



Biology Committee Revised Meeting Summary, March 6-7, 2017

Ute Water Conservancy District Board Room, 2190 H 1/4 Road, Grand Junction, CO 81505

PARTICIPANTS

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

Others: Tom Chart, Julie Stahli, Kevin McAbee, Don Anderson, Tom Czapla, Angela Kantola, Mike Mills, and Chrystal Dean (WAPA), Day 2: Lori Martin. Via phone: Patrick Kočovský, Matt Breen, Kevin Bestgen, Randy Staffeldt, Katie Creighton, Tildon Jones, and Brian Hines Day 2: John Hawkins.

Draft meeting summary was distributed for review on March 13, 2017. Comments to draft meeting summary were provided by Pete Cavalli.

Monday, March 6

1. Grass carp – Dr. Patrick Kočovský presented research on understanding grass carp reproduction in a Lake Erie tributary. (After the meeting, Dale e-mailed the presentation to the Committee along with questions Dale and Travis posed and Dr. Kočovský answered.)
 - 15-31 cm/s flow is required to keep grass carp eggs in suspension (successful reproduction in the wild). All successful eggs are captured at peak flow or on the descending limb of the hydrograph. Fluvial models can be used to estimate location of fertilization based on egg size and water temperature (to derive age). Slide 9 shows the Colorado River in 2015: the yellow boxes indicate rapidly increasing flow events similar to spawning events in the Sandusky River. Incubation time is estimated to be 3-4 days at temperatures during those events. Slide 10 shows the Colorado in 2016 and three events of potential spawning in May and early June. Incubation time is estimated at 3-7 days at those temperatures (but cold temperatures may have inhibited spawning). One possible location for spawning could be the Green/Colorado confluence. Spawning location may be identified by location and flow velocity based on age/larval age and river velocity. The confluence locations along the San Juan and Green may also be spawning locations. To determine spawning locations we would need accurate temperatures (both up and downstream of the confluences) and hydrology in the egg incubation zones, additional egg collections and hydrologic data for the San Juan, Colorado and Green Rivers. Genetic information could be used to determine population size. Patrick recommends implementing the Interagency Grass Carp Protocol, initiating the Sandusky protocol, and developing a risk assessment for grass carp and potentially integrated pest management. He said there has been no evidence of fish reverting from triploidy to diploidy.
 - The Committee discussed how Great Lakes grass carp research can assist our understanding of this species in the upper basin. Patrick has provided some useful literature and protocols for determining ploidy from field specimens.
 - Dale noted grass carp larvae were collected last year, but we have not determined if adult fish we've collected were diploid or triploid. The committee may not be ready to launch a comprehensive study, but wants to respond to opportunities for additional fish collection (for which the provided protocol will be helpful). Dale asked if the fish could have been spawned in Lake Powell or were likely spawned upstream. (Lake Powell has almost 20 miles of "flat water" upstream of where the eggs were collected.) Patrick said the latent flow in the lake and the larvae swimming ability would not preclude them from

moving downstream that far in Lake Powell. The literature has no evidence indicating grass carp lake spawning, so these larvae almost certainly were spawned in the river (the fish may be resident in Lake Powell and moving upstream to spawn). Kevin Bestgen noted that similar eggs in plains streams do not suspend in lake environments. Patrick said studies exist on suspension rates based on water velocity that can be referenced. Kevin Bestgen asked about spawning temperatures; the Chinese and Russian literature currently notes that a certain amount of degree days above 15 C are required for spawning initiation. Grass carp larvae are 8 mm at spawning and can grow to 11 mm within one day. Patrick also noted a variety of carp species have been shown to act outside of previous literature values. Grass carp are native to the Amur River in China/Russia. (In a follow up exchange relating to grass carp in Lake Conroe, Texas, Phil Bettoli [primary author of grass carp article] told Melissa Trammell that although no reservoir spawning has been documented for grass carp there, or elsewhere, he doesn't completely discount the possibility in Lake Powell, noting the surprise of discovering striped bass eggs incubating and hatching in an impoundment because of sufficient inflows or upwellings.)

- Speculating on how big the problem is and how we determine that, Dale suggested perhaps we first need to review our data to determine how frequently we're catching grass carp. And we should be prepared with equipment to take samples needed when we do catch them. Paul Badame affirmed we're not dealing with large numbers of fish (Katie Creighton said the most was 9 during Colorado pikeminnow estimates (electrofishing) on the Green River). Patrick said they've sampled for larvae, but never captured them on the Sandusky River. Katie said they've never captured grass carp larvae in their light trap sampling for razorback sucker in the Green River; Patrick said that's a good sign. Melissa suggested that to determine an estimate of how many diploid grass carp are out there, we sample for adults and test for ploidy, or we test the larvae to determine number of parents (the larvae were preserved in ethanol, so genetics testing is possible). Tom Chart asked if captures of adult grass carp in the Lake are on an uptick; Dale noted captures are extremely infrequent even when many other common carp are caught through electrofishing, trammel nets and larval-light trapping. Patrick estimates 35,000-450,000 grass carp in Lake Erie (using genetic methods) but they are still typically only captured by commercial fishermen using seines. Trap nets and gill nets are abundant in Lake Erie and no grass carp have been captured using those methods. Capturing just a few grass carp could indicate many are present since capture probability is low for a number of gear types. What's most alarming is that larvae have been captured in two consecutive years. Dale asked the Committee if we want to provide field crews with sampling protocols for collecting eyes from juvenile and adult grass carp when they're encountered (to determine ploidy). Paul said we obviously have diploid fish, and our primary question is what is their source? Can we use the fish collected so far to help determine that? Patrick said if we submitted the tissue to him and his colleagues, they can analyze samples pro bono. He'll provide additional protocol for instances where field crews are out for extended periods. Tom Chart mentioned that grass carp spawning has caught the attention of the Colorado River Fish and Wildlife Council. Clearly there's some source of diploid fish, and the basin states will want to consider that. We'll get the Interagency Grass Carp Sampling protocol to field crews and have them take the head (ideally to the dorsal fin) and eyeballs when adult grass carp are encountered (>Before field season begins, Kevin McAbee will distribute the protocol, combining it in instructions regarding all tissues we're asking field crews to collect [along with the protocol Dr. Bestgen provided last year]). Kevin Bestgen noted Wade Wilson has done similar genetic work on bonytail (to determine number of founders). The Committee agreed to sampling grass carp heads/eyeballs. Dale Ryden suggested it would also be good to discuss this at the upcoming State and Service Coordination meeting (Grand Junction in June) (>PDO); review grass carp collection data (Kevin Bestgen has already assembled (Excel file attached to the e-mail with this meeting summary)); and review grass carp stocking records. We'll also consider having genetic analysis done on the larval grass carp samples. The Committee thanked Patrick for calling in and offering this useful information. Harry noted that CPW is working to revise their regulations to require triploidy in *all* grass carp stocked in the state [not currently a requirement on the East Slope].

2. Burbot bounty - Paul Badame reported that Flaming Gorge Project Leader (Ryan Mosely) has been working for several years with the Burbot Bash and their committee, the town of Manila, and the Flaming Gorge Chamber of Commerce, who are now considering the addition of a burbot bounty to improve their control efforts. The group will be using some of their own funds as well as approaching interested parties to contribute to the bounty pot and assist with outreach if appropriate. The earliest timeline for starting this would be winter 2018-19, with numerous details to be worked out beforehand. Tom Chart noted UDWR has been hesitant to support incentivized harvest to date; Paul replied that he expects considerable discussion on that topic within UDWR. Kevin McAbee noted that to date the Program has not provided direct financial support for tournaments or bounties, but has supported partners' efforts to implement these programs themselves.
3. Stewart Lake gate safety - Matt Breen said the recent repair to alleviate buoyancy of newly installed gate didn't work and personnel were almost seriously hurt this week operating the gates. Crews cannot completely drain Stewart Lake in preparation for the spring runoff; UDWR, PDO, and USBR will coordinate on a solution. Matt said they are at the decision point for whether Stewart will operate this year, as the gate cannot be used in its current condition. To fill Stewart this year, they must first drain it and currently pumping is the only option to do that. They can't safely put any water pressure on the wetland side of the gate. If they can pump and then fill, they won't be able to get the water out until the gate is repaired. The river gate can't be repaired until the river recedes. Matt discussed the structure with Ryan Proctor (USBR) (who had never been comfortable with this gate design). The problem is water pressure, not buoyancy. Ryan believes he can strengthen the gate and make it work, but there's not time to craft the repair, so it will have to happen after peak flows. Matt asked the Committee if they believe it's worth the cost of continually pumping the wetland in light of the fact that it may flood anyway (the gate may still fail)? The Committee doesn't have adequate information today to make a decision to pump. Pete Cavalli asked if the Stirrup could be used in place of Stewart this year. Matt can't predict success at Stirrup, but they could try. Tildon suggested the difficulty would be getting fish out or overwintering them. Kevin recommended that UDWR and USBR and the PDO quickly review the situation and recommend options. Tom Chart affirmed UDWR's position that Stewart not be operated if it's unsafe. Both gates are currently closed. Kevin McAbee and Dave Speas wondered if they could remain closed but Stewart filled via the inlet. Matt said experience has shown good larval entrainment would be unlikely (however, that's likely the only possible option this year). The wetland gate is operable, but can't be used until the river gate is repaired.
4. Discussion of FY16 annual report recommendations - The Committee discussed FY16 annual report recommendations and made a few clarifications.

86: Melissa asked how the three recommendations for report 86 were derived from the many recommendations in the document. Tom Chart noted these were the highest priorities for consideration for on the ground action in the next few years. Melissa recommends adding the report recommendation pertaining to using hydrophones in the Gunnison. Tom Chart noted we're also considering doing the hydrophone work in the White River. Dave Speas asked what portion of the recommendations would be picked up by David Topping's project. Tom said it was all rolled into the scope of work, but he is unsure about timing. Sediment transects for LTSP would be additional work outside the scope of currently funded projects.

C-14 and PIP 12C - Add clarification that any CROS operations are dependent on predetermined flow thresholds including an upper limit that protects against flooding downstream of the Gunnison River confluence.

C34 - Melissa recommends referencing OMID's power plant in this recommendation.

C28 - Tusher diversion - Dave asked about Tusher negotiations. Kevin McAbee said there is a new board president and Kevin and Tom Chart will meet with the Board tonight to negotiate future options. Add recommendation to add submersible antennas at the end of Saleratus Wash.

FR-165 - Stewart Lake - recommendation to raise the two breaches on the levee road should potentially be removed, or changed to add more permanent screening to the breach (like Tildon put in at Johnson Bottom) as raising the breaches would flood adjacent landowners.

Dave commented that many of the Argonne recommendations have been on the list for many years, including surveying and modeling multiple wetlands, etc. which may no longer be necessary as we are taking a wetland by wetland approach. Dale agreed the recommendations made sense at the time, but may now be obsolete.

98a - Dave noted that changing focus for northern pike has already occurred - so does this need to be part of the documentation? The potential to use ammonia as a piscicide was mentioned.

125 - Melissa asked about the safety concerns mentioned and Kevin McAbee said there are issues both with bridges and with recreationists present. Harry said this section is still shocked in the fall.

128 - Dave asked for clarification regarding additional abundance estimation sampling. Tom Czapl confirmed that is a fourth pass in the river. Kevin McAbee said they will accomplish additional passes as they can, depending on conditions and nonnative fish needs.

5. Review of draft RIPRAP revisions and assessment – Angela Kantola thanked the Committee for their careful review of these documents and presented Tildon Jones with the “treasure hunt” prize.
 - Draft revised RIPRAP tables and draft RIPRAP assessment (Excel spreadsheet)

General

1. Habitat Restoration - Dave Speas noted the number of contaminant-related items and asked how the Program is addressing selenium, salinity, and other contaminants, and how the Service views these threats compared to nonnative fish and others. Tom Chart said the San Juan Program addresses water quality, but the Upper Basin Program does not. We realized that working on these threats as a Program would consume our budget. We chose to acknowledge the seriousness of the potential threats and impacts to recovery and support efforts of partner agencies working on these issues, but not address them directly. Specific biological opinions have resulted in action on contaminants. Dale confirmed the San Juan has much more manageable contaminant-related action items compared to the Upper Basin. Selenium can be moved out of the body over time, so fish can recover, but mercury can bioaccumulate and have lifetime effects (especially for long-lived pikeminnow). A significant portion of the mercury in the basin comes airborne from Asia, thus we cannot manage it. Dale said we do consider contaminants where we can, for example, we have flow through water in wetlands to help with flushing.
2. IIB3 - The assessment indicates lack of spawning information in EPA contingency documents. We have provided the information to EPA, but it has not been incorporated into the document. Dale said EPA was having trouble figuring out how to protect very specific areas (i.e., a spawning bar) in an emergency situation. They said they would use the information they had (e.g., try not to divert oil into a backwater during spawning), but emergency response is focused primarily on mobilizing people as fast as possible

- after a spill. Tildon notes the difficulty in response to any spill and encourages focus on prevention.
3. NNF: IIIA2c3: Dave asked whether we want to include nonnative fish in STReaMS, which is a perennial discussion. Julie said we haven't developed clear guidelines on what is/isn't included in STReaMS. She doesn't recommend expanding the online portion to access nonnative fish records at this time, but does see advantages to including the ability to submit and store nonnative fish data within STReaMS. We'll need to determine if there's server space and then whether and how we want to store the nonnative fish data.
 4. NNF:IIIB7: Question for the States about whether or not there is a "plan" to prevent illegal stocking. Melissa said we don't necessarily need a "plan" document, but it would be helpful to get information on what has been/is being done. The States recommend putting this on the agenda at the State and Service Coordination meeting (June 6-7). >Dale and the PDO can raise it during that meeting but note that this is a pretty high level meeting that may be too broad for these specific topics. Harry noted that illegal stocking is currently called out on the back of CPW's fishing regulations brochure and outreach is continuing.
 5. NNF: III.I: Removed Red Fleet rotenone action (occurred in prior year).
 6. NNF: IIIG2: Paul asked if CPW has incentivized harvest. Harry said they are still discussing harvest incentives and support harvest tournaments. Wolford and Green Mountain Reservoir both have harvest incentives (supported by, but not paid for by CPW). Kevin McAbee asked how wanton waste applies at those two reservoirs. Harry suggested asking Ray.
 7. Monitoring: VA1a1: Dave requested that we add a reference to the fact that we have not seen a scope of work to address recommendations in Bestgen et al 2012. Dave would like to see a linkage to recovery documented. Tom Chart mentioned that some of those recommendations are the focus of our discussions with future graduate research projects.
 8. IE:VI.E: Dave said the list of things accomplished by IE are quite impressive.

Green River

1. ISF:ID1a: Dave notes the GREAT committee is not really working on this and recommends referencing the Speas et al. white paper and Hedrick et al.
2. ISF: ID1b4a: Jerry asked whether we would switch to a predictive model rather than an evidence-based model. Changed to acknowledging either is possible.
3. ISF: Id1f5 - Western will fund this work in FY17 with a depth component.
4. ISF: ID1h: UDWR is forwarding reports to Kevin McAbee to document nonnatives in Flaming Gorge.
5. Hab: IIA5e: Dave recommends assessing easements to ensure that the Program is benefitting; this may be part of the Ouray scope. >PDO will review as noted in BC notes.
6. Hab: IIA5: Jerry recommends acknowledging that the Program seeks to add new wetland options as available (cite the White Paper).

Add submersible antenna at downstream end of Tusher Wash canal?

ADJOURN: 5:00 p.m.

Tuesday, March 7

CONVENE: 8:30 a.m.

Yampa River

1. NNF:IIIB1a2a: CPW has identified a stocking source for largemouth bass (CPW-owned hatchery). Mark as complete.
2. NNF: IIIB1a2a: >Harry will provide a copy of the completed Elkhead Reservoir Lake Management Plan

to the BC.

3. NNF: IIB1e: Harry referenced a statement in the general tab noting increased hybridization of native suckers with white suckers (especially in the White). Language added referencing that. Project 98b states “we continue to observe increased white sucker abundance every year.”
4. NNF: IIB2b: Nonnative fish removal is now guided by basinwide strategy (propagule pressure) instead of Yampa specific numbers (where 30 fish per mile had originally been discussed but was determined by the Breton et al. 2014 model to be too high). Melissa asked if we have a fish per mile goal. Jerry didn't think Breton et al. recommended an alternate numeric goal. Tom Chart acknowledged that aiming for 0 smallmouth bass is the goal, but that is not realistic and recommended adding wording to reduce smallmouth bass as much as possible.
5. Monitoring: VA: Melissa said that just because the Yampa does not now have humpback doesn't mean that it couldn't have a population in the future. Tildon recalled that the presentation at the Researcher's meeting found all Yampa fish to be roundtails and suggests changing the language to “we have not detected HBC in the Yampa for many years.”

Duchesne

1. ISF: IB2: Angela asked if the report assessed legal availability of water. Mike Mills said he did not believe so, that the report discussed the operational improvements focused on meeting criteria in the Biological Opinion. A report by Ed Vidmar is available that may have that information (~2006?). The report is referenced in IC1a (reservoir operations modeling report 2003).
2. ISF: Melissa asked about Big Sand Wash. Mike said water is delivered through the outlet of a 20 mile pipe to Cottonwood Wash into the Uinta. There is no possibility of escape through the pipe as pressures are too high to allow for survival (they have seen fish parts, but no live fish). This was confirmed by a tour with Trina Hedrick which has allowed water transfers to continue. Kevin said that there are illegally stocked walleye as well as “partially” sterile walleye that failed testing for Red Fleet. Conversations are ongoing to start sampling along the Duchesne in conjunction with the Ute Tribe.
3. ISF: IC1a: This effort is still ongoing as opportunity arises as through additional temporary water leases through Section 7 of Central Utah Project Completion Act. Mike said sometimes these temporary water leases become permanent as users decide they do not need their water.
4. ISF: IC: Mike said we should note the lease of the Big Sand Wash water was extended through 2020.

White

1. NNF: 3A1. Harry will check to see if Kenney Reservoir was sampled in 2016 and will provide results.

Colorado

1. ISF: IA3c. Melissa asked about the status of the depletion calculations. Angela and Tom Chart said CWCB has hired new staff and progress is being made.
2. Hab: IIB1b3: Dave clarified that irrigation season doesn't end on August 23 (but this is when the structure was operated).
3. Hab: IIB3a3: Dave asked if there is a proposal to address the sedimentation problem at the Roller Dam. Dale said it will need continual maintenance just because of its position on the river. They sluice as often as possible to reduce the problem during high water years. Dale's team trucks fish up the river when necessary.
4. NNF: IIIA10: Dave asked if this is really a translocation or a stocking event. Dale confirmed these fish were originally stocked in this pond, and then removed from the pond and put in the river. >Julie: Need further guidance on whether this is a stocking event or a translocation to be determined at the STReAMS meeting next week.
5. NNF: IIB1: Melissa asked if CPW is satisfied with the control of gizzard shad at Highline or anticipates any changes in the Lake Management plan. Lori said the net is working effectively and sampling is

occurring downstream of the reservoir and no gizzard shad have been found; CPW does not intend to change what they are doing now. Kevin asked if Highline was popular for ice fishing. Lori said Mack Mesa is close and much smaller and more popular for ice fishing. Kevin described the 10% rotenone application in Nebraska in winter that has had a disproportionate effect on gizzard shad and can knock down the population if it gets out of balance. Lori said the fishery is still balanced with largemouth bass, bluegill, black crappie and catfish.

6. NNF: IIB1a: Harry asked that post-Program activity include acknowledgement that the net will need to be replaced periodically.
7. Monitoring: VC3: Katie confirmed that Cataract Canyon will be sampled this fall (2017) and UDWR is working on methods to do that effectively. Dale asked if they could help in getting information about fish coming up from Lake Powell (e.g. assistance maintaining / downloading a SUR).
8. Monitoring: VC1: Paul asked about sampling in Black Rocks. Dale said the effort for trammel nets has not changed, but effort has increased using hoop nets and antennas; however, we are not ready to switch methods yet. Tom Czaplá noted that hoop nets are typically more effective for smaller life stages not captured by trammel nets.

Gunnison

1. ISF: ID1c2: The selenium in razorback sucker report is still outstanding. >Dale will talk to Barb Osmundson, but she is retiring soon which may cause delays. Harry asked if there was a preliminary report or anything as the results thus far have been alarming. Tom Chart suggested that the Program be removed as the responsible party as this was a FWS responsibility. Dale agreed.
2. ISF: ID3: Jerry recommends adding Toby Minnear's hydrophone study.
3. Hab: IIB1c: One of the fish transferred from the Redlands fish ladder was detected on a portable antenna in Roubideau Creek. Dave said the number of fish using this ladder is growing over time. Dale agrees and notes that they have not yet discovered why. Dave noted that it may be Aspinall flows. Dale said population estimates have shown recruitable fish and these are showing up at the fish ladder (many untagged in 2015 and some in 2016).
4. NNF: IIIA3a: Melissa asked how things changed quickly at Ridgway regarding the decision to screen. Kevin said the original dam safety concerns are not as great as anticipated allowing for net design to move forward. Ray Tenney has also been very impressed by PNP (both product and service), which has facilitated this process. The team is assessing whether or not the net needs to be similar to Elkhead or can be a smaller removable net placed right next to the spillway. A meeting in two weeks will move that conversation forward.

Dolores

1. Dave asked CPW if they are concerned about bass on the Dolores. Harry said they will sample at least once when water is up and again in the fall as usual. Harry said the bass population has been present since 1993 and that CPUE varies considerably, but we don't have any indication that the population is changing. Dave asked if otoliths were sent to CSU. Kevin Bestgen says they did the work over two years ago to determine if the fish were spawning pre- or post-reservoir spill and determined it was post, but sample sizes were small.
- Draft revised RIPRAP text (See Word document for BC's comments/edits in track changes.)

Pg 32: Pete asked if enough humpback chub were taken from Deso/Gray for broodstock. Melissa said they were not enough, but there were currently no plans to get more. Tom Czaplá confirmed we are still assessing a need for broodstock. >He will follow up with Wade Wilson and get recommendations. Travis has been getting juveniles (and adults when they can't get juveniles) from Black Rocks.

Pg 38: Mike clarified that an average of 7,000 cfs-days above 4000 cfs is a degree day approach so one day at 5,000 cfs would be 1,000 cfs days. Flows were so high in 2011 that we are currently at an average of 9,000. RIPRAP will reference the CWCB document which describes the process and delete the details.

Pg 14: >PDO will clean up description of river flow protections to improve consistency.

Pg 19: Kevin said the Tusher canal is now free of debris. Kevin and Tom Chart met with Tusher's board and negotiated additional actions to add a fish exclusion device. The Board acknowledged that replacement of the 8-gate structure was not a component of the Program's fish exclusion project. Bob Norman has been directed to continue to develop plans for that and construction is scheduled for 2018. Melissa asked if continued salvage is necessary. Tom noted that with the number of re-sightings it is probably in the Program's best interests to continue a salvage effort in the interim (until the weir is constructed).

Pg 20: Harry recommends adding text regarding the Maybell Ditch. Tom Chart agreed that the Program's contribution of \$60K to canal headgate automation, which will improve flow management, should be mentioned. >PDO will help figure out where this goes.

Pg 31: Dave Speas questions the reference to 6 easement properties on the Green River; Nelson and Valdez only mention 4 properties >PDO will figure this out.

Pg 45: Dave recommends adding text about Roubideau Creek detection.

6. Proposal to provide flows in the Price River – Dave Speas said a BLM, UDWR, TNC, USBR, and the Carbon County Canal Company have been discussing means to utilize "surplus" canal water (about 2 cfs of unallocated water to maintain canal flows) for storage in Olsen Reservoir which would be released during summer low flow periods to keep the channel wet/flowing at Woodside for native fish conservation. The group wishes to enlarge Olsen to potentially store 1,700 AF for these purposes; at the present time the surplus water in the canal amounts to 400-600 AF but Olsen could potentially store more if it is enlarged. Funding and agreements are under discussion. Reclamation has asked if the Recovery Program may want to contribute to enlarging the reservoir (overall cost not available yet). >Dave Speas will send the group a meeting summary providing more details. Don Anderson will participate in the group from the PDO. Brandon noted Sue Bellagamba has the lead for this for TNC.
7. Schedule next meeting/webinar – Agenda items will include: report on bonytail data analysis (Stahli, 40 min., Julie will report on analysis of STReaMS bonytail data, with a focus on where and when stocking is most successful); possible review of revised Deso/Gray humpback chub report (if not approved via e-mail); discussion regarding tagging smaller razorback sucker and bonytail; other items? The Committee scheduled a webinar for May: 23 12:30-4:30 p.m. and an in-person meeting July 13 -14, beginning at 1p.m on the 13th and adjourning by 3 p.m. on the 14th at Reclamation's office in Grand Junction.
8. Proposal to synthesize Lake Powell Colorado River inflow data - Dave Speas said the Service and UDWR have collected three years of adult, larval fish, and spawning area data (primarily for razorback, but also for Colorado pikeminnow and bonytail). Ideally, this information should be synthesized and summarized. Dale said Travis has provided periodic updates and presentations and now plans to incorporate the Colorado River information into the San Juan report. Completing this report will be one of Travis's primary objectives for this year. The report will be submitted to Reclamation (who will distribute it to both recovery programs). Tom Chart asked about the larval grass carp information from the Colorado River arm of Lake

Powell and how we might want to follow up on that since crews won't be working there this year. Paul Badame said their sportfish crew might follow up (Brian Hines may send the committee some ideas on this), but it sounds like it was a fairly rare event that those fish were captured in the first place. Chart referenced the note from Steve Platania, which clarified that over 150 grass carp larvae were collected in 2015. Dale noted that having just one crew out to do light trapping, for example, would present safety concerns. Part of how we proceed may depend on the genetic analysis that tells us how many founder fish were responsible for the captured larvae.

9. Review of draft Program Guidance – The Committee reviewed draft Program Guidance documents (brief Word document and an Excel spreadsheet).

Angela said she expects FWS carryover will cover the deficit in 2017; however, she doubts additional carryover will remain to help the current projected FY18 deficit of -\$771K. In addition, some uncertainty surrounds anticipated FY18-19 budgets (especially USFWS, but potentially also Reclamation's) in light of predicted cuts in domestic spending. Melissa asked what the steps are to address the ~\$700k budget shortfall. Angela said the first step is to have PIs find any savings possible in their draft FY-18-19 SOWs. The PDO will recommend cuts, the technical committees will address in July and the Management Committee will address in August.

Nonnative fish projects: Kevin McAbee notes that pike management has shifted into backwater netting early in the season, but we also have previously committed to other tasks that are coming into conflict. Kevin and CPW have discussed CPW doing more backwater netting (in as many locations and for as long as conditions warrant). CPW proposes to eliminate task 4 from the scope of 98a and extend task 3 to increase backwater netting in FY18. Task 4 is important for both nonnative fish control and Colorado pikeminnow population estimates. In FY18, Kevin proposes to add Task 4 to LFL/CSU's budget under #128. Kevin Bestgen, John Hawkins, Kevin McAbee and CPW will work together to alter the scopes for the committee's consideration. John Hawkins said LFL also will have to assess the need for new gear and equipment.

Kevin McAbee explained that pikeminnow population estimates under 128 are being funded by nonnative removal efforts where the two tasks take place at the same time in the Yampa River. Kevin recommends moving funding and trips from the nonnative work to project 128 to ensure that we clearly document the importance of those trips to pikeminnow estimates. John Hawkins noted that this was funded under nonnative fish work because it occurs on an annual basis instead of a 3 out of 5 year schedule. >Kevin will work with the PIs to iron out the details.

Tildon wants to know if we should split Project 123a into two scopes of work by species. This year, a single walleye report was submitted based on all of the walleye work (that is currently occurring in multiple projects). Should walleye work be consolidated into a single scope of work? Angela mentioned this will be affected by agreements currently in place with Reclamation and may need to be considered based on the performance periods for those agreements. Dave says that all scopes are compiled by program element, so movement within those is easy.

The Ute Tribe has expressed interest in reviving nonnative fish work along the Duchesne. The Program has initially indicated support for moving forward. Mark Fuller is continuing conversations with the tribe. This might add ~\$40k to the budget. Pete recommends discussions with the tribe regarding sampling, floodplain work at Old Charlie, and access around the lower White River and Ouray. Tom Chart suggested we also look for other funding sources (e.g., the FWS Tribal grants program).

With consideration for the committee's recent recognition for more work on the floodplains Tom Chart

asked if there was interest in exploring greater flexibility in our work planning, i.e., greater recognition to hydrologic conditions? He has been considering the need for greater cross-program element flexibility. In a year like 2017 (wet) can we shift away from some of our smallmouth bass work (e.g., perhaps Project 110 or 140) to more research and monitoring on the floodplain? All agree that there are logistical considerations and this flexibility would likely need to occur within a specific agency's workload; between entities would likely be to complex. Jerry agreed, but asked if there was a specific proposal on the table. Tom said that this is a larger conversation for the group to consider and the PDO has been talking with PIs about developing adaptations for 2017.

PIT tags & equipment: Dale said Travis is fully stocked for FY17 and FY18 for PIT tags and thinks we will only need \$5000 in FY19. Readers, tagging guns and submersibles are still needed (~\$40K). This looks like an opportunity for savings in FY18. Tom Czaplaski asked about Reclamation's contract with BioMark and Dave said it's in review and should get awarded by mid-summer. Dale said only the old cheeseblock readers can detect both old and new tags, so if PIs have cheeseblocks that break, they should send them to his shop for repair (BioMark will not repair these older models). Dale noted that sometime in the future we may have to abandon the old tags and recalculate population estimates based on only new tags.

126b: Kevin recommends this as an area that may be cut if budgets are tight.

FR-115: Extra \$60k was in 2016, not 2017, and FR-115 will be condensed into one line. Project 140 should also be condensed.

Antennas: Dave asked about the expected outcome of the Lake Powell monitoring results. Dale said Brandon has considered this information in the SSA from both the river and the lake. Tom Chart agreed and said Julie and others have reported post-lake capture re-sightings upstream in the Green River. After the SSA is complete, the Service will determine if the recovery plan should be revised. The lake data will be considered from a recovery perspective. Questions remain as to what portions of the lake should be monitored and with what frequency.

10. Review draft report: Julie Howard, Population Estimate for humpback chub in Desolation and Gray Canyons, Green River, Utah 2001-2015 - This report was called a summary report; the new portion was from 2015, then Julie recalculated 2001-2015 using Program Mark's averaging technique to produce a more robust population estimate. The 2001-2003 estimates were calculated for the whole canyon using a different technique. Julie calculated an estimate for each site, averaged it, then extrapolated based on potential sites across the canyon. This is a density calculation. She recalculated 2001-2003 using this method to make the estimates comparable. Julie also calculated survival estimates for adult humpback chub in the canyon, going back to fish collected from 1985-2000. To understand recruitment, Julie followed the Westwater method of proportion of first-year adults to all adults. With regard to Pete's comments, Julie said there are different year ranges for each of the analyses in the report. There are some discrepancies in how the data were collected in 2001-2002 (data collected in summer), so those were excluded from some of the analyses where they weren't comparable. Julie will respond to comments in writing. Discussion and Results summarize 2014 and 2015 effort (no electrofishing in 2015, but trammel netting effort was similar). Four long-term trend sites have been sampled in Desolation Canyon. The text notes that catch rates were higher in 2001 and 2002 (these data weren't included in the trend analysis). There was no discernable trend for this or for all sites combined. The population estimates in general are not entirely reliable. Estimates were calculated for certain sites using fairly minimal criteria (e.g., 7 recapture minimum not used since they could not have made a population estimate on that basis). 3-5 long-term sites were included in the estimates and these represent 5-8% of estimated available habitat. Not enough data are available to identify any trends. Survival estimates in years with probability of capture >20% are probably the better estimates (2006, 2007, and

2014), the average estimate is ~ 60% +/- 8 %. PIT antennas helped lower the CV. For the most part, none of the metrics show a decline in abundance or survival and no significant trends were seen. Recommendations primarily address improving future sampling. Mary Connor emphasized that basing density estimates on less than 20% of available habitat is difficult to defend. Paul said 2001 and 2002? were particularly bad. Pete Cavalli asked about the numbers not matching in Tables 1 and 2; Julie will review. Julie will clarify figure descriptions to help address some of Pete's questions. Julie will add a recommendation regarding impacts of nonnative fish. Julie said she recommended discontinuing electrofishing in light of resource limitations. Melissa asked how we will relate new estimates to previous ones (compare estimates over the long term) if we make major changes in methods. Julie recommended retaining trammel netting at the long-term trend sites. Paul said hopefully we wouldn't lose the utility of past estimates, but new estimates would grow more precise. Tom Czapla suggested adding "especially at long-term sites" to the first recommendation regarding continuing trammel netting; Katie suggested what's more important than this level of detail is to make sure estimates are comparable going forward (so, no changes to this recommendation). >Julie will add a recommendation to continue sampling at long-term trend sites. She will make the revisions and respond to comments and send these documents to Tom Czapla to share with the Biology Committee. Dave Speas also had comments, so those need to be sent 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. Paul Badame will send the Committee the peer review comments (done).

11. Red Fleet screen design – Paul Badame presented the concept design for a fish escapement prevention device at Red Fleet Reservoir (e-mailed with this meeting summary). The proposed project would install a Coanda screen barrier on Big Brush Creek to prevent or minimize nonnative fish (primarily walleye and wipers) from escaping. This prevention is required because UDWR stocked sterile walleye and wipers in Red Fleet after the October 2015 chemical treatment. UDWR proposes to place the barrier in the channel downstream from the outlet works near, but upstream of, where the spillway stilling basin meets Big Brush Creek. The screen is designed to work at 300 cfs and below and is the same Coanda design currently in place at Rifle Gap. UDWR anticipates 2016 may bring the first spill of this reservoir since 2001, so they are gathering materials to temporarily screen the spillway (and not manage for spilling). Construction of the Coanda screen is scheduled for fall 2018. Discussions are ongoing to determine whether or not it should go in the channel below the spillway (would require a new site). Kevin said UDWR has submitted the plan to Reclamation and it's now a line item in the capital projects budget. Unlike Starvation which spills frequently, Red Fleet spills rarely (and "barely"). Paul noted maintenance will occur by fisheries staff in coordination with State Parks. Kevin praised both Utah and Colorado for the progress that has been made in containing reservoirs throughout the basin. Kevin said the hope is to screen one reservoir each year: Elkhead (2016), Starvation (this year), Red Fleet (2018), Ridgway (2019), and Catamount (2020). The Committee indicated they are comfortable with UDWR and Reclamation moving forward with the Red Fleet screen. Lori mentioned these screens now can be made with a copper coating which may be helpful to deter algal growth and aquatic nuisance species.
12. Update on the recent GREAT meeting and anticipated 2017 Green River flow request letter - Tom Chart said the GREAT recently met for almost a week, and reported good progress. In summary, the team will recommend formal recognition of larval trigger spring operations, and recommend future experimentation with elevated baseflows as well as smallmouth spike flows. Heather Patno is modeling all three of these, modeling impacts downstream to Green River, UT. The report will provide biological justification for these recommendations with a modeling appendix from Heather showing how often those likely can be met. Tom said the goal is to have a draft available for review by July. Melissa noted much of the GREAT's discussion centered on hydrological realities vs. biological needs; Tom Chart agreed and added that the team is considering concessions to spring durations in an effort to protect existing spring peak recommendations.

Tom said this year's spring flow request will look very similar to last year's; the draft will go to a smaller technical group and then to this Committee for review perhaps next week.

13. Review previous meeting assignments – See Attachment 1.
14. Review reports due list – Little to review; deferred to next meeting.
15. Consent item: Review and approve January 12, 2017 Biology Committee webinar summary – A draft revised summary with comments from Pete Cavalli, Dale Ryden, Cameron Walford, and Krissy Wilson was provided with this agenda. >The PDO will finalize and post to the listserver.
16. Nonnative symposium at upcoming national AFS meeting (August 20-24, Tampa FL) – Kevin McAbee will attend. Kevin Bestgen may attend and Dave Speas also may request to attend. Kevin said Bill thought an overview from our Program (focusing on innovative techniques/technologies) would be useful. Kevin likely will give this presentation and perhaps participate on a panel, as well. A second symposium on social and economic aspects of invasive fish and their control will be part of the meeting and Kevin may attend that also.

ADJOURN: 4:35 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 Czaplá sent to BC 1/21/15); >**Melissa Trammell will find and send the plan development proposal document to Tom Czaplá** 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.*

- **Tom Czaplá** will follow up with Wade Wilson and get recommendations on securing additional fish for broodstock (e.g. from Deso/Gray).

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.*

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. (Presentation scheduled for the May webinar.)*

4. The Committee endorsed an experiment to tag smaller hatchery razorback and bonytail (for fish coming out of floodplains); >**Tom Czaplá** will investigate which hatchery could do this. **Tom Czaplá** 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 Czapla** 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 Czapla. 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 Czapla** will compile the information he's received and provide it to the Committee in advance of the May webinar.

5. **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.
6. **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.
7. Floodplain follow-up assignments:
 - **Matt Breen** will check into the possibility of filling the Stewart Lake low-spot breaches with dirt rather than netting them in the spring. *Can't be filled in, but a more permanent screen/grate may be possible.* Matt also will confirm current ownership of Sportsman's Lake and recommend where to go from there. *Matt submitted a report and Committee members may discuss with him further via e-mail and at the next meeting. (Done; take off after this meeting.)*
 - **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. *Pending.*
 - 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.*
8. 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*). Field sampling techniques/protocol for triploidy testing need clarification. **Kevin McAbee** will research and then provide PIs with protocol and list of needed equipment. (*Done. Dr. Kočovský has provided some useful literature and protocols for determining ploidy from field specimens. Thanks to Dr. Kočovský for providing insight and to Travis Francis for contacting him.*) (*Done; take off after this meeting.*)
 - **Dale Ryden** will ask Connie to add discussion of grass carp to USFWS-States coordination meeting. The States also recommended beginning some discussion of preventing illegal nonnative fish stocking at this meeting. *Done: Connie said she would add these items to the agenda.*
 - **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.*
 - Before field season begins, **Kevin McAbee** will distribute the sampling protocol, combining it in instructions regarding all tissues we're asking field crews to collect [along with the protocol Dr. Bestgen provided last year]). *Done*
9. **Harry Crockett** will provide Utah whatever information CPW has on redeer sunfish in ponds alongside the Platte. *Pending.*
 10. **Harry Crockett** will provide a copy of the completed, signed Elkhead Lake Management Plan to the Committee.
 11. **Julie Stahli** will add to next week's STReAMS meeting a discussion/resolution of whether to characterize moving fish to the river that were previously stocked in growout ponds as "stocking" or "translocation." These should be documented as stocking events. Guidance has been developed on translocations and is available to those interested. *Done*
 12. **Dale Ryden** will check with Barb Osmundson on the status of the selenium in razorback sucker report.
 13. The **Program Director's Office** will make RIPRAP and Program Guidance revisions per Committee discussion. **Kevin McAbee** will work with PIs on recommended revisions to projects #125, #128, etc.
 14. **Julie Howard** will revise the Deso/Gray humpback chub report, respond to comments, and send these documents to **Tom Czapla** 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.
 15. **Julie Stahli** will finalize the January 12, 2017, Biology Committee webinar summary and post it to the listserver. *Done*