



Biology Committee Summary

July 14-15, 2021

July 14, 2021

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

Interested Parties: Leslie James, Mike Partlow, Don Anderson, Bart Leeflang, Tom Chart, Colleen Cunningham, Travis Francis, Matt Fry, Katie Creighton, Keena Elbin, Matt Breen, Kevin McAbee, Gene Seagle, Tildon Jones, Darek Elverud, Manuel Ulibarri, Julie Stahli, Melissa Mata, Brian Scheer, Kevin Bestgen, Ryan Christianson, John Caldwell, Ashley Jackson-Baillie, Brian Hines, Zach Ahrens

Comments received from Dave Speas and Paul Badame.

CONVENED: 12:30 p.m.

1. Review/modify agenda – Agenda was modified as reads below
2. Starvation Fish Screen – Paul Badame reviewed the screening of the Starvation Reservoir spillway, noting that the current temporary screen is working better than anticipated. A Value Engineering (VE) study was commissioned to evaluate long-term options using all new information. Eight design options were included in the final VE report, which are outlined in the document provided. Starvation is unique because spills are a commonly used tool to manage water, even in dry years. The Recovery Program & DOI use Starvation water to support flows in the Duchesne River during the summer, but that water could be requested prior to and during spills to reduce the magnitude. Reduced spill magnitudes would decrease the likelihood of escapement into the spillway and if escapement into the spillway does occur then any screen effectiveness would be improved with lower flow rates. The design options were first ranked on technical merit only and then ranked again with cost considered. The modular picket screen with a foundation was ranked first in the technical assessment, but the modular picket screen in the substrate was ranked most highly when costs were considered. A horizontal direction of the bars allow the bars to be $\frac{1}{2}$ inch apart instead of $\frac{1}{4}$ inch, which is less expensive. The screens themselves are not permanent and can be replaced in pieces. In response to a question about debris load and high flows, Paul said flows could go over the screen if a blockage occurred, or screen modules could be laid down to protect the screen. Paul asked if BC members saw any flaws that would cause Program partners to not support Utah's preferred design. Dave said a lot of thought has gone into this process and supported Utah's decision. Melissa agreed with the process as it occurred, and noted that the decision

for a concrete foundation (Reclamation engineers thought this might be needed) or not is likely not up to us and deferred to whether there are safety concerns. The Committee supported Utah's selection of a modular picket screen, whether it included a concrete sill or not.

3. Potential PIT antenna on Colorado – Dale Ryden said that the City of Grand Junction is replacing a sewer pipeline across the Colorado River that will require excavating a channel. The pipe will be installed about 4 ft under the substrate. Creed Clayton (Grand Junction ES) approached the Program with an opportunity to put in an antenna on the river. There are two issues with the project, one is timing (it would have to be constructed between December and February of this coming winter); the second is cost (about \$270,000). The project has some advantages: there are lots of endangered species in this section of the river and therefore could generate lots of detections, AC power is available at that spot, CPW owns the property on both sides, the substrate is fairly stable in that area. Dale acknowledged the cost of the project and noted that we may end up with a lot of noise from the pipe or the rebar around the pipe. The FWS-GJ office talked about options regarding a partial antenna by looking at the thalweg, but that assessment noted that they would likely detect fewer fish as compared to full-channel coverage. The full-channel antenna would require about 32 individual panels. Dale said in this year's CPM estimate, catch rates were really low in shallow sections of the river and the fish might have been moving to deeper areas. Dale noted there is another section of river that may be a better location for antenna placement near Loma. Travis said during a large part of the year, the river would be too deep, i.e., greater than the read range of the antenna. AJ expressed concerns about the concrete and rebar involved in the project. The substrate may also be a concern that might suggest that we should bury the antenna about 6 inches. Dave said that there have not been a lot of conversations about the logistics quite yet. Dave asked what the biological benefit of the project was. Dale said we do not have an antenna in the valley and there is a lot of movement that may be important to document. Dale supported adding a PIT tag antenna in the long run but did not think this was the golden opportunity. Dave supported Travis's thought of placing smaller antennas at various key locations. Melissa said information off of antennas is always interesting, but that this is not a critical need at this point. Koreen has used a lot of antenna information to support population estimates of razorback sucker and an antenna would be valuable in the Colorado. The BC agreed to forego the opportunity of coupling an antenna installation with this sewer pipe replacement project and to continue to explore options as they arise. Kevin Bestgen said he and Koreen are working on population estimates for razorback sucker and that detections on the Colorado would be very useful. He supported the BC's decision and agreed that correctly siting an antenna should be the Program's primary concern. >Dale and Julie will reach out to ES-GJ to pre-emptively provide a little more direction on projects that would be of interest to the Program.
4. Hatcheries discussion – Tildon Jones reviewed some discussions recently had by the Hatchery subgroup. He said even if capital funds were available to construct a new hatchery, the costs of running another hatchery would have serious ramifications on annual budgets.

The group assumed that construction of additional ponds at current hatcheries was an option but that a new hatchery is not being considered.

- a. Colorado pikeminnow – Tildon said 2021 is the last year for broodstock collection because of space at SNARRC. Regions 2 and 6 have agreed to work together to manage the system as a whole, creating one broodstock per lineage. Genetic work is needed before we know how many lineages there are. Backup broodstock will need to be held at different hatcheries in case of emergencies. SNARRC is currently waiting for all the broodstock collected to grow large enough to PIT tag and fin clip.
- b. Availability of space for Desolation Canyon humpback chub – Ouray Randlett has 6 ponds that will be available in March 2022, which is sufficient to hold any incoming Colorado pikeminnow as well any humpback chub coming in from Desolation/Gray.
- c. Bonytail – The PDO has heard that the BC would like to focus on improving bonytail propagation by focusing on the Revised Integrated Stocking Plan (RISP) and the guidance that is already present. Dave reiterated the importance of the RISP guidance.

Dave asked if a group should be formed to address these questions. Tildon said important information for the CPM effort is how many fish need to be stocked to achieve results. The PVA could be used to inform those questions. San Juan has made some changes in how and when they have stocked pikeminnow and those discussions need to be had in the upper basin as well, but are easier after we know more about the genetic information of those fish. Melissa encouraged beginning discussions as soon as possible because these conversations take so long and noted that stocking in the Yampa might need to occur first. Tildon will bring issues back to the BC as more information develops.

5. Reintroducing Humpback Chub in Dinosaur National Monument Report – Melissa Trammell reviewed the progress of this report over time. Melissa, Kevin McAbee, and Rich Valdez have addressed comments, providing responses and an updated document. Melissa asked the Committee to approve the report. Dave expressed support for approval. Derek said WAPA is very supportive of the effort in general and appreciated the time put into addressing comments. WAPA is concerned about the costs associated with the action this report documents. Melissa thanked Derek and WAPA for their support on this project. The Committee approved the report.
6. Seeking approval of Desolation Canyon broodstock collection schedule – Kevin McAbee said the Reintroducing Humpback Chub in Dinosaur National Monument Report, which was just approved, has many recommendations to achieve the desired results. The first recommendation is made up of two parts, the first being creating a collection plan to bring a refuge population into a hatchery. At the last BC meeting, a planning group presented a proposal to start collecting fish from Desolation Canyon by delaying humpback chub monitoring in Utah. The plan has no cost additions and considers the effects that collection might have on the population. Kevin asked for discussion on this proposal to specifically

decide whether the BC was supportive of 1) bringing humpback chub from Desolation into a hatchery, and 2) delayed humpback chub monitoring in Utah in order to perform this action. Kevin noted his priority of collecting Deso/Gray fish even if we decide not to stock into DNM. Currently, there is no genetic redundancy of the Deso/Gray population on the landscape. Having a genetic backup in the hatchery is very valuable, and as noted above, there is space in the hatchery for this effort. Katie Creighton reviewed the document as presented and outlined how the sampling schedules would change based on adding collections. Katie noted the importance of being able to document how the population responds over time. The current schedule allows for geographical and temporal flexibility in collection efforts to make sure we are not impacting the population too much in any given year. Katie said there are a number of other unknowns that will affect how many times they can collect in a given year. Melissa noted that the plan operates within constraints of safe handling of humpback chub, when water temperatures are less than 20C, which she appreciated. These collection efforts can also add value to the existing monitoring efforts because collections can verify putative humpback habitats that have not been sampled. AJ asked about the timing for the sampling estimates. Deso/Gray and Westwater population estimates are paired, two years out of every four, this schedule moves it from two years out of every six. Matt Fry confirmed that there is an isolation room available at Randlett hatchery and that he would plan to keep any humpback chub there all winter if collected. Dave and AJ appreciated all the thought and consideration that went into this concept. The BC supported beginning broodstock collection as presented in the schedule. Kevin thanked Katie and the Moab office for all the effort that went into developing this plan.

7. Flaming Gorge flow spike sampling update – Kevin Bestgen said the concept of a flow spike originated in 2005 and is excited to be able to discuss the results of implementation of this management action with the BC. The experiment was designed to disrupt smallmouth bass spawning and rearing activity by rapidly increasing discharge from Flaming Gorge Dam for a period of several days during the spawning period. The flow spike was noted as the highest priority in the flow request letter because of the hydrology classification which was very conducive to bass reproduction and growth. On June 21, Reclamation increased releases from Flaming Gorge Dam to powerplant capacity (about 4,600 cfs) and sustained them at these levels for a period of 72 hours; flows ramped down to pre-experiment levels by June 28. Crews from Colorado State University, FWS, and Utah performed monitoring immediately before and during the smallmouth bass flow spike (SFS) releases from Flaming Gorge Dam. The crews focused on the Green River, both upstream and downstream of the Yampa River confluence. Crews sampled 19 sites over 60 river miles. Nine of the sites had nests or bass larvae in the pre-spike pass. The monitoring during the flow spike itself was primarily physical. The sites will be sampled again in July 12-15 and September, data from all these passes and from subsequent efforts in 2022 will all be used to track the effects of the flow spike over time. Before the spike, flows at the Jensen gage were about 1700 cfs on the evening of June 22 and rose to over 5,000 cfs in about 8 hours. The flow spike dropped the water temperature at Jensen by about 8-10C during the entire experimental period. The reduction in temperature discourages additional spawning, disadvantages larvae, and can

encourage males to leave the nest. Stage height also changed dramatically, in some areas they were a meter or more. Effects varied by site and reach; substantial increases of flow rates were achieved, and drift netting documented the effects on larvae. Kevin showed a time lapse photo of one site that demonstrated flow through conditions were rapid as the spike reached the site. Time lapse photography was collected at a few other sites in the collection area. Successful inundation was documented in most places, but the effects of the spike were lessened as the river moved downstream. He noted that in the future, higher flows may be needed to extend the effects into the downstream reach. The Larval Fish Lab will continue to compile data as it is collected in projects 123a and FR-115. Derek thanked Kevin for being able to pull the information together so quickly. UDWR was at the tailrace conducting a creel census during the flow spike, the results of which are still being compiled. Some negative reaction to the flow spike was recorded from tailrace angler interviews. Preliminary information indicates that angler catch rates stayed consistent before and during the spike. Many encounters with river rafters were positive. Derek said fishermen were worried about warm water temperatures and the effects on trout and confirmed that WAPA noted the same positive comments from rafters. AJ asked how and whether it was possible to document nest failure. Kevin noted that larvae were documented moving downstream via drift net sampling. The LFL also placed beads in the river and demonstrated bead movement, which can be seen as analogous to egg movement. Melissa said NPS conducted vegetation sampling as well and will report back after another round of sampling in September. Kevin confirmed that the effects went far beyond Lodore almost past Jensen and is looking forward to more results. Kevin thanked all the people who helped in this coordination effort because this is the result of a huge amount of effort.

ADJOURNED: 2:51 p.m.

July 15, 2021

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

Interested Parties: Leslie James, Don Anderson, Tom Chart, Colleen Cunningham, Travis Francis, Matt Fry, Katie Creighton, Matt Breen, Kevin McAbee, Gene Seagle, Tildon Jones, Darek Elverud, Julie Stahli, Melissa Mata, Brian Scheer, Kevin Bestgen, Brian Hines, Chris Michaud

CONVENED: 9:03 a.m.

1. Welcome – Derek welcomed the group and thanked the BC for the flexibility of changing the schedule on Day 1.
2. 2021 Hydrology Update – Don Anderson said exceptionally dry conditions are still occurring across the entire west. Over the short-term some moisture is beginning to develop in the south, but the long-term forecasts are still very dry. In the Yampa, the Program has changed the target for this year from 93 cfs to 75 cfs to try to extend the duration of water managed by

the program. Currently, the Yampa is flowing at 83 cfs, 20 cfs from Elkhead will begin to be released on Friday. On the Colorado 15-MR, the typical dry year target is 810 cfs, the goal for this year has been dropped to 200-250 cfs to try to extend our impact over a longer period. Releases from Lake Granby will start on Tuesday of next week. Don is planning around a possible need to supplement flows over 100 days. Don is working to try to lease or receive donations of water for the program. There was no CROS peak-flow augmentation operation this year as natural flows were so low and so little surplus runoff was available. The Colorado Water Trust has secured 1200 af of water out of Ruedi to support flows in the 15-MR which will also start releases next week. CWT developed [a video about the 15MR](#). Don recommended the video as a great production looking at multiple aspects of managing the 15 MR and an indicator of the Colorado Water Trust's long-term commitment to that river section.

- a. White River Plan update - No reliable mechanism is currently available to augment flows in the White River, so discussions are ongoing to determine how to address that issue in the context of anticipated future depletions to river flows. Because of that limitation, the PBO will be phased, with a more modest quantity (about 6500 af) of potential new depletions plus some expanded irrigated acreage likely provided with ESA compliance in the first 10-year phase. Further conversations triggered by a “check point” after 10 years (or when other specified conditions met) will re-examine the status of the fish, the recovery actions available in the basin, and whether flow augmentation options are available that allow for expanding ESA compliance to more water uses. The agreement on this path forward among the interests on the White River Planning Team is a substantial accomplishment for the Program. ERO Resources (the consultant hired by CWCB) will now begin writing a draft management plan using this concept.
- b. Flaming Gorge Workgroup Update – Reclamation revealed the current plan for drought operations to prop up the lake levels in Lake Powell. Reclamation will ramp up releases in order to move 125,000 af of water out of Flaming Gorge to Lake Powell by October of this year. In addition to the storage benefits in Lake Powell, Regional Director Wayne Pullan acknowledged the advantages of higher base flows for Colorado pikeminnow this summer. Reclamation reached out to the Program early on to ensure that the effects of the endangered species were accounted for in the releases. Additional value was noted in rafting opportunities, hydrologic head for power production at Glen Canyon, and protection for the upper basin states in protecting important tiers in Lake Powell. Wayne Pullan also described plans to move additional flows from the Aspinall Unit (an additional 36,000 af to be released down the Gunnison and lower Colorado in August, September, and October). Tom Chart noted that he was approached by Reclamation once the draft August 24-month study indicated that flows needed to be changed. The original plan was to move the water in the fall and winter, but as flows decreased even more, Reclamation moved to assisting base flows to support Colorado pikeminnow to help structure drought operations. WAPA was on that call as well. At this point in the summer, we are pretty late in the drift period for Colorado pikeminnow larvae, but the higher flows may still be beneficial to that species. Wayne Pullan also said that more water may also need to be released over time, a discussion which the Program will continue to be

involved in. There are still concerns around the long-term impacts of these operations and how the storage will be recovered in Flaming Gorge and other reservoirs over time. Tom thanked Reclamation for their coordination with the Program on how these flows are being released. Don noted that eventually an approximate additional 700 cfs per day will be released to the Green River on top of their original projections. AJ asked if conversations had occurred on how this may impact the fish in the long run should drought conditions continue. Tom noted Wayne was really focused on the short-term effects in the conversation yesterday, but that the assumption is there will be more drought operations if appropriate. The Program's 2021 flow request letter provided a strong foundation for the recent discussions, but we may not have that type of document available to rely on this winter. Any information the PDO gets will be brought back to the Program, time permitting, because the Program is recognized as the Service's science body in the 2005 Biological Opinion. Tildon noted that many parties on the Flaming Gorge call yesterday expressed interest in conversations with as much notice as possible. Reclamation acknowledged that this conversation developed quickly because of the severe conditions updated in the 24-month study.

3. Potential hybridization in razorback sucker – Tildon Jones introduced the topic as a concern raised in the San Juan Basin based on some genetic sampling and juvenile sampling in the field. Larvae collected in the river have been found to be razorback sucker, but when age-1s are found in the field, they were determined to be razorback/flannelmouth hybrids. Dale Ryden said all of the age-1s (54 in year 1, 20-30 in year 2) that were genetically found to be hybrids; the individuals were fin clipped and released back into the river at the time of sampling. The fish were identified in the field as razorback sucker. Tildon asked if photos could be shared with the Upper Colorado. Kevin Bestgen said the disparity between the larvae and the age 1 was interesting. The Larval Fish Lab does a lot of sampling and identification of young fish from light trapping and other sampling on the Green and Colorado. Genetic sampling is not widespread in the UC, but they are pretty comfortable with the identification they conduct. Kevin acknowledged that juvenile suckers are rare in the Upper Colorado, and that very few flannelmouth/razorback adults are found. He encouraged continued attention on the issue but did not express concern based on what the UC has seen thus far. He relayed the importance of continued field identification training that can be provided for any field investigators. Tildon noted all of our samples are collected and stored in ethanol at the Larval Fish Lab so genetic testing could be possible on those specimens. Tissue sampling on juveniles could be collected as well if it is a priority for the BC. Tildon said adult hybrids have been found along with many razorbacks with stocking origins. The majority of the juveniles seen are coming out of wetlands. Some of those mortalities have also been preserved and are on station at LFL. Tildon noted that most of the other native suckers are found in the main channel, whereas the razorback sucker have been found in the floodplains. Harry noted the sample size issue we may be dealing with here and cautioned against jumping to conclusions. Travis Francis said in 2013 during CPM estimates on the Colorado, quite a few age-1s were found. Photos indicate that the juveniles were razorbacks, but only one had been identified as an adult and it was field identified as a

razorback/flannelmouth hybrid. Melissa said the fish coming out of the floodplains were not of concern but noted that taking fin clips off of fish found in the river would be useful. Melissa said there are fewer floodplains on the Colorado specifically, which may introduce more opportunity for hybridization because they may be reproducing in-river. Dale said hybrid adults are not common, so he is not generally concerned about hybridization on a large scale. He noted the fish were found using electrofishing and that the razorbacks may have been smaller and hanging in the margins which may not have been available to sampling. The San Juan has discontinued that sampling, so we will continue to have only two years of data. Tildon reviewed that we have a few paths forward on possible genetic testing. One is to compile samples from what is on hand at the Larval Fish Lab. Another is to define individuals who could be fin clipped in the future. Melissa supported monitoring this potential problem by testing the individuals that we do catch as juveniles as well as looking at the samples on station. Kevin recommended being very cautious about the fish we are choosing for analysis, making sure we are taking a representative sample of what's in the system. He noted flannelmouth/razorback hybrids have been in the system since at least 1889. Tildon noted it is not effective to run samples a few at a time, but we could start looking at developing a pile of samples to run. Tom Chart referenced the program efficiencies discussion later in the agenda and recommended a small group with representatives from both programs discuss this farther. He requested Kevin Bestgen's participation in that team. Kevin agreed. Derek asked if it was possible to develop a list of what samples we have available. Tildon said that could be done. >Tildon requested that any BC member with concerns to send them to him. He reviewed that what he is hearing is that the goal should be to confirm what we are IDing in the field.

4. Stirrup Wetland Update – Tildon thanked Tom Davidowicz at Reclamation for all his help in getting permits. BLM permitting is complete. The right-of-way on BLM land is complete. They have submitted all the permits required for the construction. Army Corps said the project could be completed under a nationwide 404 permit which has expedited the process. Final verification is expected in early to mid-August. Force Account was expected to start in late July, Tildon is working to determine what could be done (delivering materials etc) before the permit is authorized. He is expecting the work to begin and be completed this year, which will make it available for management during next spring's LTSP. Tildon noted the Stirrup is dry and even drought operations should not change that. Dave thanked Tildon for all his work on this project (especially for submitting permit applications), which has been substantial along with all of Tildon's other duties.
5. Highlights from Field Reports – Principal Investigators
 - a. UDWR Moab – filled Matheson wetland beginning on June 6; high densities of smallmouth bass in Desolation Canyon, especially age-1; re-allocating some work from Echo-Split in lower Westwater to respond to elevated catches of adult bass;
 - b. UDWR Vernal – please see the textual updates submitted;
 - c. CPW – Harry received updates and will revise the submitted updates. Everywhere on the White, Colorado, and Yampa CPW saw encouraging northern pike numbers (lower than

in 2019) and discouraging smallmouth bass catch rates (increasing). They will add reservoir tournament updates to the text list. Spring sampling on Kenney Reservoir happened this year.

- d. FWS Vernal – Concerns over not conducting northern pike removal in the Yampa, but 2021 spring data did not indicate a high level of reproduction in the absence of removal activities. Elevated catch rates of smallmouth bass in the White. In 4 passes, 5,000 were captured in Yampa Canyon (1,000 adults, 1,000 subadults, 3,000 juveniles from 2020). Still compiling antenna data, but at least 101 CPM and 10 RZB detected at Echo Park.
 - e. CSU – similar patterns with lower pike numbers, smallmouth bass numbers are up specifically with large size classes in places we don't typically see them. That trend may be because of lack of sampling in 2020. Kevin Bestgen noted the importance of weather in the distribution of bass.
 - f. FWS GJ – GV fish passage was closed after July 4th due to low flows, which occurred just after razorback sucker were seen. There was a lot of use when it was operating. Redlands is open after a Memorial Day closure because of a blown gear box. Smallmouth bass rates are higher in Westwater than in the Grand Valley, but that work will continue. Flows are restricting removal efforts. Efforts at the Clifton Pond screening are ongoing. Larval sampling has started in the Gunnison – fish seem to be spawning earlier than normal. All pikeminnow sampling was completed this year. Catch rates were low: 70 CPM in the upper river, and 71 in the lower river. Many more walleye were found than CPM. Please see Travis's overview of Colorado River Arm Lake Powell sampling. Kevin Bestgen thanked Travis, Chris Michaud, and Darek Elverud for helping with walleye sampling for his graduate student, Ike. Dave Speas reiterated the need for large-scale solutions to address nonnative fish in the basin. Kevin McAbee said large-scale investigations would require a substantial investment of nationwide organizations. The funds needed to develop those tools are outside the scope of the program as it is now. Kevin reiterated the importance of the flow-spike and the possibility of landscape wide effects. Kevin noted as climate change gives us conditions that support bass production, this problem will continue. Dave agreed and noted the Program may have to fundamentally change its approach to deal with these ongoing issues.
6. Flaming Gorge Hydropower Analysis Update – Derek Fryer said WAPA has the hydropower traces from Reclamation. WAPA hired Argonne to conduct the hydropower analysis. The analysis is under development now; Derek said the analysis will no longer be available in August, but is expected in mid-October. There are 113 traces in the full hydrology set from 1906-2018 for base cases and multiple combinations of the experiments. Stress test hydrology is also available, 1988-2018 and is being explored under the same combinations. Derek noted the expansive nature of this dataset and said WAPA is going to subsample 40 samples from the full hydrology and is only going to look at all the experiments combined, rather than all possible combinations. A further subsample of 10 years will be used to assess each individual experiment. Derek was excited that the analysis is ongoing and is working to get the information out as soon as possible. AJ said a lot of good and interesting information is likely to come from this effort and asked how it would be distributed. Derek said he

intends to bring it through the committees. He noted an additional analysis may be forthcoming including the current drought operations.

7. Work planning – Julie thanked the Committee for all the work done on the work plan to date, noting that we have resolved the budget overages that were projected. She reiterated some past decisions and how they were documented in the workplan.
 - a. Most projects do not inflate because of non-increasing budgets; dark cells inflate because of contractual obligations; blue cells were reduced;
 - b. The current budget meets the needs of the Program, considering the FWS ability to cover overages with carryover dollars;
 - c. Suspended sediment monitoring is included in the budget because of available funds and reduced budget;
 - d. Added CWCB Project 71, which is both funded and spent by Colorado;
 - e. Umbrella O&M continues to work as budgeting tool, but with aging of the fish screens and passage structures, the collective maintenance, repair and replacement costs continue to creep upward
 - f. The Green River Diversion O&M is still an estimate, as that project has not yet been implemented by the canal company;
 - g. Overall, nonnative fish costs declined because multiple projects in the state of Colorado were reduced or eliminated based on reduced catch rates, such as Colorado River near Silt and Kenney Reservoir.
 - i. Colorado State University will begin leading the northern pike gillnetting efforts in FY23; CPW and CSU will cooperate on these actions in 2022, to allow for a smooth transition.
 - h. Most monitoring costs are consistent with previous years. Adding funding for report writing for project 163.
 - i. Added sampling effort in lower Cataract in October 2021. This project will cost less than expected because it will be performed as a introductory, fact finding effort and accomplished in conjunction with the Returning Rapids Project.
 - j. Database is focused on uploading data remotely from PIA;
 - k. Melissa motioned for approval; Harry seconded; BC approved

8. Review RIPRAP changes
 - a. TNC and WRA have flagged some topics for future BC discussion. Those will be considered in future meetings, such as:
 - i. Challenges in meeting flow recommendations consistently, even though flow recommendation reports are complete;
 - ii. Nonnative fish issues, especially illegal stocking in new reservoirs;
 - iii. DROA releases and hydropower analysis and the GREAT report implementation;
 - iv. Are nonnative fish derbies sending the correct messages to anglers?
 - b. Dave asked about flow released in the Dolores River and how that was timed to ‘disadvantage bass’. He asked if bass a primary consideration in releasing the flows

when they did. > Harry will ask how that decision was made and will suggest any adjustments to text.

- c. > Any additional textual suggestions, or response to others' comments, can be submitted to Julie by the end of the week.
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9. Post-2023 Efficiencies Recommendations – Julie reviewed the recent discussions held in the Funding Group regarding program efficiencies. She is bringing a number of decisions back to the program at various levels, including the BC.
 - a. Please review list of suggestions from the Funding Group and come prepared with any additional suggestions that should be considered.
 - b. Suggested efficiencies in the RIPRAP and Workplan are especially pertinent to the BC, because of their relationship with PIs, PDO, and BC review.
 - c. The RIPRAP is very thorough and effective, but is it forward looking enough to guide adaptive management?
 - d. Julie suggests we start by looking at ways to make SOWs more efficient, and have a group led by Paul, Harry, Dave, Kevin McAbee, and Tildon start brainstorming ideas.
 10. Consent agenda – approval of the BC summary from May. No comments have been received to date. No objections to approval. Julie will finalize and post.

>Schedule next meeting. Julie will send a doodle.

ADJOURNED: 12:12 p.m.