. Kirk is retired but Stan Powers is going to help me. Stan mentioned their (BOR's) preliminary work at creating this model. I will also look through Jim's computer files on the Dolores to see what he has compiled up to this point.

Dissolved Oxygen

Findings/conclusions/questions regarding Dissolved Oxygen in reach 1:

- Temperature is not controlling DO in reach 1, because of high photosynthesis (by algae) occurring in the afternoon and thus saturation of the water with dissolved oxygen and high production of organic matter and subsequent decomposition (respiration) that takes oxygen out of water at night.
- There is a high amount of organic matter immediately below the dam, due to nutrients coming out of bottom of reservoir. Organic matter is being exported downstream, affecting DO levels in lower reaches.
- Either temperature or low DO or both could be limiting cold water fish in reach 1. It appears that nitrate/nitrite, ammonia and orthophosphate are coming out of bottom of dam. Is this possible? What about toxic effects of nitrates and ammonia? Will be measured this fall in reservoir.
- *Note:* riparian canopy is also important for limiting photosynthesis by algae (thus production of organic matter) and to provide refuge for trout and to reduce stream temperatures (from literature research).

Overall Conclusion/Hypotheses:

- In Reach 1, DO is low (may be limiting to cold water fishery) due to decomposition of Algae.
- Algae biomass is high below the dam due to high concentration of nutrients in water released from bottom of reservoir.
- May be possible to improve conditions for cold water fishery (DO) by adjusting the elevation from which water is discharged from the dam.
- May be possible to do so without the danger of releasing non-native fish (white suckers, small mouth bass, sunfish, walleye) from the reservoir into the river.

Chester's Recommendations on Next Steps:

- Literature/data research.

- Create Air/Water Temperature/Flow Model for Reach 1 to predict necessary flows to keep temperature above thresholds for trout.
- Measure thermocline in reservoir at different times of the year (Spring/Fall) in McPhee in relation to SLOW's.
- Measure fish population: where are the fish relative to the thermocline in spring and in fall?

Discussion, Information and Further Science Questions:

- Are fish getting through the SLOW? Obtain Mike Japhet's data/observations that Vern mentioned: netting the outlet works to see what if any fish come through.
- Can fish get through the turbines alive?
- The only documented instance of fish escaping from the reservoir into the river was when spill water went over the spillway in (?).
- Why are fish not getting through the slow during the fall turnover when there is no thermocline and the 3rd slow is only 60 feet below the surface of the reservoir?
- What about thermal shock to trout in instances where releases jump from base cfs to high flows in very short period of time (e.g. 2009 spill)?
- Having an operational report summary from the BOR/DWCD would be helpful (i.e. where flows come from in reservoir under different release scenarios and why).
- Jim White would be very interested in Chester's data.
- Also, consider presenting data and ideas to Biology Committee.
- Consult with Pat Martinez, CDOW reservoir researcher regarding outlets/thermocline Q.
- Chester would like to have Brooke:
  1. Contact people to obtain data that exists out there and organize data so that it may be analyzed properly and utilized to create predictive temperature/flow model.
  2. Develop a library of existing data and reports for the DRD.
- Chester will use 25K budgeted from CWCB Severance Tax funds in the following way:
  1. 20K to sample McPhee this fall (DO, nutrients, gillnetting and temperature).
  2. 5K to look at all existing data
- Vern suggested Chester Contact Kirk Lashmett, formerly of the BOR, directly to obtain data and observations
- Ken continues to collect water and air temperature at Bradfield Bridge.
- Mike explained that he needs to provide deliverables for CWCB Wild and Scenic Grant, and asked that Chester (and other DRD science partners) should provide recommendations for what data collection DRD should plan to pursue in:
  A. a spill year
  B. a non spill year
- Measure algal biomass below reservoir if water can be utilized from different slow and levels in the reservoir.
- Fill in data gaps in temperature/flow model (100-200 cfs) during July – mid-September.
- Understanding effects of organic matter from upper reaches on DO and native fisheries in lower reaches.
- What are DO/temperature requirements of native fish in lower reaches?
- Ideas raised to reallocate TU money budgeted in W&S grant toward funding spring sampling of thermocline, inclusion of Dolores in Chris Landry's dust on snow research, etc.

- Group agreed it would be good to identify high priority research/monitoring projects for advancing the DRD science ball.
- David Graf reported that in a recent conversation, Barry Nehring, CDOW, confirmed that the 78cfs for the decreed ISF was based primarily on an analysis of average wet year base flow, not on an identification of biological needs.