Upper Colorado River
Endangered Fish Recovery Program

Dated: May 21, 2021

Biology Committee Summary

May 6, 2021 8:00 am- 12:00 pm MST

BC members: Derek Fryer, AJ Keith, Lori Martin for Harry Crockett, Paul Badame, Pete Cavalli, Dale Ryden, Dave Speas, Melissa Trammell, Tom Pitts

Interested Parties: Don Anderson, Bart Leeflang, Tom Chart, Colleen Cunningham, Travis Francis, Katie Creighton, Matt Breen, Kevin McAbee, Gene Seagle, Tildon Jones, Ashley Jackson-Baillie, Ryan Christianson, Kevin Bestgen, John Caldwell, Jojo La

CONVENED: 8:05 a.m.

1. Review/modify agenda – Dave Speas recommended a discussion about razorback sucker hybridization based on the new results out of the San Juan. Collections of 50 mm fish were mostly razorback/flannelmouth hybrids. AJ supported a conversation on this topic. Kevin Bestgen asked what technique was used to identify the hybrids. Mitochondrial analysis was used. Kevin has not seen these patterns in the upper basin yet. Melissa noted that the majority of larvae captured in the San Juan River through the years have been identified as pure razorback. Dale said his crews found ~50 young-of-year a few years ago, followed by a much lower catch. Steve Platania posited that it could be that razorback sucker may not grow fast enough to be available to sampling. Dale said it was worthy of discussion to figure out how big the problem is. Dave would also like to revisit stocking bonytail in LTSP wetlands. >Both items will be added to the July agenda. AJ asked for a White River update. Don Anderson said a meeting is scheduled for the second week in May to discuss the level of depletions expected to be covered by a PBO.

2. 2021 Hydrology Update – Don Anderson reviewed hydrologic conditions across the basin. All basins are expected to be at or below 50% of normal April-July runoff, which is likely to carry over into very low late-summer base flows this year, barring monsoon relief. Drought is expected to persist across the west and develop in areas where it is not currently. Monsoonal moisture would be beneficial but has not materialized in recent years. The CPC forecasts a likelihood of temperatures above average during late summer. Don anticipates flows comparable or probably below 2018 in most basins. Dry conditions are expected in the Green and Yampa River, prompting a request for an SMB flow spike rather than LTSP flows from Flaming Gorge. The Yampa River will likely be under administration as it was in 2018, when the Program struggled to meet flow targets there. The MC has approved funds to lease additional water from the Elkhead Reservoir short-term pool this summer to further augment instream flow. Dry conditions are expected in the Colorado River as well. No voluntary Coordinated Reservoir OperationS (CROS; spring peak augmentation) flows are expected because the natural Colorado River peak flow is expected to be so low and the reservoirs are not as full as they were in 2018. Program flow deliveries prevented the Colorado River 15-Mile

Reach from going completely dry in September 2018, but flows remained well below recommended fish targets through most of the late-summer season. Similar challenges are expected this year. Expected inflows into Lake Powell are dropping; Tier 1 water use reductions for Colorado River users are expected in 2022 and 2023.

Don did note there are many partners helping with the effort this year. Carryover HUP Surplus water helped alleviate the April Hole in 2020 and again in 2021. Don thanked Reclamation and Grand Valley water users for that water. CWCB is once again seeking to lease Ruedi Reservoir water from the Ute Water Conservancy District and Garfield County to supplement 15-Mile Reach flows. Colorado Water Trust also indicates it expects to lease 1,200 AF from Ruedi Reservoir to support 15 MR flows. Colorado Water Trust has additionally applied for Yampa River Fund dollars to lease water for augmenting flows in the Yampa River this year. The Colorado River District is coordinating with other Yampa Valley interests to augment Yampa flows with their own Elkhead Reservoir releases; m of that may be delivered for consumptive water uses. The Nature Conservancy and Utah DNR continue working on their strategy to expand Olsen Reservoir and secure water to support late-summer flows in the lower Price River; significantly, TNC is now working to acquire a key piece of property with water rights and a diversion structure in the lower Price River to support that effort. Paul noted that these extraordinarily dry conditions typically lead to bad fire seasons (like last year's) and asked the BC to consider actions that might be appropriate to address water quality conditions after wildfires. Don called attention to the fires that burned in 2020. He said the Middle Colorado River Watershed group is working with USGS, the U.S. Forest Service, and other partners to set up water quality monitoring in and downstream of the severely burned areas near the mainstem Colorado. Tildon recommended keeping close contact with BAER (Burned Area Emergency Response) leaders when fires occur in the basin.

3. Flaming Gorge Operational Plan & flow spike – Tom Chart said the flow request letter included two scenarios this year based on May 1st projections. For the first time, a smallmouth bass flow spike was listed as the first priority based on dry conditions. The second priority is revised Reach 2 baseflows to improve survival of age-0 Colorado pikeminnow. Experimentation under the LTSP was not included in our request if forecasted hydrology remained in the dry / moderately dry category. Tom noted that the cooler dam release temperatures also was requested as part of our request for the flow spike experiment, which is consistent with the related study plan. That request was added in the final version of the request. WAPA calculated a preliminary cost estimate for the flow spike which was included in the flow request letter. Reclamation is planning to ramp up to 4600 in one day, maintain 4600 for 3 days with a 4°C temperature decrease using the Selective Withdrawal Structure, and ramp down 2000 cfs per day in the later part of June. To accommodate fishing concerns, the Flaming Gorge Technical Work Group further stipulated that the ramp up will occur on Monday night and return to baseflow conditions by Friday. Tildon has presented to the FG Work Group multiple times about how this would be implemented and monitored. The drying hydrology has impacted the expected baseflow levels. The Program requested Muth et al. +40% seasonal variability for baseflows, i.e. 1100 cfs plus 40% = a target in Reach 2 of 1540 cfs. At the most recent Flaming Gorge workgroup meeting, Reclamation said summer dam releases will be about 950 cfs; resulting in a Reach 2 summer base flow of 1000 cfs or less. The operations plan is expected to be released

soon. The specific flow spike dates are not available yet as it is dependent on water temperatures. Tildon said the May 1st forecast has been released and Reclamation will be operating under 'Dry conditions' because of the dryness of the Yampa as well as the Green. Tom said WAPA has said that the cost of the flow spike has increased based on worsening drought conditions and purchase power requirements over the summer. Shane has increased the estimate from about $600k to about $1.1M for the flow spike. Tom noted that hydropower (WAPA and CREDA) abstained from approving the Recovery Program flow request letter. Tom encouraged BC reps to reach out to the PDO or their Management Committee reps to get additional information. Tom said it is important to determine how those costs are derived and noted how important these flow spike experiments are during low flow years to control nonnative fish expansion. He called attention to the condition of Colorado pikeminnow in the Green River system and the pressures caused by nonnative species. Dave recommended another FGTWG meeting to determine monitoring and implementation plans for the experiment. Tom agreed and committed to those discussions. Kevin Bestgen said using a combination of gages should allow for temperature determinations and predictions of when the flow spike would be most beneficial. He supported continued conversations to try to nail down as many of the logistics as possible. Derek asked how the flow-spike might affect our ability to reach baseflows for Colorado pikeminnow. Kevin said overlap might happen, depending on when the Yampa peaks, but overlap is less likely when flow conditions are universally low across the basin. He said spawning for bass is much more predictable than spawning and larval drift for pikeminnow. Kevin also noted that the flow-spike conditions are not out of bounds for pikeminnow and are expected to affect them less than smallmouth bass. Tom appreciated Reclamation's support in implementing quicker ramp down rates which will make overlap less likely.

4. Flaming Gorge Hydropower Analysis Update – Derek said CRSS models are available from Reclamation, but the modeler in WAPA (Jerry Wilhite) has been busy with other projects. WAPA is currently working to fund Argonne National Laboratory to complete the analysis. Draft information is now expected by mid-August. Derek said there is a lot of data involved in the effort. Melissa Trammell asked how the calculations were derived for the cost of the flow spike because it seemed like base flows were based on the dry conditions, not based on the flow request. Derek said they asked for modelling both with and without the flow spike. WAPA looked at the difference of water available between those two and then calculated how much power would have to be purchased during the lower flow conditions. Derek says as conditions dry out, energy prices are skyrocketing, increasing the cost of the experiment. Derek said the water for the experiment is coming from baseflows (150 cfs per day for 90 days). Melissa said she would have expected Reclamation's operation to change based on drought conditions regardless of the flow-spike. She asked if the estimate would continue to be updated through the summer. Derek wasn't sure how often it would be updated but said that information is continuing to be collected as conditions develop. Derek confirmed that a draft GREAT experimental flows analysis would be available in August. Tom Chart said a presentation at the MC looked at whether the experiments being requested by the Program would affect levels at Lake Powell and very little difference was seen. Tom Chart asked if the same drought data were going to be used for the hydropower analysis. Derek said WAPA has both drought (stress) hydrology and full hydrology models. WAPA will be using only the full hydrology models in their first analysis because of limited resources.

5. Wetland Update – Tildon Jones reviewed that Reclamation will not be conducting the LTSP experiment this year because of the developing hydrology. Filling wetlands and keeping water in the wetlands would be a challenge this year, which helped support a flow-spike as the first priority.
   a. Stewart - UDWR is planning to mow cattails in the wetland during this off season. The gate seals have been replaced. Matt Breen said not all of the seals were replaced, only the ones that were in the worst shape.
   b. Old Charley - Recent construction has improved the culvert and added a screen, so there are now two ways to fill the wetland in future years. Estimates are being developed to determine costs to rebuild the kettle (which is the oldest in the system). Tildon will likely be returning to the BC with proposals for rebuilds when they are available. GRB-FWCO is interested in using Old Charley as a bonytail "soft release" site this year. They have not yet determined how that will be implemented and whether or not they will hold water in or treat it like a backwater.
   c. Matheson - UDWR has facilities in place to operate Matheson, including supplemental water. Zach will try to get larvae entrained this year, which will help determine how long water can stay in the wetland during low water conditions.
   d. Stirrup - Jerrad Goodell (BLM) is working on the EA for the wetland. Tildon is working with Reclamation to get U.S. Army Corps of Engineer 404 and Utah State stream alteration permits in place to support construction. A meeting is expected the second week of May to support construction later in the summer. Currently, the wetland is very shallow and is unlikely to connect to the river, which will allow for construction without needing pumping or draining. Dave and Derek thanked Tildon for helping to get Stirrup construction over the finish line.

6. Humpback chub broodstock collection from Deso/Gray – Kevin McAbee shared the attachment distributed with the agenda. Reintroducing Humpback Chub in Dinosaur National Monument (Valdez et al 2021 in draft) takes a preliminary view of how humpback chub could be collected to develop a broodstock, but does not provide specific guidance. Therefore, the attached memo describes broodstock collection efforts with a specific set of goals which impact the other priorities within the program, both from a funding perspective and from a time perspective. It is also important to describe what happens to the fish after they are collected, but the memo only generally describes those topics. Any collection effort will need to ensure that the Desolation Canyon population is not impacted. The proposal prioritizes budget neutrality and maintenance of long-term monitoring efforts. The proposal increases time between long-term monitoring efforts to provide time for broodstock collection efforts. By increasing the period between Westwater, Deso-Gray, and Cataract canyons sampling efforts, room can be made for broodstock collection. Katie Creighton said normal Cataract monitoring is scheduled in 2021, but if this project is funded, they will switch to do lower Cataract Canyon this year and then do the normal sampling in 2022. Melissa thanked Katie and her crew for figuring out how this schedule would work. Melissa said we have a year to figure out where these fish would go because Grand Valley is closer but Randlett has better isolation facilities. Pete said he is not convinced that humpback chub should be prioritized over Colorado pikeminnow or bonytail or razorback and this discussion was premature. Tildon said multiple hatchery proposals have been discussed simultaneously. Tildon is working with the SNARRC on how Colorado pikeminnow efforts will proceed. He acknowledged Pete's desire to have a comprehensive hatchery

discussion and thought that idea had value. Dave's recent bonytail analysis prompted some other discussions about how to best propagate those species. Propagation discussions are currently on hold because of spawning efforts at the hatcheries. Dave expects to distribute a questionnaire for the hatcheries about their ability to implement things outlined in the Revised Integrated Stocking Plan and where they are likely to get the most benefit. Dave believes the humpback chub efforts are not likely to have a large impact on bonytail production. Dave supported having a discussion about priorities for production. Tildon said pikeminnow broodstock collection will continue this summer, but this will be the last year for collection. SNARRC will raise the fish up to a taggable size so they can be identified and genetically tested. We will determine whether there are two lineages (GR and CO) or a single lineage which will drive management decisions going forward. Tildon said nothing will happen with Colorado pikeminnow that will require hatchery space in the near term. Pete said that the humpback chub project will require a long term commitment of hatchery facilities as well. Dave noted that Randlett will be taking some pikeminnow from SNARRC to get experience raising them before Green River fish are available. Kevin McAbee said the white paper noted that bringing Deso humpback chub into the hatchery is the top priority action for the species because it is the only population without redundancy on the landscape. Kevin is not recommending prioritizing this over pikeminnow, but noted that if we have the ability to secure this lineage in the hatchery that would provide a lot of protection and conservation value for the species. Pete agreed and requested a conversation to make sure we had thought out all the ramifications before these efforts are finalized. Tom Chart said Pete's thoughts are valid and noted that the propagation program is facing more demands than we have seen in a very long time. Tom thanked everyone for their efforts in moving these conversations forward. Derek asked if the Lower Cataract Canyon project was approved. Kevin said no, not yet, but that project will be discussed this summer in the context of work planning, so we wanted to include it. Kevin said the Program is coming to a decision point regarding the monitoring of the Deso/Gray population as well. Peer reviewers have expressed concern about using the long-term site abundance estimates extrapolated across the entire system. Kevin said if broodstock are collected from a canyon-wide effort, we could use that information to determine whether the extrapolated sites have humpback chub and in what densities. Broodstock should be taken from the entire reach, if possible, to spread impact and collect ecological diversity. Kevin encouraged all BC members to read the monitoring report currently under review. Pete asked how the recovery criteria affect these decisions. Kevin said we are currently downlisting even without meeting the specific criteria in the 2002 recovery goals and that upcoming revisions of the recovery plan will allow for opportunities to assess those benchmarks. More conversation is needed for both monitoring and broodstock collection. Kevin is not asking for approval, but was interested in thoughts about how these efforts should be considered during work planning. Dave thought the idea was worth considering. The current Deso broodstock collection plan does not include helicopter support, but it could be considered as conversations continue. Paul supports the plan and noted that helicopter use could be run through UDWR if needed. He said that request would likely need to be submitted about a year in advance. Efforts should involve conversations with BLM and NPS on how collections have occurred. Derek thanked Kevin and Melissa and noted that WAPA supports this effort.

7. RIPRAP and Program Guidance – Tom Chart reminded the BC that the RIPRAP packet was sent out on March 10th. The PDO is seeking approval through email as with last year. We request that one set of comments come in per partner, through the Management Committee representative due May 14th. We will address the comments and include a response to comments document distributed back out to partners and seek approval by email. We anticipate that will take about a month. Tom asked if there were any concerns of note that BC members had come across in their review. Julie confirmed that we have heard feedback regarding an in-person meeting for RIPRAP review and that is the plan for next year.

8. SOW and Work Planning Process – Julie thanked the PIs for responding to the Program Guidance and recognized that the task has become increasingly difficult. Julie mentioned efficiencies suggested from committees and partners. This will be the last SOW cycle before 2023, and Julie recognized an opportunity to revise the process when the new Program is designed. While the BC's input was very helpful in addressing budgets, Julie anticipates some more conversation at the July meeting to finish addressing the budget. She plans to develop a summary for SOW revisions and decisions that will still need to be made in advance of that July meeting. Julie highlighted that tough decisions are being forced because inflation has not been included in recent budgets.
    a. CPW updates to SOW—Kevin McAbee drew the committee's attention to SOW adjustments proposed by CPW. Northern pike catch rates in the CO River and Kenney Reservoir have declined, and reductions are proposed in both locations. They also look to build flexibility in off channel pond removal work in the Colorado River reaches, so specific locations will not be described. Lori Martin continued by describing changes in the CO River main channel work in DeBeque Canyon (Rifle to Parachute). Nonnative fish captures have declined and CPW has proposed reducing the main channel electrofishing project to every other year. If there are high water conditions that might allow river connections to ponds, work would shift to those areas. Another change is for spring backwater netting for northern pike on the Yampa near Craig. CPW has proposed seeking assistance from partner field offices to perform the CPW portion of that project. CPW is still discussing options for that work with CSU and the PDO. Changes also include one pass's worth of funding of smallmouth bass removal in the White River moving from CPW to UDWR; FWS/CPW/UDWR will work together to ensure complete coverage of the White River, with some funding and work shifting from CPW to UDWR. Melissa asked if CPW has considered seeking assistance from APHIS, who has expressed interest in helping out with predator removal. Lori said Harry had reached out to APHIS to see how their assistance might apply.

9. Spring Sampling Updates
    a. FWS-GJ – The April hole was long and extensive this year, making sampling difficult. One and a half passes are done for pikeminnow estimates out of 3, but none have occurred in the 15-mile reach because of low flows. 25 pikeminnow have been captured, which is comparatively low. Sediment removal has occurred in front of Redlands fish passage. Both fish passage facilities will open Monday, May 10th. Juvenile razorback sucker were stocked in the SJ arm of Lake Powell to look at PIT tag loss in fish. Those fish were excess fish. Dale suggested that the Upper

Colorado program consider the same. 61 walleye have been captured during pikeminnow estimates mostly between Salt Creek to the confluence with the Green. They have collected walleye samples for a grad student project at CSU. Below the Dolores, about 20 smallmouth bass per hour are being captured. A private pond (Beswick's) in the Grand Valley holds remnant, excess razorback and bonytail. Dale's crew sampled and tagged some to release to the river, but they reported that the pond has quite a few predators. Crews sampled Clifton Nature Pond, which was identified as a potential source of nonnative fish and they are working with partners to screen that pond. Travis thanked CPW for their collaboration on the Clifton Nature Pond. Melissa asked if we needed to add the pond to our planning list. Dale said they are looking into low cost options and that Mesa County has expressed interest in helping with those costs. Travis is planning to install a temporary screen this summer before they release water. Kevin McAbee will bring it back to the BC when the discussion is ripe. The Price Stubb antenna has passed 500 tagged fish, including 61 bonytail, 1 pikeminnow, bluehead sucker, roundtail chub, and flannelmouth sucker, plus over 150 razorback sucker.

b. FWS-Vernal – Tildon said crews have been working in the dry wetlands while flows were low. Crews are in Craig this week for nonnative fish removal, reporting relatively low catch rates. Backwater netting has been successful, with collecting over 60 northern pike. Razorback bar antennas are out; fish detections occurred a little later this year than in other years.
c. UDWR-Moab – (see full update below) Crews are also waiting for water. Walleye removal around the Tusher diversion has produced 24 walleye. Low flows are making sampling difficult. They found one pikeminnow. Crews have been looking for walleye in the lower Colorado. Matheson efforts are moving forward and the first larval suckers have been captured. Larval seining is occurring as possible, but access to many sites is limited by low water conditions.
d. UDWR-Vernal – Matt thanked Reclamation for fixing the Stewart Gates. Three antennas have been deployed on Escalante Bar, in the Stewart Drain, at Ashley Creek and Brush Creek. Matt said nonnative fish removal has been slow because flow changes have not occurred. May sampling showed higher collections in tributaries. A full pass has been completed from Split Mountain boat ramp to Sand Wash. Split Mountain razorback sucker spawning is beginning. White River smallmouth bass removal will commence soon in conjunction with CPW and FWS. UDWR now has a Colorado collection permit which makes everything more efficient. Matt asked if any of their sampling would interfere with flow spike sampling. Kevin Bestgen and Matt will continue to talk to ensure they don't overlap.
e. CPW – Lori Martin said Billy Atkinson has been working in Lake Catamount since April removing 1700+ northern pike. Most fish were related to a strong 2018 cohort and potentially a lack of sampling in 2020. Casey's Pond (4 acres, outside Steamboat Springs) connects to Yampa downstream of Walton Creek. Sampling removed 74 northern pike, mostly 2 year old fish. Billy will sample a wetland pond that's connected to Stagecoach when the connection occurs. Tory Eyre completed a mark pass on northern pike in Elkhead Reservoir. The tournament will occur June 19th - June 27th. Anglers will provide the recapture data during the tournament. Backwater netting will continue over the next few weeks. Jenn Logan, Ben Felt, and Tory sampled Kenney Reservoir for northern pike, however the reservoir was drawn down which prevented access to spawning habitat. No pike were found. White River sampling below Taylor Draw will begin as flows increase. Northern pike are being removed from Wolford Reservoir. Trap nets removed

>300 northern pike which is the most ever. Multiple size classes were present. CRD does have a harvest incentive on that reservoir. No pike have been found in the Mamm Creek pits. They depleted pike in the Rifle Creek pond. Another pond upstream of Mamm Creek was sampled and no species of concern were found. Mainstem efforts along the Colorado River have not started yet. Jenn has deployed antennas in Salt Creek, a tributary to the Colorado River and a bonytail stocking site. Roundtails, razorback sucker and flannelmouth sucker have been detected. Mack Mesa (20 acres outside of Grand Junction at Highline State Park). Anglers found northern pike last year. Sampling found 8 adults in the first pass. CPW drew down the lake last fall to disadvantage spawning. A juvenile was found this spring. CPW drained the lake this spring and it will be kept drained to support dam inspection. National and local news have covered stories about illegal introductions. Lori praised CPW and staff for all their efforts. Sampling has not occurred at Green Mountain this year. A commercial outfitter was removing nonnative northern pike last summer, but his clients have returned this year complicated his ability to sample at Green Mtn.

f. CSU – Sampling is limited by water, but has started on the Yampa. Crews will head to Brown's Park in the next 10 days.

10. Consent agenda – the March summary was approved pending additions from Dave Speas.

11. Next meeting is scheduled for July 14-15 in person in Grand Junction, with contingencies if face-to-face is not possible.

ADJOURNED: 11:45 a.m.

Appendix 1:

UDWR-Moab Field Updates 5/6/2021
Walleye Removal update (#123d): "Low flows, difficult access, slow(ish) fishing"

- Green River, downstream of Tusher Diversion
  - 5 days of removal
  - Water temperatures have fluctuated between 9.9°C and 14.4°C
  - Water levels have been restrictive, fluctuating between 1850 and 2500 cfs.
  - 24 walleye have been removed with a CPUE of 1.77 and average length of 451 mm.
  - 11 of the walleye removed were encountered in a single day.
  - 1 pikeminnow (580mm) captured on 4/5
- Colorado River, lower Westwater Canyon (above Cisco)
  - 1 day of removal (2 boats) in lower Westwater Canyon (above Cisco)
    - 34 smallmouth bass with and average length of 198mm and CPUE of 11.49
    - No walleye encountered
  - 1 day of removal upstream of Moab bridge
    - 2 walleye removed and a 489 mm gizzard shad

Matheson Field update (#176): "Ready and waiting."

- All phases of wetland augmentation are complete as of last Winter (gate & fish screens, pond excavation, and supplemental water diversion & pipeline)
- We tested ability to maintain pond elevation via supplemental in March. The closed gate, with supplemental water inputs held the pond elevation at 4.5 to 5 feet deep. Target "minimum" pond capacity is 3 feet, so we have some buffer for water loss via evapo-transpiration, etc. during the hottest rearing months.
- Sampling so far: zero-velocity habitat within the inlet has been scarce since the 3rd week of April when we began, due to low flows.
- First fish larvae were collected May 4th 2021; not yet identified (only 2 individuals).
- Larval sampling continues twice weekly.
- According to stage-flow modeling from our feasibility study, the river will *begin* to fill the pond at approx. 7000 cfs, and achieve the "minimum" 3ft depth at < 10k cfs.

Razorback Larval Monitoring (#160): "Still waiting…"

- First two passes (one on Lower Green, one on Colorado) have been substantially modified because flow are still too low for light trapping (habitat is not yet flooded).
- Colorado: We have driven to sites with vehicle access around Moab and have captured no larvae. Next week we will launch boats and go downstream from Potash to try to find available habitat deep enough for light traps. If not, we will take some larval seine scoops.
- Green: next week we will try to some Green River sites by vehicle if water is still low (likely).