

**Biology Committee Summary
January 27, 2022 9:00 am- 3 pm MST**

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

Participants: Julie Stahli, Travis Francis, Tildon Jones, Kevin Bestgen, Katie Creighton, Matt Breen, Ryan Christianson, Chris Smith, Brian Hines, Zach Ahrens, Joseph Trungale, Chris Michaud, Koreen Zelasko, Donald Tuttle, Kate Lawry, Darek Elverud, Ed Kluender, Mike Partlow, Ben Felt, David Graf, Keena Elbin, Brian Hines, Tory Eyre, Tom Chart, Ben Schleicher, Erik Skeie, Colleen Cunningham, Andrew Schultz

CONVENED: 9:00 a.m.

1. Review/modify agenda – agenda was modified as reads below.
2. 2022 Green River flow request letter – Tildon Jones reviewed the input that the BC provided at the last meeting and how it was currently displayed in the table. Tildon merged two hydrologic categories to keep the table as simple as possible and noted the important distinction between the LTSP flows and Muth recommendations in a footnote. He added a section for DRO, which he encouraged BC members to review in the text. Essentially, he encouraged Reclamation to go through the experiments in rank order and then push any additional water into making the spring peak bigger or longer as possible. Tildon asked for any other questions and said he was planning to send it to the MC by the end of the week. Dave Speas supported the table as written. Melissa encouraged the inclusion of specific language to ensure that a spring peak will occur as required in the ROD. Tildon agreed that a spring peak is required in the ROD and the experimental nature relates only to timing that peak. He committed to go back and read it again to make sure that was clear before sending to the MC.
3. White River Antenna Replacement – Dave Speas reviewed information about the Bonanza White River Antenna, including its location and noting it is 10 years old, installed in 2012. The antenna is comprised of six antennas. The two outermost antennas have ceased functioning. The system is one of the last installations of the old technology with the 18” read range and a multiplexer. The new technology increases read range with a master controller and are generally cheaper to install. Peter and Dave are proposing to replace the whole system with new components rather than just repairing the two antennas with outdated components, at a cost of about \$54,000 depending on availability of volunteer labor. Paul asked if the system is remotely linked, Dave confirmed that it was. Dave said the funds are available for this effort without impacting the FY22 budget. BC members noted the importance of this tributary for endangered species and supported Dave’s proposal.

Dave brought up the Tusher Wash antenna as an informational item. Originally, two antennas were placed along the crest of the dam (OA and 9) to try to track downstream movement. There are four antennas in the boat ramp (5-8), two in the fish passage (3-4), and two in the water wheel on river left (1-2). Antennas OA, 9 and 8 and 7 have all gone out, likely due to debris flows. 93-95% of the detections have come from the array on river left that tracks the fish passage and the bank by the water wheel. Dave and Peter are planning to look at a different power source (potentially solar) because of surges in the AC supply at the site. \$30k is likely a base cost to get the boat ramp antennas running. Peter thinks that antennas OA and 9 are not worth replacement. Tildon agreed that replacement of OA and 9 is not recommended. Safety concerns were raised about how to access the antenna and the flows that can occur at that site. Melissa asked if there were opportunities to put an antenna in the area on the right where water goes back into the river. Dave said some of the autonomous antennas might offer some good opportunities in that spot. Tildon said flow goes through control gates on both sides that can move up and down to direct water in or out of the canal and it may be a good place to pick up fish moving through that area.

4. Starvation Fish Screen – Paul said plans for the screen are not finalized but UDWR is finishing the paperwork for the contract. They expect the first round of plans to be available for review by the end of February. The contractor/engineers will need another site visit and possibly some survey work. The only thing permanently installed will be a concrete pad. Paul then needs to get the project on the Force Account calendar.
5. Nonnative fish discussion – PIs *et al.* (40 min)
 - a. Review of key findings (presented at Researchers Meeting)
 - i. Walleye - Chris Michaud reviewed the condition of walleye in the basin. Conditions on the Green River are like previous years, with CPUE about 3 fish per hour. Unfortunately, the very dry hydrology prevented adaptive effort reallocation with the UDWR Vernal office to the Tusher reach in 2021. Vernal uses prop driven electrofishing boats and flows precluded their operation within this reach this year. Catch on the Colorado totaled 497 fish, which was an increase in overall catch, but was like CPUE of previous years of about 1 fish per hour. Increase in catch was a result of increased effort from Project 127 (Colorado pikeminnow population monitoring). Melissa asked if walleye showed up in the Redlands fish passage. Chris said no walleye were found upstream of Westwater. Paul was encouraged that the walleye populations seem to be contained to the lower Green River by the Tusher diversion and upstream sources seem to be declining substantially. Chris Michaud noted that we are containing them but concentrating them in high value pikeminnow nursery habitats right below the dam. Harry asked if walleye concentrated near the mouth of the Dolores. Travis said they do see walleye at the mouth, but only in the fall (larger fish in fall; fewer and smaller in spring). Chris added that collections near Moab were most common for the Colorado River reaches. Chris referred to Paul Grams' presentation and the possibility of an establishing waterfall that might prevent upstream movement. Study efforts are likely ongoing by the Returning Rapids group. Melissa noted that a waterfall has not yet formed, despite the lake being at 28%

full and encouraged the BC that any waterfall would likely be temporary. Melissa will check back on the elevation of that potential feature.

Chris reviewed the recommendations for walleye. The first is to continue adaptive effort to maximize removal efforts. The second is to complete a walleye technical report to try to tease out patterns from a basin-wide perspective. The third is to investigate the potential efforts to limit emigration from Lake Powell. The final recommendation is to continue removal efforts as much as possible. Chris reviewed the importance of adaptively moving effort from areas that are not so successful to target concerning species. Travis said it would be ideal to target removal at peak timing for walleye movement – maybe in the spring and suggested considering a movement study in the future. Potash down to the confluence was an important removal location as well.

Paul was very complimentary of the visualizations available to help the BC interpret data on a basin-wide scale. Other BC members agreed that the utility is very helpful and asked for broader distribution. Chris is working on how to distribute the files so more people can play with the tools that are available.

- ii. Northern Pike - Kate Lawry said northern pike are largely not present on the White River or the Colorado, mainly due to the efforts in off channel areas designed to cut off immigration into the rivers (e.g., Mamm Creek ponds, Rifle Gap Reservoir, and Kenney Reservoir). In the Yampa River, CPUE in the backwaters was higher than in the main channel. An increase in pike catch rate was expected in 2021 based on a lack of sampling in 2020, but was not realized. Netting CPUE increased slightly relative to 2019. A juvenile cohort was picked up in the river, which indicates active recruitment and should be watched. CPUE in the Green River is low in comparison to what is seen in the Yampa and is consistent with previous years. Not many juveniles were found in the Green River, meaning many of the fish may be emigrating from the Yampa into the Green rather than reproducing in the Green.

Recommendations include attacking the source, continuing pre-spawn removal efforts in backwaters and tributaries. The committee discussed the transition of backwater netting from CPW to CSU. Pete asked if we are still having access issues with places like the 151 backwater. Tory said access at that site remains difficult based on changes in the family that own that land; many efforts have been made and he is not currently hopeful that we will get access to that site.

Melissa thanked and praised CPW for treating Chapman Reservoir. She asked if anyone had thoughts about the increasing catch rates in Elkhead Reservoir. Tory referred to the C-20 net assessment SOW which involves sampling after every spill. The net seems to be holding and containing the northern pike. Harry noted that CPW is not interested in managing that population in perpetuity. The tournament is working as a removal effort and as a mark-recapture study. The population seems stable, but anglers seem to be

turning in larger pike over time. CPUE on pike is increasing vs decreasing for smallmouth bass. CPW has changed the marking pass to earlier in the season, right after ice-off. They are using that opportunity to strip all the females of eggs to reduce reproduction in the reservoir.

- iii. Smallmouth bass - Don Tuttle reviewed smallmouth bass conditions across the basin. Catch rates were higher in 2021 than in recent years. Again, there appeared to be low production in the Colorado and Green rivers during 2021, but the 2020 spawned fish were very prevalent. Desolation Canyon stood out as a reach with substantial increases in sub-adult catch rates. High catch rates may be from high recruitment events in 2018 and 2020. Don noted that 2012 and 2013 big year classes were reduced over time based on removal efforts. Downstream range expansion is occurring in the Colorado River, with increased effects in Westwater. Travis said the expansion of large adults has been occurring over the last couple of years, but this is the first year that they were seeing all life stages in that area. The CPUE in Desolation Canyon, coupled with expansion of bass all the way through the canyon, is really concerning. Katie noted the importance of the nursery areas in the lower Green that are threatened by the expansion. Mike Partlow offered resources from Vernal to add effort through Desolation. Chris Smith asked how the flow-spike affected sampling in the Desolation reach because of a drop in temperature. Higher bass catch rates have been seen in 128 rather than during bass removal passes, maybe because low temperatures push bass into the margins, making them easier to catch. Katie said the sampling did occur in conjunction with the flows out of the flow spike as well. Tildon asked how monsoonal moisture late last summer impacted bass in the area. Chris Michaud said bass removal downstream of Westwater seemed to impact the bass negatively. Don asked how the Desolation trips occur. Katie said two boats are used and fish are processed on each boat. She noted that the efforts in the past have not been designed to remove all the fish out of Desolation Canyon, only to monitor conditions. Katie reiterated the challenge working in that long river stretch. Dave agreed that the flow spike could have supported the increase catch rates and asked for other thoughts. Kevin Bestgen said the flow spike reduced the temperature from 25 C to 22 C at the Green River gage, which is not a big difference. He said in that area, it likely changed the stage by 1-1 ½ feet. He would not anticipate the increases in CPUE from a flow spike and suspected that it was likely because of in-situ reproduction. 2020 was a great year for smallmouth bass and he suspects that the increases we are seeing is likely because of that. Melissa asked about the recommendations around turbidity and how it affects catch rates. Kevin said its usually very difficult to tease out the effects of turbidity vs flow and our ability to control it is limited anyway.

Don reviewed the recommendations for smallmouth bass. Kate asked about the location of high adult catch rates in the Yampa. Don said it was in Lily Park, where they were only able to complete one pass because of low flows. Bass appeared to be staging to spawn there. In the Yampa River, two strong cohorts are in the system, from spawning in 2020 and 2017/2018. Recommendations include continuing abundance estimates in Little

Yampa Canyon, continuing surge efforts, and applying more removal effort in Lily Park. He noted angling can be helpful in years of low water. In the White River, increasing numbers of all life stages are concerning. He recommended coordinating with Rio Blanco WCD to release flows to disadvantage the bass immediately below Kenney Reservoir (hot spot for reproduction). On the Green River, Lodore populations are trending down with little recruitment. Whirlpool has seen slight upticks. The recommendations include continuing removal and evaluating the effects of the flow spike. In Echo-Split, most of the bass were from 2020. The recommendation is to continue smallmouth bass removal and continue abundance estimates with back-to-back removal passes immediately after the marking pass. The consecutive efforts occurred last year and should be easy to do again in 2022. In the Middle Green, there is evidence for a weak year class in 2021, recommend continued removal efforts with collaboration with Deso-Gray sampling crews to maximize removal. In Deso/Gray, highest catch rates ever recorded for that project show higher adult catch rates than 2015-2020 combined. Recommendations include continuing targeted removal and potentially adding processing boats or changing procedures. Paul expected all the fish in the lower Green likely were spawned in Deso and moved downstream. He was concerned that the catch rates were from a single trip. Katie said more information would come from 128, but bass removal could dramatically slow down efforts for 128. Funding for 123a was reduced from 6 passes to 4 passes in the latest round of budget cuts. She advocated for a conversation about reallocation of resources to address the issue.

On the Colorado River, catch rates were higher than at any point in history. Recommendations included increasing removal efforts in the downstream sections of the Colorado, identifying and targeting in-river features that may be helping with reproduction, and installing screens on lentic systems. Travis said the Clifton Nature Pond now has a temporary screen on their outflow pipe but continuing to add permanent screens on systems with other centrarchids is important (largemouth bass, black crappie...). Travis advocating focused effort from Westwater down to Moab and through Ruby Horsethief where catch rates are higher. Potential re-allocation of efforts to hit R-H section w/ more effort.

Skipper Island Backwater has also shown high numbers of bass. Melissa said this backwater may also be good habitat for razorback sucker. She asked if anyone had thoughts about changing the site to advantage native fishes and disadvantage bass. Travis said the upper end of the system belongs to BLM. He said changing the top end to increase flow into the backwater may disadvantage bass reproduction. >Melissa encouraged continued discussions on options. Dale said CDOT and a private company will likely have opinions on that area that we need to incorporate. Travis said catch does go down through the season now that they have access during low flow conditions, which is encouraging.

Most other locations in the Grand Valley require pretty high levels of flow to connect to the system. Travis committed to keeping an eye out for other likely sources that the Program needs to address. No known sources of smallmouth still exist in the Colorado after the screening of Ridgway. Harry provided a status update on Ridgway construction. The structure is complete with debris booms to try to protect the screens. Harry praised the efforts of the reservoir operators to keep the smallmouth bass contained while the screen was designed and constructed. The tournament in that reservoir has also reduced the bass population by a substantial amount (90%) – to the point where the tournament is no longer popular.

- iv. Kevin Bestgen reviewed results from the flow spike. Lots of discussions were had to determine when the flow-spike should occur so some notice was given to stakeholders. Sampling trips occurred before (6/19-21), during (6/22-24), and after the flow spike. Movement off nests was documented. Monitoring in 123a and 123b provided age-0 catch rates throughout the river. Compared to years with similar warm, low-flow conditions, catch rates were substantially reduced (by about 75%). The effects occurred over a much larger extent than originally expected including about 300 km downstream of the dam (downstream of Dinosaur Nat'l Monument). The hatch date distribution curve also shows a substantial reduction. In retrospect, the flow spike may have occurred about a week too late to have maximum effect in Whirlpool Canyon and downstream. A (potential) banner year for smallmouth bass was turned into a below average year, but Kevin noted that an average year is still pretty impactful to native species. Kevin reiterated the importance of targeting large bass with mechanical removal coupled with targeting recruitment with the flow-spikes. He said flow spikes could usefully occur in about 70% of years. Recommendations are sparse on details but encouraging for future implementation.

Low flows in the Yampa really supported the flow-spike so low temperatures continued downstream quite a long way. Some of the backwaters in Whirlpool didn't connect even at the higher flows, which supports the idea of implementing flow spikes even in average years. Bass require zero or near zero velocities and small differences can have an effect. Targeting conditions in Whirlpool would make sense in future years. Kevin said the conditions in 2021 were so low that they were on the edge of our predictive capacity. Derek asked a question about the timing of the flow spike and the effect on the predicted hatch date distribution of bass and why a decline occurs before the flow spike. Kevin said we do expect to have an effect on fish hatched just before the flow spike occurs because they are small and vulnerable to flows. In addition, they expected to flush some eggs close to hatch out as well. But the effect was sustained much longer than expected from a time perspective, maybe because more eggs got flushed out or because the cold temperature discouraged bass from producing eggs that would have hatched out later in June or in early July.

- b. Other data and trends of interest - Pete asked about other species found in the basin. Grass carp were found (mainly in Project 127) in the Colorado as well as five in the Green River

near Green River, all were adults. The program is not currently testing for diploidy. Paul reported efforts from Wisconsin that are targeting carp for removal using bait. Paul did not recommend using it in the river with such low catch rates. Mike said getting rid of carp in the wetland drains would be most beneficial. Many expressed concern that suckers might like the bait as well and testing on native fishes would be recommended before implementation. The GJ field office does bring small grass carp back to the office for testing, but none have recently been encountered. Travis said striped bass started showing up in 2017 and a record catch of 95 occurred in 2020. In 2021, 8 striped bass were found downstream of Westwater.

c. Requests for changes to field work in 2022

- i. Potash down to confluence for walleye-Travis said his proposal for this would be budget neutral and only reallocates effort from two passes upstream of Potash to one above and one below.
- ii. Smallmouth bass in Desolation Canyon-Katie said they have already decreased work in Echo-Split, so reallocation from there is not preferable. Katie did not recommend having her office add effort to Deso because the Moab office needs to focus on the Cisco reach. Mike Partlow said it would be reasonable for their office to move effort to Deso, especially if catch rates are lower in the middle Green. The effort would just need to not overlap with the effort in the White (which is very limited by flow availability). Mike noted the UDWR-Vernal office is geared for whitewater trips. Three trips are occurring for Colorado pikeminnow during 128 which would provide valuable real-time information to help guide the reallocation of effort. Tildon is hopeful that proposed data processing by Chris Michaud may help in crunching those numbers quickly to drive decision making. The BC supported the excellent inter-agency coordination and support changes as suggested above.

6. Review other key findings from Researchers Meeting

- a. San Juan hybridization of razorback sucker – Dave reviewed Adam Barkalow’s question about potential hybridization in the upper basin. Tildon noted that they found good genetic integrity in razorback larvae, but most suspected juveniles turned out to be hybrids. He asked if we were concerned about our ID skills or whether we were concerned about a lack of recruitment in razorbacks. We have the option to go backwards and look at samples we already have or start collecting samples when we find fish in the river/wetlands. Dave recommended looking at what we have on hand. Kevin Bestgen noted we have a lot of larval specimens preserved in ethanol which could be genetically tested. Juveniles are rarer, none of which are the size of the fish in the San Juan. Kevin does not believe any specimens were collected, either whole fish or photographs of the fish. He expressed interest in more genetic testing of our fish but noted we have never had the funds to do so. Dale said the fish in question all came out of a single project in one year that has since been cancelled. Many of the people who made those IDs had experience with seining and identifying young fish. Dale pointed out the importance of

the fact that there were genetically pure razorback larvae and then 100% mis-identification on juveniles that they thought were razorbacks that turned out to be hybrids. He advocated for more information on the San Juan. Melissa proposed that if hybridization stemmed from habitat selection or a behavioral issue, it would be more likely to occur in the Colorado. She advocated for genetic testing if possible, specifically with juvenile razorbacks found in the river, vs wetlands. Tildon said the number of projects where collections are likely to occur is pretty limited (Project 160, 138, and wetland projects) and the materials needed are small. He recommended collecting fin clips and photos of those individuals, but waiting to process the samples until we have a substantial number. Melissa noted the importance of figuring out whether wetlands are even more important than we think they are. Dale agreed. In 2013, a bunch of small razorbacks were captured during Project 127. Photos are available from that effort. >Dale committed to sending those photos to Kevin Bestgen.

To Kevin Bestgen's point, Dale said we've been getting what we identified in the field as adult RZ X FM hybrids in the San Juan for years (since the late 1990s). But it was always one or maybe two collections of these "hybrid" adults per year. That is until the last 2-3 years when numbers of putative hybrid adults in the San Juan have increased noticeably. This would correspond fairly well to when the large number of hybrid juvenile RZ X FM were collected. But we're not catching hundreds of hybrid adults per year, so maybe seeing these younger size-classes of juvenile hybrids doesn't necessarily translate into a threat to the adult spawning population.

Katie asked about the potential of investigating similar issues with chub species. Tildon noted that chub species genetics are 'messy' so we might want to start an effort to discern the extent of hybridization issues with regards to chub.

Kevin Bestgen said hybridization for native species is a really big deal. The fact that white sucker have not infiltrated downstream is important. Kevin agreed that having multiple life stages to test would be important. He recommended repeating the Sucker ID Workshop to make sure PIs are aware of the issue and are looking for hybrids in the system.

- b. The Committee discussed a number of water development projects. Dave brought up the reservoir project in headwaters of the Little Snake (W. Battle Ck – 10,000 AF proposal).
https://www.wyomingnews.com/rawlinstimes/news/huge-state-federal-land-swap-could-expedite-dam-approval/article_6f6b01f4-ba52-51d4-81c1-e1ca06e9bdbb.html
<https://constructionreviewonline.com/news/usa/federal-grant-moves-wyoming-dam-construction-plans-forward/>
<https://wyofile.com/west-fork-dam-kept-alive-4-7-million/>

The NEPA analysis will likely be done shortly and will soon offer an opportunity to comment. The reservoir would be built by Wyoming, but most of the irrigated acreage would be in Colorado.

Here are a couple stories about a proposed off-channel reservoir to which White River water would be diverted (Wolf Ck Res). <https://www.aspentimes.com/news/wolf-creek-reservoir-project-secures-colorado-river-district-grant-to-fund-permitting/https://www.craigdailypress.com/news/wolf-creek-reservoir-water-right-approved/>

David recommended continued attention to these projects that remove water from the system. He noted the importance of flow in relation to non-native management especially. He asked if looking at flow spikes in the Yampa might be helpful as well. Kevin said they did look at a flow spike out of Elkhead, but the maximum capacity of release would only be 550 cfs, which makes it hard to have a river-wide effect. Dry years are when base flows and flow spikes are most important, which make it really challenging to weigh the different benefits. He said it might require multiple releases from multiple reservoirs to have an effect. A spike occurred in the White, but pretty late in the season. Exploring early releases in the White would be valuable. David thanked Kevin for the information, adding there may be opportunities for leveraging other releases from additional upstream sources.

- c. Paul brought up Casey Pennock's presentation about river flows in each of the tributaries of the upper basin (Pennock et al. 2021). He noted the striking drops in the San Rafael River, which is where we have been putting bonytail for a number of years. Dave noted the extra monitoring that was occurring in the basin in conjunction with the beaver study, which was a factor in deciding to stock there. Travis asked if Wahweap was planning to put excess bonytail into Lake Powell. Paul said the fish continuously reproduce so there will always be supply. Travis asked if Zane would drive up to North Wash instead of Bullfrog where there is better turbidity. Julie highlighted the numerous questions within the propagation element and the demonstrated need for assistance in this area. The PDO did get authorization to hire a propagation coordinator, but funding into the future for such a position is uncertain. She solicited input from the BC on this topic on whether they would support future increases in the PDO SOW to support the position. Dave Speas was highly supportive. He pointed to questions with bonytail. Paul supported hiring the position and said he felt the need will only grow in the future. Melissa also expressed support. No objections were raised to this concept.
- d. Dave brought up Vermillion Creek and the Colorado pikeminnow presence data. Discussions are ongoing about where permanent antennas might be valuable. Ed is currently planning on adding more submersibles to that system (mostly because the creek is dry during most of the summer). Dave encouraged everyone to keep antennas on the radar going forward. Tildon said conversation are ongoing as to how these data can be incorporated into the Project 128 efforts this year, especially in places like tributary mouths. Tildon said additional detections could be helpful for razorbacks as well. The goal would be to put antennas out in a stratified fashion to try to cover the widest area possible.

7. CPM broodstock update and potential genetic testing – Tildon provided an update about broodstock collections. He noted very few were collected in 2021, which means there are not currently new fish to be tested. SNARRC staff are bringing pikeminnow in from ponds, fin clipping the fish, and PIT tagging them. If they are able to hire a geneticist, genotyping the pikeminnow will be on their workplan as early as the last quarter of FY22. Early in FY23, we might have some data to look at. Some of the unused funding available for FY21 efforts will be applied to additional collections in 2022. The middle Green River is currently underrepresented in the samples. A big question is whether the Green and Colorado are a single broodstock or should be split into two. Tildon said SNARRC is aware of the importance of this effort and are working hard to help us with information to make decisions.

8. Review final report: Zelasko et al. “Incorporating passive antenna detections with physical recaptures improves survival rate estimates for razorback suckers *Xyrauchen texanus* stocked in the Upper Colorado River Basin” – Koreen said she has heard back from Scott and Mary Conner and they are supportive of moving forward based on incorporation of their comments. Koreen reviewed where the project started and the importance of figuring out how to use antenna data. She used the Barker model, which accounts for potential bias in using two different types of sampling (detections vs physical capture). The dataset (2003 – 2017) included 331,000 razorback sucker currently in STReAMS. They did try to add data from 1995 on, but the data was too variable to include the early years. The probability of capturing any individual fish is very low, detection probabilities increase through time as more antennas are deployed. More detections occurred on the Green (87%) based on antenna presence. Spring stocked fish were more successful than even those stocked in autumn. Precision of the estimates doubled since their previous analysis. Post-1st year survival is estimated at 80%, which has become more reliable than their previous estimates (75%) based on inclusion of antenna data. Also noted summer stocking analyses using this method did NOT support continuing summer stocking; might be worthwhile to investigate fall stocking success if BC wants to go there. Incorporating this data into estimates is recommended in the future. Another recommendation was to balance antenna deployment in the future to address the lack of coverage in the Colorado River. Melissa supported approval of the report and asked for a discussion about the recommendations in the report. Harry seconded. The BC approved the report and thanked Koreen for her excellent work. Dave encouraged the Program to think about where PIT arrays should be deployed to make these analyses more robust.

Melissa asked about the season definitions in the report and how that affects potential stocking success. Koreen noted that the dataset goes through 2017 and that virtually no razorback sucker summer stocking has occurred since then. Those that did occur were pushed as late as possible based on stocking opportunities. Koreen said the importance of the spring stocked fish may warrant another change. She noted that very few fish were stocked in spring but exploring more stocking during that time would be recommended. The fish stocked in spring were not longer than those in fall. Dale said they often stock broodstock in spring, which are a little bit older than the other fish. To stock in spring, hatcheries have to keep fish on station for another six months, which might be addressed by lowering stocking goals.

9. Program Efficiencies – Tildon presented information from the sub team. The first issue is that reports are defined by funding and not by common scientific themes. The goal is to improve communication by reporting on common concepts in one report. We would do this by consolidating existing reports into comprehensive reports that are split out across the offices. The discussions started with nonnative fish reports, one for northern pike and one for walleye. Smallmouth bass would be broken into four reports by basin and another report would include all non-target nonnative species. Each report would focus on the concentration areas but would include captures from all projects using STReaMS. Reservoir management would also be consolidated into two reports, one for Utah and one for Colorado.

The second issue is that reporting and data submission are burdensome. Streamlining data collection and changing the reporting deadline schedule can help address the issue. Standardizing data collection tools, QAQC and formatting all help reduce friction in the system. Common techniques can be developed once and used for multiple years. Chris reviewed the proposed new schedule:

- October 15 – November 1
 - Data must be submitted to streams
 - Deadline based on project schedule
- October 22 – November 15
 - Data available to download
 - Common analysis figures available
- December 1 – 15
 - Reports due to Program office to review
 - PPR statements due to USBR (Dave can adjust)
- January 1 – 15
 - Reports posted to Program website
 - ~January 15-30 Researcher's meeting
 - BC meeting

This schedule could be revised, but RIPRAP schedule would likely need revision as well.

Chris noted that we ask a lot of PIs, especially during the late fall and early winter. This schedule is designed to help alleviate some of that burden. Pete asked if the PIs have been given an opportunity to comment on this proposal. Tildon said the first step was to figure out what the requirements were and then we wanted to check in with the BC next. Should this be supported by the BC, conversations with PIs will happen next. Katie suggested we consider what information should be going into an annual report vs a final report. Chris agreed and noted that discussion would be perfect once we talk about monitoring vs non-native species. Melissa asked if we were talking about annual or periodic reports. Chris said these reports would be annual. Melissa noted that the new style of consolidated report would be easier to review and digest for managers.

Travis said having a period for internal review between offices would be important to incorporate into the schedule. Chris agreed and noted that a high degree of collaboration is essential to implement this plan. Pete asked if the process would squeeze PIs between the end of

field work and their data submission deadlines. Chris said the goal is not to add work or make it more difficult but to add tools to help make it easier. Paul found a lot of value in just rearranging the deadlines of submitting data vs reporting so that QAQC happens first. Don asked whether the reports would rotate around or would stay the same. Tildon said those decisions have not yet been made and are up for discussion but noted that the plug and play element would provide a lot of support for the PI whose role would be to interpret results.

Dale asked about new findings or types of analyses that often come up when PIs are crunching data. He said one of the great parts of having all of these individual reports is incorporation of the perspectives of each of the PIs that know these rivers intimately. Chris said these changes may actually free the PIs to do more analyses rather than serve as a constraint. Chris wants PIs to have more time to do more science. Paul brought up some of the questions raised during the initial meeting and brought up a lot of the advantages of making some changes. Tildon said this is an adaptive process and we can definitely switch things around as we learn more. Julie tried to give some context to this topic: the idea came from the Post 2023 planning. There were originally a variety of ideas across a range of scales. This particular issue is designed as a place to start saving effort on part of PIs, BC members, and others in hopes of continuing to gain efficiencies in the future.

10. Administrative tasks

- a. Reminder next meeting – Julie reminded the group that the next meeting will be March 15-16 (hopefully in person). Julie requested suggestions on where such a meeting could be held.
- b. Hold dates for summer meeting – July 11-12
- c. Dates and hosting for Researcher’s Meeting 2023 - Tildon recommended January 10-11 with a BC meeting on the 12th. This avoids the CRAB meeting and the GCD AMP meeting which will likely be the 23rd. The week of Jan 9th avoids conflict but having a little more time to prep annual reports and presentation before the meeting leans toward later in January. There were calls for including some sort of virtual option, even if the meeting is in person. PRO: virtual meeting can be more inclusive; CON: we're all tired of not meeting in person. Hybrid style adds complexity.
- d. Meeting summaries from December and January meetings will come out soon

ADJOURNED: 2:50 p.m.