

Biology Committee Revised Webinar Summary, May 23, 2017**PARTICIPANTS**

Biology Committee: Dave Speas, Melissa Trammell, Jerry Wilhite, Harry Crockett, Dale Ryden, Paul Badame, Pete Cavalli, Brandon Albrecht and Tom Pitts.

Others: Tom Chart, Julie Stahli, Kevin McAbee, Don Anderson, Tom Czapla, Angela Kantola, Jerrad Goodell (BLM), Krissy Wilson, Matt Breen, Kevin Bestgen, John Caldwell (UDWR-Moab), Tildon Jones.

COMMENTS ON DRAFT SUMMARY PROVIDED BY:

Dale Ryden (5/30/2017), Krissy Wilson, Paul Badame, Pete Cavalli (6/1/17)

CONVENE: 12:30 p.m.

1. Report on bonytail data analysis – Julie reported on her analysis of STReaMS bonytail data, with a focus on where and when stocking is most successful. Julie’s analysis includes 2016 data (including stocking) and 2017 Wahweap stockings. This is a total of 338,000 fish, of which 7,900 were ever encountered post-stocking (~2%). 4,000 survived at least 30 days, 2,000 at least 60 days, and 101 for more than a year. 95% of these encounters are post stocking detections as opposed to captures -- without antennas, we don’t see bonytail. The 5 most successful stocking events occurred pretty much on top of an antenna -- the most successful was stocked by Ouray-Randlett September 2013 on the White River antenna and we’ve seen 26% after 60 days. Clearly, we have difficulty capturing fish again. We see 0-1% if they were stocked far away from an antenna, and 3-6% if they are stocked near an antenna. We have seen multiple fish in multiple years on the same antenna (of course we don’t know if those are live fish). Long-distance fish movement is very rare (and almost always downstream). Julie also looked at diurnal patterns -- we get about twice the amount of hits at night and the least around noon. Brandon noted this is similar to what Gordon Mueller found. Comparing all stocking events near antenna versus not, it seems we likely have more bonytail in the wild than we are detecting (fish stocked not near antenna). No relationship between weight or length or stocking month has been detected. Stocking events in 2014 and 2016 seemed more successful (this would correlate with stocking more and larger bonytail beginning in 2013). The longest documented time at large for a bonytail was stocked in 2007 and captured again in 2014. Pete commented that since we’re not seeing many larvae, likely not many stocked bonytail are surviving past one year. Krissy thought 2014 and 2016 may have been more successful because we’ve been looking for other-than-mainstem habitats to stock them; Julie said she didn’t see a difference between fish stocked in the mainstem versus tributaries. Dale asked if we’ve looked at correlation with flows; >Julie said she could do that. Dale suggested flow on stocking day would be important, but perhaps also the first two weeks after stocking (the first week or two post-stocking is when the largest amount of downstream displacement takes place among stocked razorback sucker). Julie noted that more than 90% of the stocking events have 3% survival, so we may also want to determine how to address that; meanwhile, >she’ll look at the whole dataset as it relates to flow. Pete asked about fish condition profiles and whether fatty liver or other factors related to health at the time of stocking may be playing a role in survival of stocked fish. Tom Czapla said all the hatcheries do health condition profiles and >he’ll look at getting that distributed and >check with Bozeman on the fatty liver analysis. Tom Chart emphasized the need to get more fish produced in the wild and thus the need to continue to increase our

emphasis on floodplains. 65% of the longest-lived fish were stocked since 2013 (most from 2014). Tom Czapla summarized that it seems we're moving in the right direction of using floodplains, and stocking more and larger bonytail. Julie asked if we have opportunities to put more antennas near wetland outlets. Tom Czapla said he thinks we are looking at that and encouraged agencies with antennas available to place them in the outlets of stocked floodplains where possible. Pete asked if we're still flow-training bonytail and how fish are being raised in the hatchery. Tom Czapla said most are raised in lined ponds for at least a portion of the time. Mumma's ponds, however, are earthen and may have some emergent vegetation on the edge. Mumma does about a 2-week flow training event back in fiberglass tanks before release. (Note: no hatchery's fish seem to be doing better than others, however.) Pete asked if we might consider some sort of cover structures (perhaps pvc pipe or something that's easy to remove) in the pond to get fish used to seeking cover. Krissy says she thinks we'll see better survival of fish stocked in off-channel habitats where they have opportunity to acclimate and to spawn. Chart asked whether we should consider stocking smaller fish out into floodplains and get them on natural food as soon as possible. Krissy noted that Wahweap has excess production that could be used. Dale said they usually have a few thousand excess fish, also. >Tom Czapla will coordinate a call regarding bonytail, starting with the group currently convened to discuss stocking locations. Other interested Committee members should let Czapla know if they'd like to be part of that discussion.

2. Discussion regarding tagging smaller razorback sucker and bonytail – Thanks to Melissa and Dave Ward who provided publications on this topic (<http://afs.tandfonline.com/doi/full/10.1080/02755947.2014.986345> and <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2400.2008.00595.x/full>).

Summary of findings from Ouray NFH: Matt Fry gets 0 mortality tagging 80 mm razorback; for bonytail, 100 mm is needed for 0 mortality (12mm tags). A study based on 45-110 mm total lengths razorback sucker noted 0 mortality (Pilar Wolthers, Arizona Game & Fish Department, per. comm.); in a NAJFM study 60-69 mm humpback chub had 5% mortality, and 70-79 mm humpback chub had 0 mortality. Can effectively tag with little mortality or tag loss at 65 mm. 180 humpback chub ranging 84-143 mm humpback chub that were not fed had a lower mortality (1.1 %) when tagged. In a 121 fed fish ranging 68-143 mm, the stomachs/intestines were commonly pierced when tagged, resulting in a 14.9% mortality rate.

In the field, folks haven't wanted to tag <150mm. Tom Czapla noted the ability to tag smaller fish may be more important to help track small *Gila* sp. that are captured for humpback chub estimates. Matt Breen tagged over 1,800 age-0 fish from Stewart Lake, was comfortable tagging at 90 mm for razorbacks which are currently being recaptured in the river. Dale and Matt both recommend that people with experience take over in tagging small fish. Melissa reinforced the importance of recognizing that fish have recently fed when we use baited hoop nets to capture humpback chubs for population estimates -- if they've just fed, tagging below 150 mm isn't a good idea. Pete requested a summary document that outlines a variety of conditions based on controlled settings in the hatchery environment (e.g., fed, not fed, anesthetized, water temperature, etc.). Tom Czapla noted that studies were completed mostly by experienced individuals, needle size, etc. are presented in those papers. > Tom Czapla will ask Matt for a write up on results from ONFH-R.

3. Scope of work to outline supplementing the humpback chub currently in Yampa Canyon - Melissa and others have experience from translocations within the Grand Canyon. The scope is for a white paper outlining options to either stock fish or translocate fish to Dinosaur National Monument. No funds would be associated with the scope, but Tom Czapla has requested a scope to help track the project. Melissa is

trying to schedule a meeting to get this started in the coming weeks. The scope should be released to the Committee in this cycle and the white paper is estimated to be complete by the end of the calendar year. Tom Chart noted that the impetus for this white paper came out of discussions with the MC in March related to possible revisions to the RIPRAP and the HBC the SSA. The MC agreed that this white paper would be a logical next step as we explore options for the Dinosaur/Yampa Canyon population. This was an intermediate step before adding action items into the RIPRAP (which would have budget implications).

4. Hydrology and reservoir operations update - Don Anderson reviewed current conditions.
 - Green River and Flaming Gorge - very unusual year with a phenomenal amount of snow and associated runoff peaked at 17,000 cfs in May. Heather started maximum releases (8600 cfs) from Flaming Gorge in mid-March to provide reservoir storage capacity; around May 11 she lowered releases down to 6600 cfs for a number of reasons, including less concern about inflows, and more flexibility for elevating flows later in the season (to a lesser extent, it was discussed that it might potentially provide some temperature benefits, warming up the river and helping in spawning). The Program acknowledged that dropping from 8600-6600 would probably not have significant temperature benefits. The goal is to hold back to wait for spawning and then ramp back up to 8600 cfs to promote entrainment of larvae into the wetlands. Once releases are increased again, they will likely continue at that level through the end of June. Melissa asked if flooding was a concern to back off of peak flows. Tom Chart and Jerry Wilhite said flooding was not discussed and that Heather tried to match the Yampa peak. However, the (Yampa) peak-to-date at Deerlodge occurred in Mid-may shortly after Flaming Gorge releases were decreased to 6600 cfs.
 - Aspinall Unit/Gunnison - On April 27, Reclamation held a public meeting regarding anticipated operations of the Aspinall Unit in conformance with their ROD. The public reacted well but was particularly interested in continued communications in light of the potential for daily changes in conditions and operations. Melt-out of considerable basin snowpack occurred in March, Gunnison changed from a moderately-wet to average-wet hydrology which changed peak flow targets to two days with a ~14k cfs peak and 20 days at ~8k in the Gunnison River at Whitewater., Reclamation began elevated releases from the Aspinall Unit May 14 and was anticipating an increase to 11k cfs today or tomorrow, with a ramp down this weekend. They have been attempting to time these flows to correspond with peak flows out of the North Fork of the Gunnison.
 - 15-Mile reach - Potential for peak flow augmentation is being discussed in weekly coordinated reservoir operations (CROS) calls (coordinated by Michelle Garrison); current conditions may allow for CROS operations this year, Upper Colorado snowpack has been at about 100% of normal, new snow storms put it at about 120%. Don will be on the call this Thursday when the latest hydrologic information is reviewed and some go/no-go decisions may be made.
 - Base flow Yampa River - a very dry and hot March resulted in considerable early runoff in the Yampa - we may have already seen the peak in the Yampa River. The Program has an option to lease 2000 af from CRD at Elkhead Reservoir to sustain flows in late summer and fall at \$50/af, in addition to the 5,000 af fish pool annually available to the Program. We needed to decide whether or not we wanted to lease this water by May 1 and decided not to request the additional water. Yampa is below normal, but not dire, the snow water equivalents have been at about 80% (with additional storms), April-July runoff forecasts have been variable, but have been around 80% of average. This year appears similar to 2009, 2010 and 2015, years in which the Program was able to sustain base flows at levels close to targets in the Yampa River using the 5,000 af fish pool.
5. Reservoir screening update - Elkhead reservoir has spilled a number of days this spring. We have seen

successful testing of the net. CPW sent crews in behind the spillway net (collected one northern pike that was in poor condition and may have been in the forebay when the net was installed). Ridgway is still operating to avoid a spill this year; it looks like they will be able to avoid spilling. Harry noted Elkhead started to spill on March 26th and is still spilling now.

- Starvation screen construction update - Paul had hoped USBR force account would be able to do construction of the barrier this fall (2017). The USBR conducted a second review of the plans that were completed in 2014. They had additional questions, nothing major, but recommended changes to facilitate easier construction. The next step was to get a new set of 100% drawings, which are still in the making by the consulting firm. An MOU is being developed (between UDWR, USBR, Utah State Parks, Central Utah Water, and the Program) and is in internal review by UDWR. UDWR has also written an operation and emergency plan that details how the screen will be operated and what happens under various emergency conditions. USBR force account lost personnel and now cannot construct this fall. UDWR is evaluating whether to send the contract out for bid to try to stay on schedule with 2017 construction (waiting to be sure they have funds available right now). USBR will complete NEPA. Paul understands that things need to move quickly to meet the construction schedule in 2017. Paul is hoping to get the MOU out to partners at the end of next week. Flows at Starvation are currently 7 feet before spilling (spilling could occur well into June).

6. Floodplain updates

- BLM-owned wetlands - March 31st field trip is summarized in meeting attachment. About 14 people toured the wetlands, many were BLM employees who wanted to learn more about the Program. Prioritized the three properties based on feasibility. Stirrup was considered most promising based on its topographic simplicity (ease of access, buildability, ownership, lack of cottonwoods, reasonable size to fill and drain, downstream breach, little emergent vegetation, and available biological data). First step would be to complete a bathymetric survey of the basin, river and dike to figure out how to drain the wetland. Dredging would be needed. Above Brennan was appealing because it is larger and potentially deeper than the Stirrup, has been used by adult fish, has little emergent vegetation, good biological information, and multiple breaches, but it would require considerable construction. Structures (diking) would be needed to fill and drain and exclude non-native fish. The outlet does not present obvious solutions to allow for management. Also a highly-integrated cottonwood gallery is present at the outlet and would complicate construction in the area. Above Brennan ranked third on the list. Baeser Bend was noted to be a distant second to Stirrup. It has been modified several times over the last few years based on changing purposes. Advantages include successful over-wintering in the past and being currently dry which would allow for surveying. Disadvantages include extensive emergent vegetation, permeable structure, outlet channel construction, and potential breach maintenance. >Jerrad and Matt are charged with creating a scope of work that outlines what would be necessary to get the Stirrup ready. Pete asked how Stirrup ranks vs. Leota. Dave noted that Stirrup has the advantage of being managed solely for fish rearing and would add BLM partnering with the Program. Leota has a lot of plumbing issues and would need additional work, Dave encourages continued action on Leota, but doesn't see a clear path forward at the moment. Pete reinforced the concept that Leota should remain a priority, but supports action at Stirrup as well. Jerrad noted that they have management flexibility at Stirrup and can support fish as needed. Dave noted that action would require capital funds approved through the Biology and Management committees. Jerrad noted the committee should anticipate a scope later in the fall. The Provo office is waiting for us to move forward to start on a bathymetric survey, but they will

start with bathymetry from previous years. Jerrad is going to try to get a rough survey completed in June to give the engineers some idea of what they would need to do to get it to drain. >Dave will share Jerrad's efforts with Provo office and coordinate additional surveys as needed. Dave is looking for assistance in coordinating any efforts moving forward from the PDO. Dale asked what we need to take the next step forward. Dave noted the scope could mirror the scope for the Matheson wetland. Tom Chart noted that >the PDO will reach out to Dave and Brent to figure out what we can do to assist including potential scope development and approvals needed for crews to get out on the ground.

- Sheppard Bottom update - Sheppard Bottom is complete, the dirt work has been done. Tildon is installing the fish screen this week which is going behind the stop logs in anticipation of the larval trigger. Some units connected through the breach on May 11th, and the river has been rising, but we are holding water out of the interior unit where non-native fish will be excluded.
- Johnson Bottom - connected as of May 15th, and filled through the breach, probably draining back to the river at this time. Johnson was not screened when it connected, bonytail have been stocked in Johnson, but non-native fish are present, as well. Pete and Krissy asked if we could take an antenna after razorback monitoring and put it into Johnson. Tildon will investigate what the possibilities might be. Matt noted that they have additional flatplates if useful, but Tildon noted that security is a concern at that location. Tildon said they could put antenna in the wetland over the summer to see how many bonytail are there at that time. The group noted any data is good data. Tildon said the breach is changing as the river changes, historically it was a wide breach but this year it was a narrow channel. If it maintains the smaller width, it would be a good place to put antennas to assess bonytail as they leave the wetland. The smaller breach is also much easier to screen, which may allow us to keep non-natives out in future years.
- Others: Wyasket connected (maybe only a little).
 - Old Charlie connected through the exterior unit, as of Sunday (5/21) it was flowing back out to the river.
 - Above Brennan connected through inlet.
 - Leota may only have been partly connected.
 - Escalante Ranch has been connected for weeks.
 - Stirrup connected but not with fish passage flows (Breen update).
- Stewart Lake 2017 operations and repairs - met with the USBR to fix the gate after peak flows go down, which should be July/August. >Kevin McAbee will communicate with them to ensure appropriate schedule. During higher flows, they are having trouble holding water back (18,000 cfs almost overtopped the new gate at the outlet). Matt is trying to keep water out until larval trigger. The wetland is filling through seepage so the entrainment window will be shorter than it has been in the past.
- Larval razorback sucker floodplain experiments - Kevin Bestgen discussed a study to look at entrainment through the screens (can it let larval fish in and exclude non-natives) and light trap efficiency. Kevin Bestgen and Tildon went to Johnson to set light traps and released 500-1000 larvae. Release distances from light traps were 5-20 m and gathered remarkable quantities of zooplankton but not a single fish. They are not quite sure why this happened, but they will continue to investigate. Also released larvae on either side of the Johnson Bottom exclusion screen - marked fish on the river side of the screen and then sampled with a drift net in the canal. Fish were caught, but they have not yet determined if they were the marked fish or not (need to look at otoliths). Tildon's crew looked again the second week and caught zooplankton again, but the samples will be pickled and evaluated. Tildon notes that most of the floodplains have connected and have water, so we don't have much dynamic head to get

larvae into the wetlands. Stewart is the only wetland not currently full.

7. Field updates

Wyoming Game & Fish - Mark Fowden (Chief of Fisheries) retired recently and tragically passed away soon after. Dirk Miller is acting chief. Alan Osterland has been hired as the new Fisheries Chief and will start soon. Alan has been in the Wildlife Division serving as a game warden and a Regional Wildlife Supervisor; he may be attending the Tri-State meeting next month.

- Pete asked if we had any clues as to what unidentified fish may be in STReAMS
 - Alerted the BC that WY has pit tagged 100's or more burbot in Flaming Gorge and the Green River. He asked >Julie to query the database for burbot. *Done*. No burbot are present. Pete will check with Wyo. Biologists for records.
 - Flannelmouth sucker caught that was probably tagged by a grad student in the Little Snake. >Pete will look for all the old PIT info he can find. Julie is also working with Andy at CPW to fill in any holes that Colorado may know about.
 - Julie noted we're getting data off the antennas weekly now, but it takes longer to get data from the field, so more fish may appear to be unidentified for a time. The more quickly folks can submit data the better.
 - At Western AFS Dan Kowalski (CPW) presented work on the lower Gunnison assessing an electrical barrier for an irrigation canal; they PIT tagged 1000's of trout. Dan is aware that the tag data is needed in STReAMS but has not submitted it yet.

UDWR-Vernal - Matt Breen

Project 128

- Three Colorado pikeminnow passes were performed starting on 4/18/17 and ending on 5/21/17. Pass one took place from 4/18-4/26/17 capturing 22 pikeminnow. Pass two was from 5/2-5/7/17 and only 12 pikeminnow were captured. Pass 3 was from 5/16-5/21/17 and we captured 26 pikeminnow.
- In total, during the three passes there were 60 pikeminnow captures; 16 were recaptures.
- Mean total length of pikeminnow was 380 mm (range=121–782 mm). Almost half of pikeminnow captures ($n=28$) were under 300 mm TL; many were likely 2015 recruits, a good sign following that productive year.
- 28 walleye and 4 northern pike also removed. It's exciting to see pikeminnow outnumbering the number of two piscivores during the same time period!

Project 123b

- Fyke-netting in backwaters around Jensen, UT has been fairly productive. 13 pikeminnow have been captured; 10 recaptures. Mean TL was larger at 604 mm (range=516–754 mm).
 - 25 northern pike removed; mean TL = 606 mm (range=456–724 mm).
 - 6 walleye removed.
- Fyke-netting in Stewart Lake outlet, we have managed to move 43 bonytail into Stewart Lake proper and will continue to as long as we are still running fyke nets.
- During tributary (Ashley Creek and other backwaters) electrofishing we have captured 11 pikeminnow with 3 recaptures. Mean=308.6 mm (range=94–759 mm)

- 15 northern pike removed; mean=645 mm (range=405–925 mm).
- Only one walleye removed.
- We have completed 14 days of targeted WE removal (equivalent of 2 CS estimate passes) Split Mountain by Spawning bar and White River to Sand Wash.
 - 28 pikeminnow captures; 11 recaptures. Mean TL=397.3 mm (range=145–785 mm). Again just under half of those fish captured were (Qty=13) were under 300 mm TL.
 - 16 walleye removed during targeted walleye removal.
 - 9 northern pike have also been removed.
 - Endangered fish grand slam near Sandwash.
- Putative white crappie captured in a fyke net at the Stewart Lake drain on 5/4/17; 6 dorsal spines if the first tiny nub is included, 5 spines if not—preserved for verification (photo below).



- Seeing age-1 razorbacks all the way down to Johnson Bottom, 130 mm fish over-wintering and doing well. At least 1 razorback was recaptured.

****Flaming Gorge escapees (kokanee & lakere) captured in main channel electrofishing is concerning. Seeing healthy kokanee all the way down to the Refuge.**

****We now have 36 sets of walleye otoliths****

UDWR-Moab-John Caldwell

- Completed two passes on the lower Green, third is going on right now. 232 pikeminnow, 190 were juvenile, 38 were adults (20 were recaptures).
- Removed 52 walleye, captured one untagged juvenile razorback (200mm).
- Two grass carp, one eyeball confirmed diploid. Saw 4 on the first pass but unable to net. Saw one kokanee.

CSU-LFL - Kevin Bestgen

- Ed placed two submersible “wagon wheel” detectors in Vermillion Creek - detected 47 individual pikeminnow. In the past 8 or 9 have been captured. Also detected 3 flannelmouths tagged in the Middle

Green. They will be sampling to try to catch unmarked fish. Typically the flows are lower and warming faster (22 C compared to 8-10 in mainstem), this year has been more variable, so it is colder than normal, but still lower velocity and attracting fish.

- Continuing with pike and bass removal. Harry asked if the crew has found pikeminnow on the Yampa. Kevin noted the crew will come back tomorrow and he will check in.

FWS-GRB FWCO - Tildon Jones

- Completing pikeminnow estimates - quick tally is 41 adults captured in 3 passes in 120 miles from the White River confluence to Tusher and a few more from Tusher to Green River State Park (combined data from Tildon, Katie and Dale's crews - thanks to all). 30 were not adults, many were smaller than 400mm (2015 fish).
- Walleye catch is down compared to past years; they are scanning them for PIT tags of endangered fish in their bellies.
- One putative white crappie (5 spines) caught but not preserved.
- Two adult smallmouth bass downstream of the Tusher Wash diversion. >Tildon and UDWR will investigate if this is the first capture of SMB downstream of Tusher and include in the annual report.
- Completing sporadic light trapping on Green - no razorback larvae detected. Will continue until larvae are detected.
- Currently out on second White River pikeminnow estimate trip, next week is third trip. The White River below Taylor Draw used to have really big pikeminnow, now have not caught any.
- Tusher Diversion is covered in driftwood, but okay to raft through.
- Total captures of pikeminnow would be up but they are missing fish, especially the bigger ones - Tildon may want to change settings/configurations to capture fish more effectively. Using the motor in Deso seems to change the electrical field. Tildon recommends continued effort on the standardization process and pulling in Pat and Larry (they are getting copies of the data sheets).

CPW - Harry Crockett

- Yampa backwater netting is completed (March 23-May 3), ran longer than last year. Caught a lot of pike but does not have a total. Many of those fish were pre-spawn. On the first trip on the Yampa they didn't catch many non-natives. Have not yet caught a pikeminnow, saw one they were unable to catch.
- Elkhead - gill-netted the stilling basin, caught pike and two smallmouth. The stilling basin didn't connect so they overwintered there. The Elkhead tournament is June 24 to July 2. The Craig Chamber of Commerce is interested in marketing the tournament. CPW will mark pike and smallmouth bass before the tournament to get a population estimate.
- White - Smallmouth bass removal starts next week, Jenn did a Colorado pikeminnow population estimate run, no pikeminnow caught, but removed unripe bass in similar numbers to last year.
- Colorado - work will start after runoff, did jump into backwater near Rifle, caught a couple of pike and a couple of smallmouth bass. Theoretically the merwin trap in Mamm Creek pond has been in the outlet breach so pike should not be able to get out. They did remove pike from the pit on par with last year. Jenn documented pike in adjacent pits and did more extensive netting and caught only 1-2 per pond. All

were adults with no evidence of reproduction, but many other species present as well. Maybe pike got in during high water in 2011, but are not reproducing in the reservoir.

- Rifle Gap - Spring netting - removed gravid walleye females, 7 smallmouth and 7 pike. CPW has 100% triploidy in walleye so they will be stocking triploids into Rifle Gap. Hope to fund an age and growth study to compare to diploids. Conducted a walleye filet give-away which was very popular, people lining up 2 hours early and handed out all filets within 15 minutes. Public meeting around netting was contentious so this was a good indication of increasing public support.
- Ridgway - Tournament will be in July.
- Dolores - sampled Big Gypsum to Bedrock single pass with two boats, collected no smallmouth bass (did in 2007), no walleye, few non-natives, PIT tagged 800 three species, no endangered fish. Melissa asked about diversion on the Dolores - an old diversion near Gateway - near the CO/UT state line, the Nature Conservancy is considering a rebuild. The water rights are owned by Hendricks from the Discovery Channel and are very senior. No one currently knows many details, but there may be concern about increasing fish passage to protect three species in the river. Few details are currently available. Harry will continue to check in and will report back as more information develops.

FWS - GJ FWCO

- San Juan nonnative fish removal work and Lake Powell razorback sucker survey are currently ongoing.
- Price-Stubb - 754 unique detections from this antenna, which included 3 different endangered species (RZ, BT, CPM), 453 (61% of these) detections cannot be identified to species. Many of these unknown PIT tag detections are likely tagged three species fishes. Therefore, Dale made another plug for all 3 species PIT tag data from all state partner agencies to be added to STReaMS. Sub-adult pikeminnow tagged near Tusher in 2006, recaptured there in 2007, detected on the Price-Stubb antenna in the Colorado River in April 2016, then detected twice on Tusher antenna in October 2016, was detected back on the Price-Stubb antenna in the Colorado River in April 2017.
- Have worked in three ponds doing non-native fish removal. So far have stocked 134 razorback into river from ponds, unfortunately caught first smallmouth bass ever recorded in Beswick's Pond (range = 60-90 mm TL). Don't know if that came from people moving fish into Beswick's from adjacent ponds. They do allow public fishing in the adjacent ponds, but not in Beswick's Pond. All ponds at that location have signs to inform the public where fishing is allowed and where it isn't.
- Completed two full walleye removal passes from Cottonwood Wash to Potash, have captured only 10 walleye from Takeout Beach to Potash – none upstream of there in these first two passes. Collected ~30 pikeminnow most likely from 2015 year class (range = 120-190 mm TL). Also collected many razorbacks and bonytails during these first two walleye removal trips.
- One adult grass carp collected just downstream of Moab (745 mm TL, 5246 g) near Gold bar; was a diploid fish (as determined by eyeballs sent off for analysis). Froze the carcass and preserved gonads and stomach in ethanol.
- Fish ladders – have already collected around 6 razorbacks at GVWU ladder in the first few weeks of operation, last year only had 36 total razorbacks all year. Had to shut down the Redlands fish ladder on Gunnison because of flooding over the weekend. This ladder cannot be operated at flows above 9,500

cfs. We will keep this fish ladder closed until Gunnison River flows drop back below 9,500 cfs.

- Ouray NFH – Grand Valley Unit (Ouray NFH-GVU) had a 75%+ hatch rate on razorback sucker, so they will have plenty of fish this year, bonytail came in from Dexter and were in excellent health, our facility also passed its 2017 USFWS fish health inspection, which is performed by personnel from Bozeman Fish Health Center. Tom Czaplak asked if Ouray NFH-GVU was still using Colorado pikeminnow to help control humpback volunteer spawning in the refugia pond. Dale said that in 2016 they had tried to use pikeminnow to eliminate volunteer-spawned humpback chub. Dale indicated that while they did have Colorado pikeminnow in the pond with the humpback chub, they didn't have high enough densities of pikeminnow to effectively cull these volunteer-spawned fish. Ouray NFH-GVU had put in a request for more Colorado pikeminnow back in fall 2016 (as many as 50) to use in 2017, but never received them. Dale will try again to request more pikeminnow from Dexter for this purpose, but thinks it will probably be too late to get any in 2017.

8. Review previous meeting assignments – See Attachment 1.
9. Review reports due list – No changes to updated list provided with this agenda.
10. Review agenda items for July 13-14 meeting - Agenda items will include: review of draft FY18-19 work plan; possible review of revised Deso/Gray humpback chub report (if not approved via e-mail), and perhaps review and approval of Argonne's backwater synthesis report.
11. Consent item: Review and approve March 6-7, 2017 Biology Committee meeting summary – A draft revised summary with comments from Pete Cavalli was provided with the agenda for this meeting. Approved as written; Julie will post the final to the listserver and website.

ADJOURN: 4:32 p.m.

Attachment 1: Assignments

(Asterisked items are on the meeting agenda)

The order of some assignments has been changed to group similar items together.

For earlier history of items preceded by an ampersand “&”, please see [previous meeting summaries](#).

1. Humpback Chub (broodstock development / genetics)

As identified in the 2012 sufficient progress assessment and requested by the Management Committee, the **Program** will develop an action plan for establishing refugia for humpback chub (avoiding getting bogged down in genetic analysis). Mike Roberts has recommended building in limiting factor/life history studies to better understand what’s going on in the system that’s affecting humpback chub populations. *After Wade’s report is received, a workshop should be held to include discussion of when and where fish would be stocked. Tom Chart recommended outlining questions for a workshop, conducting the workshop, and then finalizing the action plan. 10/27/14: Reclamation awarded contract to SNARRC for analyzing remaining fin clips and completing report (including lower basin data). 1/15/15: data on upper basin chubs will be written up within about a year. The subgroup developed a list of questions for Wade to address (Tom Czapla sent to BC 1/21/15); >Melissa Trammell will find and send the plan development proposal document to Tom Czapla by January 21 and Tom will send it to Wade with a courtesy copy to the Biology Committee and Kevin Bestgen. (Done). Wade said he will revise the scope of work (done; any comments due by January 29). Additional work pending results from Wade. 5/23/17: Tom talked to Wade, Sandra (who did the testing) left the office so the Westwater samples will not be analyzed for another year. Tom asked whether the BC would like the report now without Westwater samples, or in a year to include the Westwater samples. Dale is concerned that the Westwater data will get lost if we do not wait to include it in the final report. We do want to get the Westwater data included in the analysis; meanwhile, >Tom will distribute the working report (if Wade agrees) to the BC to provide an update.*

- **Tom Czapla** will follow up with Wade Wilson and get recommendations on securing additional fish for broodstock (e.g. from Deso/Gray). Wade recommends more broodstock (minimum of 50) from Deso to support the stock at Randlett of 10-13 fish. Pete asked what we would do with these fish. The committee isn’t sure, but it will be affected by the white paper and results of the final report. Sandra was recommending a single broodstock from the Upper Basin.

2. Regarding white sucker hybrids, **Harry Crockett** will talk to **Kevin Bestgen** about any further work needed subsequent to the identification guide that Pat Martinez distributed last year. 8/26/14: *Ongoing (very complex issue that really deserves a combined genetics and morphological study). This could be put into the next round of Program Guidance (PD’s office did) and we should be considering potential outside funding sources, as well, since this relates to more than listed fish. 1/13/16: The 2016 Colorado-Wyoming AFS meeting will have a dry lab workshop on sucker identification and hybrids. Kevin Bestgen recommends a genetics study linked to a morphological study. 3/11/16: The joint meeting of the CO/UT/WY AFS chapters next year may be an appropriate venue to have another mini-workshop on identifying hybrid suckers. 8/22/16: Some support from the AFS chapters/members may be needed for Dr. Bestgen to lead this; Harry Crockett will discuss with Kevin Bestgen. 1/12/17: Harry said AFS doesn’t want to include this as part of the continuing education this year. Krissy asked Ed Kluender if LFL would be willing to offer a workshop to*

UDWR, so she's going to explore that. Kevin Bestgen said that's difficult to travel, so Krissy will explore travel options (and Colorado and others then would want to participate). Kevin said they could consider combining this with a fish identification workshop. >Kevin Bestgen will look into establishing this as a registration-based class (hopefully annually). Wyoming has asked for a class in mid to late May or early June. Utah biologists also would like to get this training, but that timeframe may not work. 5/23: Bestgen set up a class in Fort Collins for Wyoming G&F June 7 & 8.

3. Kevin McAbee suggested the **database manager**'s first assignment should be summarizing and analyzing the STReaMS bonytail data, to provide the committee and hatcheries with an initial idea of the number of fish that remain in the system over time, and the characteristics of those fish. The Committee agreed. 1/12/17: Julie presented some information at the researchers meeting and will continue this work with the PIT antenna information. 5/23/17: Presented information. >**Julie** will continue to look at flow relationships and health conditions. >**Tom Czapl**a will get health condition information distributed and check with Bozeman on the fatty liver analysis.
4. Bonytail Stocking Strategies >**Tom Czapl**a will coordinate a call to strategize bonytail stocking, starting with the group currently convened to discuss stocking locations. Interested Committee members should let Czapl know if they'd like to be part of that discussion.
5. The Committee endorsed an experiment to tag smaller hatchery razorback and bonytail (for fish coming out of floodplains); >**Tom Czapl**a will investigate which hatchery could do this. **Tom Czapl**a will check the BO written for scientific take permits to see if any change in permitting would be required. 1/13/16: **Matt Fry** is experimenting with tagging smaller fish and will document this work for the Committee in the Ouray NFH 2016 annual report. >**Tom Czapl**a will make sure this has been written up. Melissa Trammell said Dave Ward has done a great deal of work on this and will send the references to Tom Czapl. Dale Ryden and others emphasized that experienced hatchery personnel likely will always be able to tag smaller fish than seasonal technicians in the field. >**Tom Czapl**a will compile the information he's received and provide it to the Committee in advance of the May webinar. >5/23: **Tom Czapl**a will request write-up from Matt Fry.
6. **Angela Kantola** will make a note for the FY18-19 work plan review it would be good to have more introduction of new or significantly revised scopes of work from PIs (perhaps on a webinar a week in advance of the work plan review meeting). Pending; 1/12/17: PDO will discuss and recommend dates for a webinar this summer. 3/7/17: Without available dates for this, the Committee suggested that the >**PDO** identify significantly revised or new scopes of work and call attention to those and the Biology Committee will consider those first when reviewing the draft FY18-19 work plan in July. Also, the >**PDO** will ask PIs to write a short paragraph outlining the major changes in significantly revised scopes of work. 5/11: This was included in Program Guidance; PDO to make sure PIs complied.
7. **Biology Committee members** can share any thoughts/comments on proposed graduate research projects back to the Committee and the Committee will track as a future agenda item to determine any next steps or specific projects we want to focus on. 3/7/17: Although FY18 budgets appear constrained, we can always put these on a contingency list and keep our eyes out for other funding sources.
8. Floodplain follow-up assignments:
 - **Tildon Jones** and **Kevin Bestgen** will discuss the potential to use light trap sampling to measure larval

drift densities and make recommendations to the Committee. *Done for now (being considered as part of potential student projects).*

- **Matt Breen** will prepare revised scope of work for Stewart Lake. *In progress.*
 - The **Program Director's Office** will discuss terms of the Escalante wetland and Lamb property leases with **Ouray NWR (Dan Schaad, Sonja Jahrsdoerfer, and Andrew Pettibone)** to ensure the Program really benefits from them. Tildon noted that the easements may be protecting these floodplains from other development. *Pending.*
 - The **Program Director's Office** will reach out to Dave and Brent to establish scope to get action on the ground at Stirrup. **Dave Speas** will share any results from Jerrad's surveys with the Provo office and continue discussions.
9. Regarding grass carp, >**Biology Committee state representatives** will review/describe grass carp stocking regulations and summarize stocking history (*Pete Cavalli provided a map showing grass carp producers and suppliers on 1/15/17; he has also provided Kevin McAbee with a list of grass carp stocking in the Green River drainage in Wyoming*).
- **Kevin McAbee will ask Mark Fuller** to contact the Ute Tribe to review/describe their grass carp stocking regulations and summarize stocking history. *Done; awaiting response.*
 - The PDO will ask the San Juan Program to respond similarly. >Nate Franssen will request this information from SJ Program stakeholders at their February 21 Biology Committee meeting. Information pending. >*Scott Durst report In San Juan County, NM there have been 22 carp imported since 2006. The tribes did not report on their activities. See the May 2017 BC report for more detail.*
10. **Harry Crockett** will provide a copy of the completed, signed Elkhead Lake Management Plan to the Committee. *Done April 13.*
11. **Dale Ryden** will check with Barb Osmundson on the status of the selenium in razorback sucker report. *5/23: Barb has retired, but working as a volunteer. The report is written and Barb is working with a reviewer on some revisions.*
12. The **Program Director's Office** will make RIPRAP and Program Guidance revisions per Committee discussion. *Done.* **Kevin McAbee** will work with PIs on recommended revisions to projects #125, #128, etc. *Done during SOW submissions in May.*
13. **Julie Howard** will revise the Deso/Gray humpback chub report, respond to comments, and send these documents to **Tom Czapl**a to share with the Biology Committee. Dave Speas will submit comments to Julie by c.o.b. March 14 (done). The Committee will consider the revisions and responses and either decide to approve via email (preferred) or discuss on the May webinar.

Attachment 2
Memorandum

To: Matt Breen (UDWR), Tildon Jones (USFWS), Brent Uilenberg (USBR), Rick Sweat (USBR), Peter Crookston (USBR), Jerrad Goodell (BLM), Scott Winterton (USBR), Cary Southworth (USBR), Peter Kauss (BLM), Jared Baxter (USBR), Don Anderson (USFWS).

From: Dave Speas (USBR)

Re: March 30 site visit to BLM-owned wetlands (Stirrup, Above Brennan, Baeser)

4/3/17

I thought I would take a few minutes to jot down some notes from the March 30, 2017 field trip to the BLM wetlands along the Green River between Jensen and Ouray. These notes should be transformed/streamlined into a briefing paper/presentation for the Biology Committee (and later the Management Committee) for further discussion/guidance on moving forward with a physical modification to meet program requirements for razorback sucker rearing and/or bonytail reproduction.

The trip was attended by everyone addressed above, although I probably forgot one or two folks (there was quite a crowd there!). Please forward if necessary and please provide any corrections to the following summary.

First, before we toured the wetland areas Brent Uilenberg and I met with Matt Breen, Peter Crookston, Don Anderson and Jared Baxter at the Stewart Lake outlet gates to inspect the condition of the gate infrastructure and discuss operations. Matt indicated that they are presently unable to drain the remaining snowmelt and rainfall from Stewart Lake prior to runoff, which leaves 3-4' of water in the lowermost portion of the outflow channel in the wetland. He indicated that we would be able to fill Stewart Lake during the larval drift period, however, provided that flows were high enough during the drift period to fill the wetland. Matt also indicated that he had reviewed a BOR proposal for repairs to the river-side outlet gate and it appeared to be a good solution to safely operating the gates as needed in the future, including draining following summer 2017. He suggested that the repairs take place in July or August of 2017 (Brent later briefed Cary Southworth and Scott Winterton on the proposed timeframe for the repair).

We met with the remainder of the entourage at UDWR office in Vernal and headed out to visit the Stirrup wetland, Above Brennan (later it was decided to also visit Baeser Bend). At each site the group discussed 1) the potential for dredging the wetland to provide for complete or at least near complete draining each year; 2) the potential for excluding non-native fish from the wetland; 3) the possibility of adding supplemental water; and 4) any details brought forward by biologists concerning the site's suitability for fish, including overwintering potential, ability to hold water, etc. Regarding (2), it was assumed that water control structure would most likely be associated with a non-native fish exclusion structure(s); merits of fish kettles were also discussed but issues regarding fish harvest were not completely resolved.

At the Stirrup the group entered into a cursory discussion based on visual first impressions of the site and its topography. Features that were generally thought to be advantageous to successful modification of the wetland

for fish rearing purposes:

Pros:

- 1) Relatively simple topographic setting with a single inlet/outlet
- 2) Well-defined outlet which was proven to be relatively stable over time in terms of elevation
- 3) 28 acres in size when full
- 4) Access by 4WD road directly to site
- 5) High levee to prevent upstream connection in all but the highest peak flow years (ca. 25 to 30 Kcfs)
- 6) No gallery cottonwoods which is now considered critical habitat for Yellow-billed cuckoo.
- 7) 100% BLM ownership
- 8) No cattails, cobble substrate
- 9) Much existing information on Stirrup water quality, pumping requirements, entrainment, fish community, etc.
- 10) Tends to retain water throughout the course of a year, which affords overwintering options.

Cons:

- 1) Since it holds water so well, an initial bathymetric survey by boat would need to be conducted
- 2) Winterkill documented periodically
- 3) Dredging would have to extend into the deepest part of the wetland to ensure drainage; the quantity of material to be dredged and the maintenance necessary to maintain functionality remains to be characterized.

At Above Brennan, the group identified the following pros and cons:

Pros:

- 1) Large size (ca. 41-50 acres)
- 2) History of consistent endangered fish use and possible bonytail reproduction
- 3) Few cattails
- 4) Considerable information from prior UDWR studies (Brunson/Birchell/Christopherson) indicating favorable growth rates, water quality, zooplankton, etc.
- 5) Multiple breaches should provide high entrainment rates
- 6) Tends to retain water throughout the course of a year, which affords overwintering options.

Cons:

- 1) Upstream breaches would need to be filled to prevent NNF colonization
- 2) Dike would have to be constructed at the outlet to extend from the upland areas to connect with upstream dikes; otherwise access by NNF would be entirely unmitigated
- 3) Outlet channel created during levee removal project has been filled in and reconfigured over time due to beaver activity and successive inundation, resulting in a complex network of rivulets/hummocks instead of an outflow channel
- 4) Construction road would have to be pushed through to the outlet channel area
- 5) Land ownership uncertain

- 6) Dense gallery of cottonwoods is considered critical habitat for Yellow-billed cuckoo, which would create more complex ESA consultation
- 7) Possibly more dredging would be required than Stirrup due to overall size.

Of the cons, construction of the downstream dike was considered most problematic/costly, although materials for construction could be found on site (cobbles).

Baerer Bend:

Pros:

- 1) History of successful fish rearing/overwintering
- 2) Complete BLM ownership (?);
- 3) De-watered state would allow for the ability to gain topographic info through LIDAR rather than shooting a survey from a boat.

Cons:

- 1) Substrate is highly permeable sand; wetland loses water somewhat rapidly
- 2) Would have to excavate entirely new outlet channel; stability of outlet channel would be untested.
- 3) Dense cattail and emergent vegetation
- 4) Extensive sand deposition in putative outlet area
- 5) Unknown breach maintenance requirements
- 6) Gallery cottonwoods may complicate ESA consultation due to yellow-billed cuckoo habitat.
- 7) While the location of the old breach was relatively close to the river, some dredging of the wetland would probably be necessary to ensure drainage.

As a wrap up, the group agreed that all three sites had merits and would potentially be favorable as restored/modified sites for fish recovery. Arguably, though, while each site had certain advantages for fish management, there was enough contrast in design/construction issues and uncertainties among the wetlands which made possible the following prioritization scheme. Ranks were determined informally to represent a combination of potential cost, simplicity, and suitability for fish, with "1" being most promising:

- 1) Stirrup
- 2) Baerer Bend
- 3) Above Brennan

Brent emphasized that the subject of wetland modification should very soon be brought to the attention of the Biology and later Management committees for further discussions and tacit approval to move forward with development of a formal scope of work (if one hadn't already been completed at that point). Pending approval, the SOW should describe design features for fish rearing (logistics of NNF exclusion; draining/harvesting structures (weir, fish kettles, etc); supplemental water needs), and that this information would then be considered from an engineering standpoint during the initial scoping/design phase. Matt Breen and Jerrad Goodell would lead SOW development (at least I think I heard this). Also, the group determined that if BC/MC approval resulted in modification of the Stirrup, (or Above Brennan), some form of funding would have to be provided "up-front" to conduct an initial survey of the pond's bathymetry which would serve as the basis for

feasibility and design proposals. This cannot be done via LIDAR data due to presence of water in the basins.

As is stated above, this information should be summarized relatively soon for the BC for further discussion and hopefully approval for consideration by the Management Committee.

That is all; thanks to all for attending.