

**Biology Committee Final Webinar Summary, August 22, 2016****PARTICIPANTS**

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

**Others:** Tom Chart, Kevin McAbee, Tom Czaplá, Jana Mohrman, Angela Kantola, Tildon Jones, Michael Mills, Kevin Bestgen, Katie Creighton, and Matt Breen.

**CONVENE: 9:00 a.m.**

1. Summary of UCRP workshop at the Walleye, Esocid, and Centrarchid Technical Committees – Kevin McAbee said he and folks from LFL, FWS, and UDWR went to the meeting in Gretna, Nebraska, and the Colorado River Nonnative Fish workshop portion went very well. Kevin said they heard good ideas, learned more about species ecology, and had great networking opportunities. Good information and new ideas were gained regarding walleye growth rates (and relationship to gizzard shad), triploidy applications, and application of low-dose rotenone to selectively treat waters for only certain species (with other species surviving at some level). We probably don't need a contingent to go every year, but it could be valuable to send one person (rotating) in the future. Kevin thanked folks for taking time to participate. Tom Chart echoed that and also thanked Kevin McAbee for organizing this session. >Kevin will follow up on these ideas, beginning with an email of key items. Kevin Bestgen agreed the information on species ecology and the professional connections made were very useful.
2. Update on CPW's Nonnative Fish Work Group– Harry Crockett said the Work Group was convened in late 2014 and intended to meet for just a year, but has decided it's helpful to continue. They met most recently in June and will meet again in September. CPW's Northwest Region Aquatics manager (formerly Sherman Hebein, now Lori Martin) convenes the group. A report was drafted for CPW's Director after the first four meetings (group still reviewing). Tom Pitts said he and other water users participate in the work group meetings and think it's been helpful in more aggressively pursuing nonnative fish control. Messaging is an important component and the group is working on a more aggressive campaign for Colorado. Brett Gracely (Colorado Springs Utilities) suggested that water organizations may be able to help get this message out in a positive context. Tom Pitts has proposed that to the water organizations he works with and Aurora, Denver, Loveland, Northern, and Colorado Springs, River District, GJ, GVVUA, SWWC, Upper Gunnison, Upper Yampa, and Tri-County have offered to participate (e.g., via messaging in bill inserts, newsletters, etc.). They'll be working on that in the coming year. Tom said water users appreciate CPW's support at every level in this process. Tom Chart added appreciation for CPW's recent regulation changes on nonnative fish bag limits on the (Western slope) and asked if there's an update on the wanton waste issue; >Harry hasn't heard anything about the proposed regulation change to allow disposal of undesirable fish, but will check on it. Tom Pitts added that angler Burt Clements has been participating and supported the bag limit removal for northern pike and smallmouth bass on the west slope.

CPW held a smallmouth bass tournament at Ridgway Reservoir June 4-12 and 1101 smallmouth bass (760 adults) were removed. Of a pre-tournament population estimate of 3200 adults, this was ~24% of the adult population. This year, 149 anglers registered (down a bit from 200 last year). CPW did considerable outreach for this tournament, and that helps spread CPW's message about their goals for the reservoir. CPW also hosted a tournament at Elkhead this year. Although there was some opposition at a public meeting a few months before in Craig, there was little opposition at the tournament itself. Sherman Hebein was able to engage the one opposing individual in conversation, who ended up saying they could live with the changes at Elkhead as long as largemouth bass are stocked in place of smallmouth bass, so that was positive. Fifty-

seven anglers registered for the tournament (though the number of participants likely was higher since only one person per boat registered) and they lethally removed 529 smallmouth bass and 53 northern pike. Ten smallmouth bass were PIT-tagged for prizes in each tournament, and three were caught in each tournament. >Dave Speas suggested providing the tag data for unrecovered fish to Andrew Treble in case those fish show up downstream later; Harry will do that.

3. Elkhead Reservoir net update – Kevin McAbee said Ray Tenney provided an update on August 19 and reported that things are going well. The technical submittal to the State Engineer Dam Safety Group is under review. A construction agreement was signed with Pacific Netting Products and they installed anchors for the debris boom and net last week (existing anchors also will be used, but additional anchors were needed on the lakeshore). Assuming Dam Safety approval, net installation is set to begin September 19 and expected to take two weeks. No specific drawdown of the lake is anticipated for the installation. >Harry will get a final tally of fish collected in the stilling basin this year (see Attachment 1: Assignments).

#### 4. Hydrology updates

- White River Management Plan – Jana Mohrman said the Yampa/White Basin Roundtable contracted with Wilson Water Group to convert StateMod from a monthly to a daily model. They plan to be on schedule and have flow information per the original work plan by the end of September. CWCB is working on a ~\$50K contract to convert Utah water rights to StateMod and on an RFP for the remaining work on the project. The Biology Committee should receive something for review in November or December. Meanwhile, Jana will send some biology questions to Matt and Tildon for updating/review by October.
- Baseflow hydrology – Jana said flows are dropping and she’s been releasing water from the Program’s fish pools. The Green River base flows are within the recommended range. Targets for the Gunnison River were for an average-dry condition this year, but the base flows are now ~500 cfs over the target. Many of endangered fish have been using the Redlands fish passage, so perhaps the flows have been beneficial. The Grand Valley fish passages were temporarily closed, but have reopened now with flows from the fish pools. Tom Chart commented that managing the Colorado River flows is always complicated and Jana’s done a great job. Dale and Melissa echoed Tom Chart’s appreciation. Jana said having updates from Dale on the fish passages has been very helpful. Tom Pitts inquired about the water users request to have a replacement for Jana overlap with her tenure for ease of transition. Tom Chart said that in late June he initiated a hiring request to get a new instream flow coordinator on board to whom Jana can pass on her vital institutional knowledge of water management.
- Fine Sediment Transport Monitoring scope of work (see Attachment 2). Jana described the Doppler radar sediment monitoring proposal. Melissa Trammell said the Park Service intends to continue to fund their cost share at least through 2018 in Canyonlands NP, and it is yet to be decided after 2017 in Dinosaur NP. Tom Pitts has proposed also collecting cross sections so that we can compare the sediment data to what happens in the river. >Tom Chart will bring this up with the GREAT team this week and also link the proposed sediment work with the Peak Flow Technical Supplement and Argonne’s BW-Synthesis recommendations. Tom thinks the sediment transport information is important in itself, but also recognizes the importance of relating the data to fish habitat. We will need to monitor a minimum of five years through a range of hydrologies. Melissa noted the sediment information will help identify what portion of the hydrograph is most important for moving sediment. Dave Speas said Reclamation has funded other sediment proposals recently, but few acknowledge this Green River sediment monitoring network (and most are aimed at finding more affordable ways to monitor and/or model suspended sediment). >The Program Director’s office will send out a revised SOW after the GREAT on Thursday along with a summary paragraph or two on making the habitat linkage. >Water Acquisition and Biology committee members should provide their input on the revised SOW to their Management Committee member.

- 15-Mile Reach PBO review – Tom Chart sent this to the Water Acquisition and Biology committees with a comment deadline of September 9, 2016. Two checkpoints were identified in the PBO (50 KAF of new depletions or 15 years), and we'd reached the 15 years. The draft concludes that although we've had some shortcomings in achieving anticipated recovery actions, we've had many more accomplishments and therefore the Recovery Program's recommendation to the Service is that re-initiation of the consultation is not needed at this time. After technical committee review, this will go to the Management Committee (Tom would like to make this part of the 2016 sufficient progress review).
- WAC subgroup review of basinwide flow protection – The PDO drafted a table of existing flow protections, most of which consist of PBOs and BOs. For downlisting the endangered fish, it's assumed all these protections would remain in place, but longer-term protections would be needed for delisting. A subgroup of the WAC is being convened to determine what additional flow protection would be needed for delisting.
- Drought Contingency Planning (Chart) NPS, USBR, and FWS are working with upper basin states on drought contingency planning per SOI direction, in the event the drought continues and Lake Powell elevations drop to a level that compromises the ability to meet downstream water demands and generate hydropower. Elements of the contingency plan are demand management, cloud seeding, and releases from upper basin reservoirs (Flaming Gorge, Aspinall, and Navajo, with Flaming Gorge being primary). They are currently considering language that specifies both the releases and recovery of storage would be compliant with existing BOs and RODs. The group is working on an MOA, which hopefully could be signed by December.

## 5. Field updates

- Katie Creighton said Julie Howard departed in mid-July and Katie has taken over some of her duties in the meantime. The job opening has been re-announced through the end of August. Only one bass removal pass was completed in Desolation Canyon, with effort being reallocated to a 4<sup>th</sup> pass on the Colorado pikeminnow population estimate. Removals were down from last year (only three walleye captured) and the water was pretty high. Four passes were completed in the Echo-Split Mountain reach, mostly in July. The water was high on the first two passes, so they postponed marking to the 3<sup>rd</sup> pass. Numbers were down from last year there, as well, with only two walleye and three northern pike captured. Crews have been seeing Colorado pikeminnow from both this year's and last year's cohort on the Colorado and Green rivers. The Westwater humpback chub population estimate work will begin in September, and more ISMP and nonnative fish removal will be underway, also. Kevin McAbee was interested if crews had observed the Tusher fish passage (specifically if debris had clogged it) after the spring flows. Katie said they haven't, but will take a look during upcoming nonnative fish removal. On the Matheson wetland, an RFP was submitted for initial planning/engineering. Most construction would begin next July.
- Tildon Jones said their White and Yampa river work is complete. On the Green River, they've sampled connected wetlands and found one only adult razorback and a bonytail, but no age-0 razorback yet. They caught some yellow perch high up in the White River, but don't know the source. Matt Breen commented that he's caught them higher up in White, too, always in or after high flow years. Dave Speas asked if they could be coming from Avery Reservoir; Harry Crockett later confirmed that CPW has never collected perch in Avery despite fairly regular sampling (3 years out the past 6). Further, CPW has never collected perch anywhere in the White River Basin in Colorado except Rio Blanco Reservoir. Because Rio Blanco has no direct connection to the White River, the most parsimonious explanation is that perch invaded from downstream as was the case with smallmouth bass.
- Matt Breen said biweekly sampling of Stewart Lake has been showing good results for age-0 razorback sucker. They plan to drain Stewart in mid-September. They've completed one of two complete middle Green River bass removal passes and are seeing results similar to previous years with concentrations near Split Mountain and the Ouray NWR to Sand Wash reach and low numbers of age-0 smallmouth

bass so far. ISMP sampling begins in September (the week of the 12<sup>th</sup> and 19<sup>th</sup>) and they are looking for volunteers (especially from the PDO) and they need at least one volunteer per day.

- Kevin Bestgen reported that drift net sampling went well. They caught only a couple of northern pike in Brown's Park, which is consistent with recent angler reports. John Hawkins and his crews are still on the Yampa and transitioning from nonnative fish removal to native fish sampling.
  - Dale Ryden said razorback sucker use of the Grand Valley Passage ladder has been really good (100 of 114 of the razorback caught in the ladder have been in the last three years). A Colorado pikeminnow used this ladder for the third year in a row (all three years were a unique young adult fish). It's also seen good use by bonytail. Before this year, the previous high of Colorado pikeminnow in the Redlands ladder was 23, but they've gotten 32 so far this year. All have been transferred ~35 mi upstream into Escalante Canyon in the Gunnison River. The fish look very good, and most are young. Tom Czapla asked if there's any possibility we could be overwhelming that habitat, and if so, should we consider moving fish further upstream or into the upper Colorado River? Dale replied that the Gunnison is very deep and canal-like, they don't recapture many fish there, but the food base is very abundant and he doesn't think it's likely that we're overwhelming the habitat. Crews completed three of 8 nonnative fish removal passes in the 10 miles below the Grand Valley Project before flows dropped too low, and may have to wait until flows come back up in the fall to complete the remaining passes. Walleye captures in the Cisco-Moab increase significantly when the river is turbid, perhaps the turbidity causes them to move to river edges where they don't have to fight current in addition to turbidity. Walleye numbers seem to be similar to previous years. The Black Rocks humpback chub work begins in September (Travis may be asking for volunteers). The captive humpback chub in the hatchery pond spawned again this year (they apparently harassed or killed the young Colorado pikeminnow put in the pond to control them!). They'll try to double the number of pikeminnow there next year. The hatchery can hold these excess fish until March.
  - Krissy Wilson said UDWR is hosting a walleye contest in Lake Powell. If field folks see any Floy-tagged walleye anywhere in the Green, Colorado, or San Juan rivers, they should, keep the Floy tag, and euthanize the walleye (and subsequently contact Richard Hepworth, richardhepworth@utah.gov, 435-691-2205 or Wayne Gustaveson, waynegustaveson@utah.gov, 928-645-2392 with the information from the Floy tag). \*Krissy emailed the listserv after the meeting with pertinent information.
  - Harry Crockett said Colorado has completed their Colorado River work, but couldn't access their lowest reach below the Roller Dam due to low flows. Captures have been typical of most years. In their remaining time, CPW plans to sample ponds in the vicinity of the Mamm Creek Pond near Rifle, CO. The Harvey Gap Reservoir dam needs inspection, so plans were made to partially draw down the reservoir and keep it low over winter or possibly longer (with a further drawdown if repairs are required; after the meeting we learned that the project had to be postponed due to a problem with the access road). CPW lifted bag limits for all sportfish for salvage there, but reinstated the limits when they found out the project had been postponed. CPW considers Harvey Gap a closed system (supplies a series of canals with no direct connection to the river). CPW doesn't plan to treat the reservoir while it's drawn down (not deemed worth the extensive staff time since it's not thought to connect to the river). CPW is trying to establish yellow perch, tiger muskie, trout, and largemouth bass in Harvey Gap.
6. Potential new graduate research projects (See Attachment 3) – The Program Director's office and Kevin Bestgen have been discussing potential empirical research into certain topics that are not part of current SOWs. The PDO asked Kevin Bestgen to outline some ideas for potential projects and then added some ideas of their own (see Attachment 3). Tom Chart described and thanked Kevin Bestgen for outlining these research areas. The PDO's top three priorities are walleye bioenergetics, floodplain work, and behavior of triploid walleye. Kevin Bestgen also thinks a tag study and the entrainment issue at Tusher is a viable project. Dave Speas said he is interested in a tagging study (a post doc is currently working on some of this at USU). Dave asked about walleye bioenergetics and Kevin B said this work would be done to understand the potential impact of walleye on Colorado pikeminnow recruitment (walleye are found in our biggest

pikeminnow nursery habitats) and would look at total fish consumption and consumption of age-0 pikeminnow. Dave noted the upper basin seems to be becoming a multiple-predator system, and wondered if we would want to elevate this kind of a study to the ecosystem level. Dave said he also thinks we should consider research on how to control undesirable fish on a large scale (building on the NNF strategy). With regard to walleye triploidy, Dave said it's promising in theory that you could overwhelm a fertile population with triploid males, but the biggest risk may be introducing large numbers of predators into the system, so a first step might be risk assessment. Kevin McAbee agreed there are a number of questions and uncertainties, but since we have triploid walleye stocked in three locations, it could be good to evaluate comprehensively how they're going to behave, how they interact with diploid fish, etc. Krissy Wilson said Utah and Colorado are working with Greg Gerlich, FWS, to study this issue in reservoirs. Big Sand Wash will be the focus in Utah. >Biology Committee members can share any thoughts/comments back to the group; we'll track as a future agenda item to determine any next steps or specific projects we want to focus on.

7. Recovery planning update: Colorado pikeminnow PVA; humpback chub Recovery Plan & SSA; razorback sucker SSA – Tom Czapla said the second and final workshop on the Colorado pikeminnow PVA (contracted with Dr. Phil Miller, CBSG) will be held next week to review scenarios. Tom Chart thanked Kevin Bestgen for his help on this PVA linking age-0 Colorado pikeminnow and subsequent adult pikeminnow abundances, as well as relating earlier CPE information to long-term trends. Regarding the humpback chub recovery plan and SSA (contracted with Rich Valdez, SWCA), Tom Czapla said the recovery team meeting scheduled last week was postponed until late October (working to reconcile competing comments and data discrepancies). The next draft SSA should be out by September 6. The PDO reviewed a draft RBS SSA (contracted with Brandon Albrecht, BioWest). Brandon said they're on track to have a draft out for general review by the end of August. Pete Cavalli asked how the Delphi has worked and Brandon said it came together pretty well and he believes it was useful. Tom Pitts asked if the Colorado pikeminnow PVA is incorporating the PVA from the San Juan. Tom Czapla said it does to some extent (the San Juan PVA was primarily focused on the mercury burden, but this PVA will address the Green, Colorado, and SJ populations).
8. Potential spring workshop to discuss data collection and use from Colorado pikeminnow abundance information – The Program Director's Office recommends a workshop with principal investigators (PIs), hatchery folks, and database managers to discuss some issues the PDO has identified (see Attachment 4). A one-day workshop might be held the day before or after the STREAMs database workshop in March 2017 at Colorado State University. Tom Chart admitted that any one of these issues could warrant a whole day meeting. Kevin Bestgen agreed this is a big list and suggested we may need to discuss some of the more time-sensitive topics in time to influence 2017 field efforts (maybe a half-day before the researchers' meeting in January or before or after the February 21-23 joint Utah, Colorado, Wyoming AFS meeting in Grand Junction). (Also, the STReAMS meeting is scheduled for March 15-16, so this workshop potentially would be March the 14<sup>th</sup>, and might be a conflict for Bill Miller and Pete Cavalli if DC trip scheduled that week). Kevin McAbee asked if USU will be participating in the STReAMS workshop and Dave Speas said the post-doc, Rob Schnoor, will be there. >Tom Czapla will schedule a follow-up call of Dave Speas, Kevin McAbee, Tom Chart, and Kevin Bestgen to focus the topics.
9. Fish identification workshop – On 17-19 August 2016, the LFL conducted a fish identification workshop in Vernal, Utah, with the help of UDWR and FWS. There were 17 people in all, including the instructor (Kevin Bestgen). Class was a combined lab portion held at the Utah State University campus in Vernal, and a field sampling portion in the Green River. The class seemed successful to educate/refresh experienced and inexperienced biologists alike, in identification of fishes of the upper Colorado River basin. Dale said Darek thought this was an excellent workshop. It would be worth doing every year or every other year to keep folks trained on small-bodied fish identification. Do we need to provide funding support? Kevin Bestgen agreed it would be good and that he would need to recruit some more help. The genesis was a similar

workshop Kevin and Harry instituted for eastern plains fish sampling a decade ago. LFL doesn't receive as many preserved samples anymore which increases need to be sure field identification is accurate.

10. Colorado pikeminnow broodstock development – Tom Czaplá said the Southwestern Native Aquatic Resources and Recovery Center (SNARRC) at Dexter asked for Colorado pikeminnow from the Green and Colorado rivers to re-build their broodstock. They first requested larvae, but age-0 fish seem more feasible (more likely to survive, easier to sample in adequate numbers, less likely to be mostly siblings and half-siblings, etc.). The plan is to see what ISMP sampling is yielding this year and then decide whether to send crews to collect fish for broodstock. Ideally, SNARRC (Wade Wilson) would like 100-200 age-0 fish each year for ~5 years (similar to approach taken with lower basin humpback chub). SNARRC can keep middle Green, lower Green, and lower Colorado river fish separate in case we decide we want separate broodstock from each area (though the San Juan broodstock is currently a mixture from these areas), but Wade does want to develop a genetics management plan. Kevin Bestgen emphasized the importance of answering the “keep separate or mix” question (develop a genetics management plan) and stressed that ecological information indicates pikeminnow have very different life histories in the Colorado and Green rivers. Although we know these fish move between the basins, we don't know if there is fidelity to spawning sites. Bestgen recommended we have an expert panel to review the genetics data once we have it (Wade thinks he can resolve in 5 years) because we will need to consider fish ecology, not just the pure genetics. To collect the age-0 fish, Dale recommended Dexter transport the fish in their truck after field folks deliver the fish from the river.
11. Vidyo (new conferencing technology) – Angela Kantola said the Fish and Wildlife Service (Interior, actually) now has video-based conferencing technology that doesn't require special equipment (other than a camera in the laptop or on smart phone, if video is desired), and which can be used with internal and external audiences. PDO staff has the software installed on their computers and it can be used for one-on-one, small group, committee gatherings. Just as you don't need a Verizon WebEx account to join Program webinars, you don't need a Vidyo account to join a Vidyo virtual meeting, nor do you need software on your laptop/PC. Interior has provided accounts and FWS folks can host Vidyo virtual meetings at will. You can join from a web link we provide, toggle your camera, microphone, and speakers on and off at your discretion (it's all under your control), share documents, and toggle among documents different people are sharing. From a laptop or desktop computer, you can join a Vidyo conference with a web link. To join via smartphone, you'll need to install the Vidyo app (a rather small [35 MB] app available on the Google Play store or the iPhone App store). The PDO hopes Vidyo is more streamlined software that doesn't have the difficulties that WebEx has caused folks in the past. The Committee is a little reluctant to move from WebEx to Vidyo right away, but the Service may be losing WebEx before too long. Harry, Krissy, Dale, Jerry, Melissa don't have cameras on their laptops (though they're not required to join a Vidyo). Kevin McAbee said Vidyo simplifies things with one link, so you don't need both computer and phone line – it's all done from a computer or smartphone app. Kevin said it solves some of the issues we've had with WebEx and he's going to test it with the STReAMS team. It might be particularly helpful, for example, to use the video feature for the first 10 minutes or so of a meeting, and then focus on document sharing. The PDO will work with it a bit more and then perhaps try it out with the next Biology Committee webinar.
12. Review previous meeting assignments – See Attachment 1.
13. Review reports due list.
14. Schedule next meeting and/or webinar; identify agenda items – The Committee discussed a meeting in October with ONWR and Stewart Lake site visits. Dave Speas suggested focusing on sites that have control structures or may/will have control structures. (Dave would like to hear more about how the Leota complex is managed, for example.) Tildon said the Stewart and Johnson Bottom locations are the furthest apart, but

we could tour the ONWR sites one day (Johnson, Leota, and Sheppard), then Stewart the next morning, and be back by lunch. On Monday, October 24, the Committee will convene in Vernal, Utah from 1-5 p.m. in UDWR's large conference room (with thanks to Trina Hedrick for reserving), continue meeting for a couple of hours the morning of Tuesday, October 25, if needed, and then tour the Ouray NWR floodplains the rest of the day. The morning of Wednesday, October 26, the Committee will tour Stewart Lake, and return to Vernal by lunch time, concluding the meeting. Meeting agenda items will include report reviews and likely a presentation on the [Green River Basin Landscape Conservation Design project](#).

15. Consent item: Review and approve June 7, 2016, Biology Committee webinar summary – Approved as written.

**ADJOURN: 1:37 p.m.**

Attachment 1: Assignments

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 (population estimates)

• & 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.*

2. **Brent Uilenberg** and **Harry Crockett** will be working with CPW and Reclamation engineers to evaluate the potential for a permanent barrier downstream of Ridgway Reservoir. *6/11/14: Harry said Brent would like to define the sideboards before committing time to this. The **Program Director's office** will begin the conversation on this and Elkhead with Brent. Meeting/conference call was held on August 6<sup>th</sup> in Glenwood Springs. 8/26/14: a meeting is scheduled September 4. Dale Ryden said they sampled from Delta to Redlands and didn't find any bass, so that's good news. 3/4/15: CPW, CWCB, and Reclamation have talked to Tri-County and they will attempt to avoid spilling again this year. 5/28/15: Kevin McAbee is working on setting up a stakeholder meeting in July (7/28/15: now contemplated for September or October). We will keep reservoir updates as a standing agenda item. 10/13/15: Stakeholder meeting was held September 2 to discuss long-term solutions for how Ridgway might parallel the Elkhead process (net or similar escapement prevention, LMP revision, etc.) and how woody debris might be managed. 1/13/16: Another meeting will be held on March 17, 2016 in Grand Junction at 1 p.m. 6/7/16: Kevin McAbee said Tri-County remains confident Ridgway won't spill this year. Reclamation, Tri-County, and Kevin are discussing contracting mechanisms for construction and installation of an in-reservoir net. The contract likely wouldn't be completed until October 2017, thus the net wouldn't be completed until 2018 or 2019. (A downstream permanent screen would be very, very expensive.)*

3. 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.*
  
4. Related to the peak flow study plan, **Jana Mohrman** will look into cost estimates for additional aerial photography analysis. **Committee members** will continue their review of the draft plan and provide comments by the end of September (the same will be requested of the WAC). Within two weeks, **Tom Chart et al.** will prepare a short background outlining the genesis of this work and restate the objectives (*done*). *PDO sent revised plan to BC & WAC for review; comment deadline extended to January 23; revisions and review pending.* 5/28/15: *Jana said the study plan is still being revised and more tightly connected with the Green River and Aspinall study plans. The 2011 aerial photos will be posted on the internet by the end of this summer (not georeferenced).* 7/28/15 *The Program Director's office received a revised draft on August 11, 2015.* 10/13/15: *Tom Chart is reviewing and will send to the BC and WAC by the end of October. Argonne provided an estimate for 200 hours of georeferencing, orthorectification, and color-balancing; and 300 hours for mosaicing (image rotation and shifting) previous 2011 high flow Green River aerial photography for \$55-\$65K. Price estimates for new photos are included in the Peak Flow Technical Supplement. In the fall of 2015 LiDar was flown for the Green River corridor from Canyonlands NP to Flaming Gorge and should be available in the spring of 2016. It was paid for by the State of Utah and the National Park Service and will be quality checked by the USGS.* 1/14/16: *the Program Director's office will post the final peak flow technical supplement on the Program website next to the study plans under technical reports under the instream flow section. Pending.*
  
5. **Krissy Wilson** will find out if PIT tag data from the San Rafael and Price rivers are being submitted to Travis. 3/4/15: *Some has been submitted in past years, but not the most recent year or two; UDWR will submit to Krissy who will submit to Travis by March 15.* 5/28/15: *Krissy submitted a partial list, but will submit more once the antenna data is available.* 7/28/15: *Dan Keller will update this shortly.* 10/13/15: *Krissy said all the San Rafael data have been submitted; Krissy and Dave will check with others (Peter McKinnon) about the Price and Dolores river data. Peter and CNHP are aware that all of the antenna data needs to go into STReaMS.* 7/22/16: *Data are being provided to STReaMS, but not yet instantly loaded (still building that interface).*

Krissy recommended that all the **hatcheries** conduct bonytail health condition profile at least 30 days prior to stocking, compile the data, compare it across hatcheries and discuss what we can do to improve it. *Hatcheries are doing the health condition profiles.*

Kevin McAbee suggested the first **database manager's** assignment should be to summarize and analyze bonytail data in STReaMS, in order 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.

6. 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.*

7. **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*
8. **Darrel Snyder** will send the “Fishes of the Upper Colorado River Basin” information that includes a map of the UCRB with boundaries for its 8 HUC (4-digit) sub-basins and a table summarizing the recent (past decade) distribution and general relative abundance in lotic and lentic habitats within those sub-basins information to Tom Czapla (*done*). The **Program Director’s Office** will maintain this information on the Program website (*pending*).
9. **Biologists** will identify the most important Yampa River locations where we need to improve communication with landowners. We should consider including field folks in discussions with landowners, as well as people who may already have relationship with the landowner. Chris said in stretches with lots of backwaters, they need landowner permission to stop more frequently than the every 2 mile stops they’ve made in the past. **Hawkins, Noble, and Smith** will work on the specifics of this item and determine a path forward.
10. The Biology Committee encouraged **Dale Ryden** to continue working with Reclamation to resolve the ongoing sediment issue at the Grand Valley Project fish return pipe (a long-term fix would be very expensive). The best case scenario is to have the river sluice in front of the facility as much as possible. Dale will raise the idea of a risk assessment to evaluate short and long term solutions. *6/7/16: Grand Valley Water Users have had the roller bay below the passage open for a couple of weeks now which may help move the sandbar. After we see how effective that was, we can consider what’s needed going forward. 8/22/16: Dale said this is being solved with sluicing for now, so this can come off the list.*
11. **Harry Crockett** will send the Committee a final count of fish captured in the stilling basin below Elkhead Reservoir. *Pending*.
12. **Kevin McAbee** will follow up on the ideas gained from the UCRP workshop at the recent meeting of the Walleye, Esocid, and Centrarchid Technical Committees, beginning with an email of key items.
13. **Harry Crockett** will check on the status of proposed regulation change to allow disposal of undesirable fish in Colorado.
14. **Harry Crockett** will provide PIT tag data for unrecovered smallmouth bass from the Elkhead and Ridgway tournaments to Andrew Treble.
15. With regard to the sediment scope of work, **Tom Chart** will discuss the proposal to collect cross sections with the GREAT team. The **Program Director’s office** will send out a revised SOW after the GREAT on Thursday along with a summary paragraph or two on making the habitat linkage. **>Water Acquisition and Biology committee members** should provide their input on the revised SOW to their Management Committee member.
16. **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.

17. **Tom Czapl**a will schedule a follow-up call of Dave Speas, Kevin McAbee, Tom Chart, and Kevin Bestgen to focus the topics related to a potential workshop/s to discuss data collection and use from Colorado pikeminnow abundance information.

Attachment 2: Hydrology Updates  
White River Management Plan

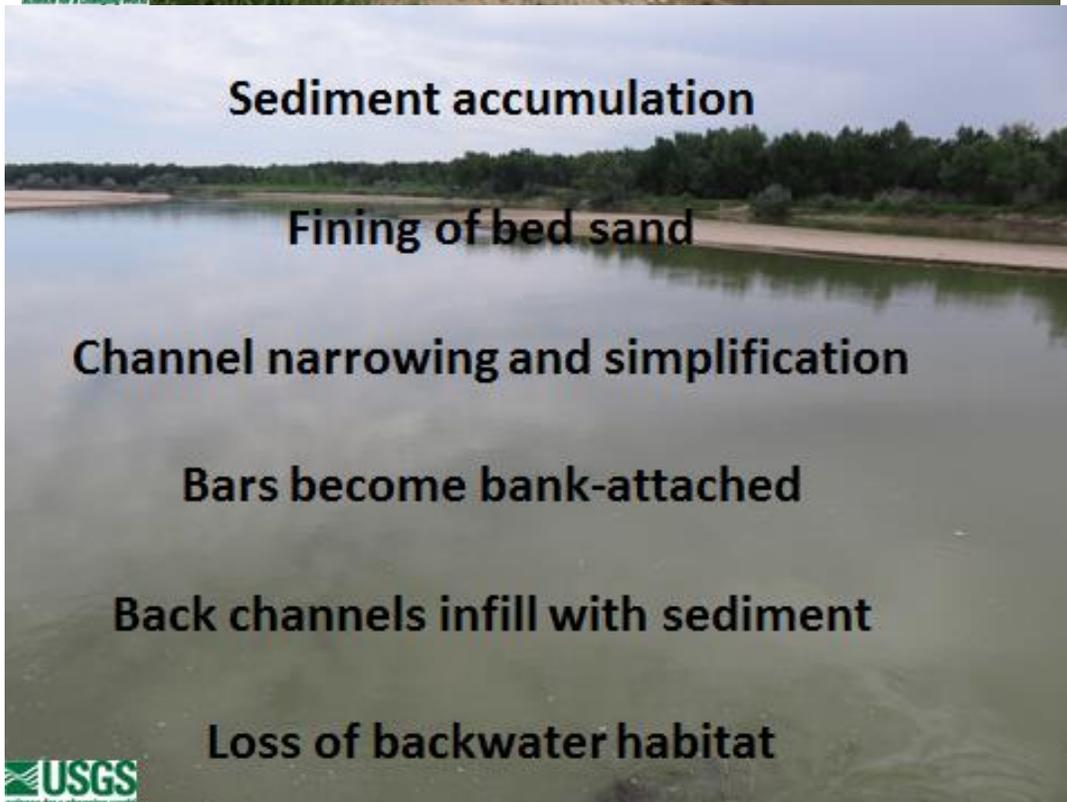
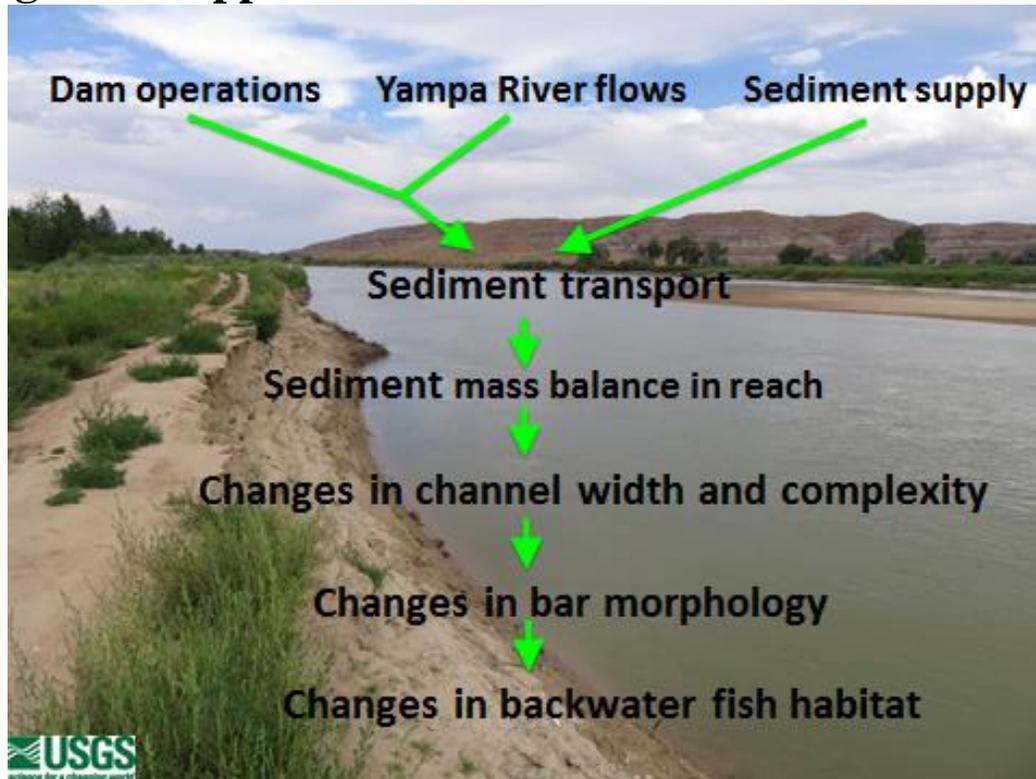
SEQUENCING AND ROLES FOR UPDATE AND FINALIZATION OF ENDANGERED FISH FLOW  
RECOMMENDATIONS FOR USE IN MANAGEMENT PLAN AND PROGRAMMATIC BIOLOGICAL OPINION FOR  
THE WHITE RIVER BASIN IN COLORADO AND UTAH (July 2016)

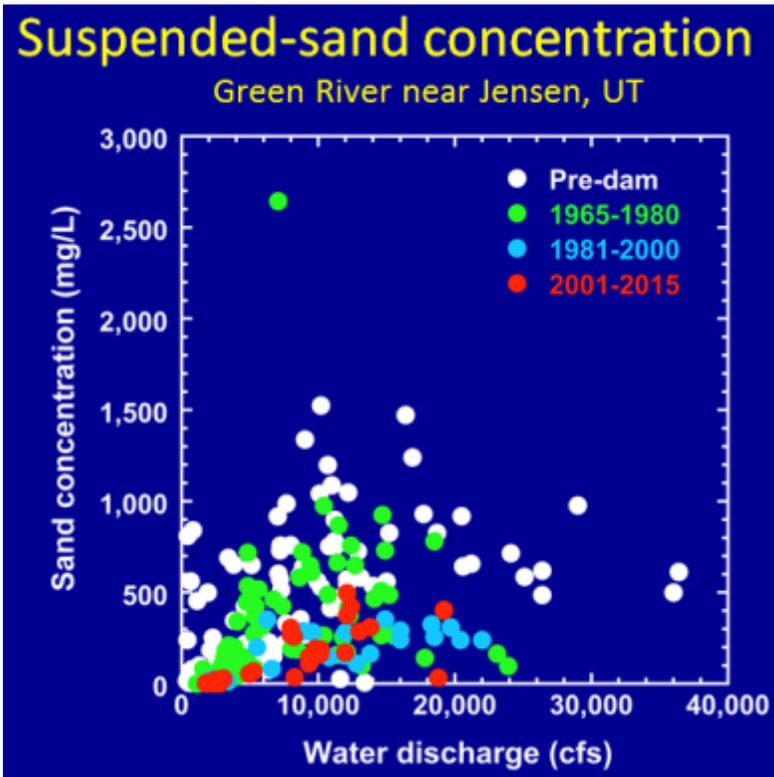
This proposal applies the program protocol and responds to the requests for clarification of the roles of the PDO, the modeling contractor, the program committees, the White River Work Group (WRWG), and the USFWS in the update, review and approval of the flow recommendations

Estimated dates of completion <sup>1</sup>	WHO	WHAT
Dec-16 <i>Concurrent activities; greater detail provided in cells to right.</i>	PDO, USFWS, Planning Team, WRWG	Develop Future Demand Scenarios. PDO will tabulate and review future demands in CO and UT, including scenarios and storage developed by the Yampa/White BRT for future demands. High and low scenarios that represent a range of reasonable future demands will be selected by the Planning Team in consultation with the WRWG and USFWS. <b>July – Sep, 2016</b>
	Contractor	Develop Current Hydrology. Generate daily current flows by extending StateMod to the Watson gage and consult with Utah on the extension of StateMod to the Green River so as to model future demands in Utah. Re-state all flow statistics and daily hydrographs for the baseline. <b>July – Sep, 2016</b>
	PDO in concert with Flow Rec authors, Planning Team	Specify Preliminary Flow Targets (using current daily flows from StateMod). Review and resolve comments on July 2011 draft flow recommendations report, including the Topics prepared by TNC for the 12-10-2012 workshop. Incorporate current hydrology and flow statistics and hydrographs developed by contractor. <b>Sep – Oct, 2016</b>
	PDO, Planning Team, WRWG	PDO will seek feedback on Preliminary Flows Targets from the Planning Team, the BC and WAC, and will keep WRWG apprised of the specification of the preliminary flow targets. The WRWG will coordinate any concerns / comments through their Recovery Program representative. <b>Nov – Dec, 2016</b>
May-17	Contractor, PDO, Planning Team, WRWG	Model Future Demands and Identify Impacts on Preliminary Flow Targets. The contractor will model the selected future demand scenarios (including storage for future demands) and identify impacts on the preliminary flow targets. PDO and Planning Team will keep WRWG apprised of the impacts on the preliminary flow targets. The WRWG will coordinate any concerns / comments through their Recovery Program representative. <b>Nov 2016 – May 2017</b> using the outputs from Tasks 2a and 2b in the Wilson Water scope of work

The Planning Team now consists of Tom Pitts for all water users, Tom Chart and Jana Mohrman for the PDO, Michelle Garrison for the CWCB, James Greer for Utah Division of Water Rights, and Robert Wigington and John Sanderson for TNC, and Alden Vanden Brink, District Manager Rio Blanco Water Conservancy District. The White River Work Group now consists of the Yampa/White BRT, including the Rio Blanco Water Conservancy District, the Uintah/Ouray Ute Indian Tribe, the BLM, CRWCD, Uintah Water Conservancy District, and Utah Division of Water Resources.

# FY-2017-2021 PROPOSED SOW for: Suspended sediment monitoring in the Upper Green River





[http://www.gcmrc.gov/discharge\\_qw\\_sediment/](http://www.gcmrc.gov/discharge_qw_sediment/)

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### Deerlodge Park

Home > Discharge, Sediment and Water Quality > Discharge Records > 0825+000 to 02000000

**Adjustable Bedload**

Bedload Coefficient for River Sand Loads

0%  100%

**Adjustable Uncertainty**

Magnitude of Possible Persistent Bias in Measured River Sand Loads

0%  50%

Magnitude of Possible Persistent Bias in Measured River Silt and Clay Loads

0%  50%

[Restore Defaults](#)

**Date Range**

Records exist from 2013-05-21 through 2016-05-30

Start:

End:

[Build Graph](#)

**Date**

To visualize data in a graph, please select parameters from the left as well as a date range from above.

**Location**

**Additional Information**

Data provided by:

- Grand Canyon Monitoring and Research Center
- Colorado Water Science Center

Style: Graphical Version | Text Version

Grand Canyon Monitoring & Research Center | 2555 North Gemini Drive Flagstaff, AZ 86001 | Phone: 928.556.7900 Fax: 928.556.7100

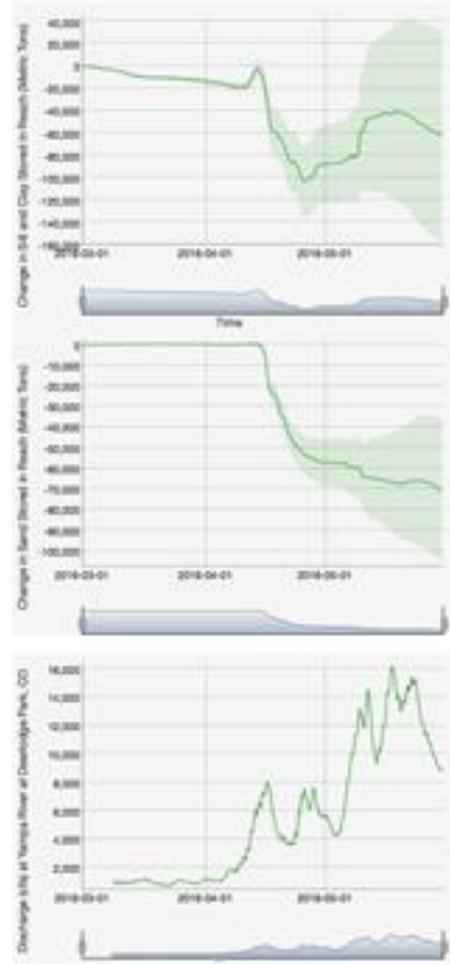
# Deerlodge Park example from this year

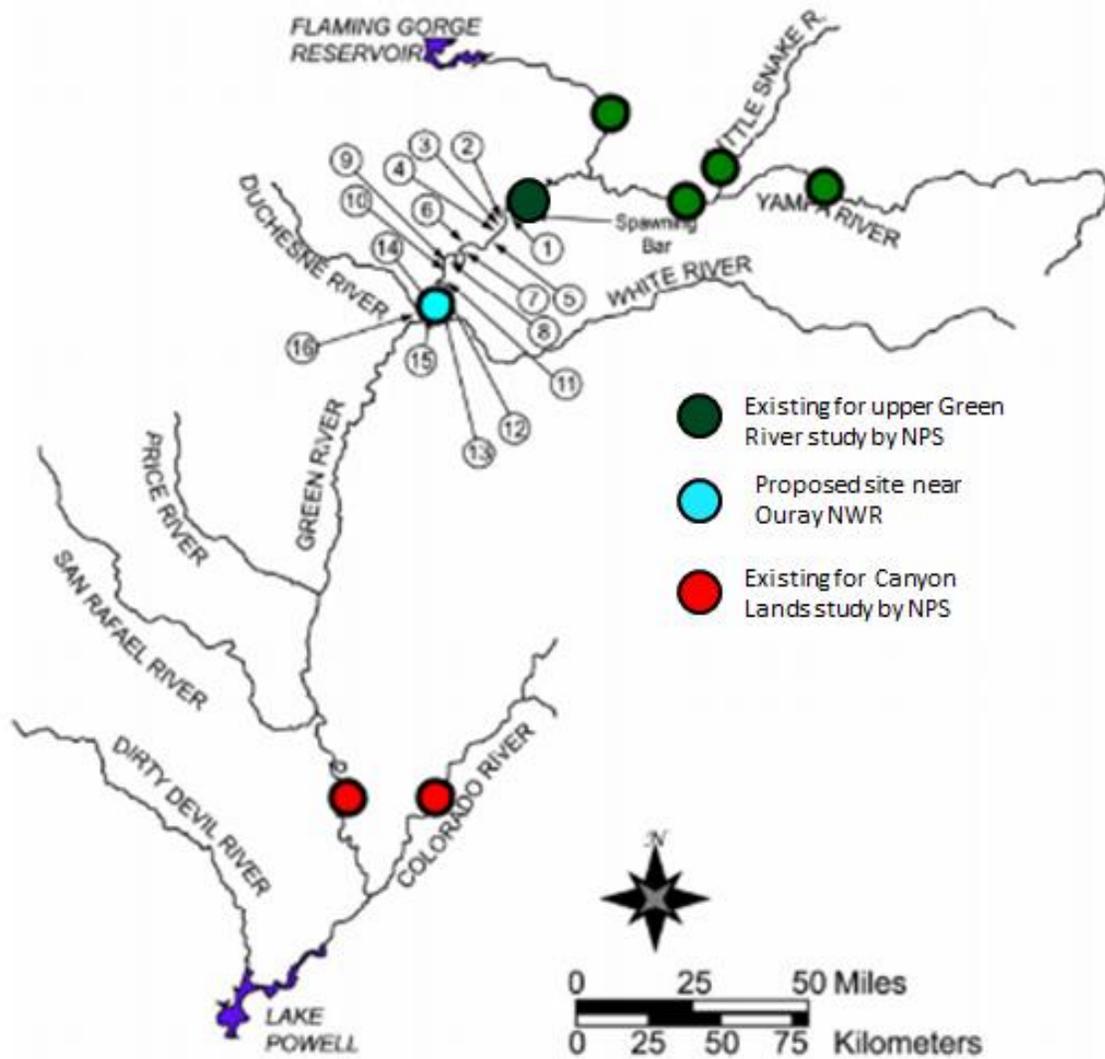
## Change in Silt and Clay Mass

- Zero Bias Value: -43,000 Metric Tons
- Upper Uncertainty Bound: 32,000 Metric Tons
- Lower Uncertainty Bound: -160,000 Metric Tons

## Change in Sand Mass

- Zero Bias Value: -71,000 Metric Tons
- Upper Uncertainty Bound: -36,000 Metric Tons
- Lower Uncertainty Bound: -110,000 Metric Tons





The budget below assumes a cost share by the NPS at Jensen, Mineral Bottom and Potash sites, which has not been determined.

Suspended Sediment Sites	2017	2018	2019	2020	2021
Green R. @ Jensen	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Green R. @ Ouray	\$ 35,000				
	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000
Green R. Mineral Bottom	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Colorado R. Potash	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
	<u>\$ 85,000</u>	<u>\$ 50,000</u>	<u>\$ 50,000</u>	<u>\$ 50,000</u>	<u>\$ 50,000</u>

## Attachment 3: Potential Graduate Studies to Answer Critical Recovery Program Questions

### Background:

- For a long time, the Program has recognized the need for targeted research to answer specific questions.
- Time and time again, we try to attach research to otherwise broader, management-based project objectives.
- From an adaptive management perspective, targeted research is needed to assist with decision making.
- Graduate studies can open up additional funding sources and can be a cost-effective approach to helping us understand a complex ecosystem.
- Fostering an interest in the Colorado River ecosystem with young biologists is always in our best interests.

For these reasons Chart and Bestgen discussed how graduate studies could assist the Recovery Program.

- I. Dr. Bestgen's Initial Thoughts on Potential Graduate Research to address Critical Recovery Uncertainties.
- II. A Summary of a PDO Discussion that responds to Dr. Bestgen's Initial Thoughts.

- I. Email from Bestgen to Chart, dated July 13, 2016:

Hi Tom,

A while back you asked about student participation in a field project, which I believe was the smallmouth bass spike flow project. I think that would be a fine student project except it has a lot of uncertainty associated with whether flows would actually come, among other things. We also talked briefly about the age-0 *Gila* field identification project as a need.

I drew up a list of a few projects that seem great student projects because they capitalize on existing studies or are relevant for the Program. Some such as the bioenergetics one could capitalize on the expertise of someone like Brett Johnson, while others capitalize on the quantitative expertise we have. I am keen to learn your views of such projects, additions to those or other ideas, and potential for funds for such from Program or other sources. Depending on the level of equipment and field study (or not), associated travel, and additional technician help needed, a student project requires about \$40-80K per year, with the lower figure being mainly a lab-based study.

- 1) Bioenergetics studies w/walleye

Newly expanded populations of walleye into nursery habitat for Colorado pikeminnow are alarming and may cause continued decline of adult Colorado pikeminnow abundance via reduced recruitment. Walleye bioenergetics models are available that may assist with determining potential predation impacts on juvenile Colorado pikeminnow. Also available are walleye abundance and size distribution information that could be gleaned from past sampling or gathered in upcoming field seasons. Scope of walleye predation on juvenile Colorado pikeminnow would be useful to determine the relationship between removal levels and amount of pikeminnow recruitment needed to sustain populations of adults. Bioenergetics results may also be useful to guide allocation of resources used for non-native fish removal in the upper Colorado River basin, and illuminate the degree to which Lake Powell contributes to continued supplementation of riverine walleye.

- 2) Floodplain use by endangered fish

Bonytail are the most critically endangered native fish in the Colorado River basin and despite years of efforts to restock, populations remain depleted and survival of stocked fish is low. Bonytail use and recently reproduced in a floodplain wetland (Stewart Lake), and those habitats hold great potential as recovery habitat. However, ecology of bonytail in floodplain wetlands in the upper CRB is largely unknown. Bonytail colonization of wetlands such as Stewart Lake and Johnson Bottom shows fish are able to colonize and survive in such places. Stocking adults may improve survival and ultimately condition fish for escapement to the river where recovery needs to happen. However, little is known about seasonal survival rates of stocked fish in those settings. PIT tag detection arrays could be used to document survival of fish post-stocking in two or more floodplain wetlands. Patterns of habitat use (spatial, diel) could also be documented with appropriate placement of arrays. Sampling of stocked fish would reveal changes in body condition post-stocking and allow further evaluation of wetlands as habitat for bonytail. It would also be possible to evaluate survival of different groups of fish with different hatchery histories (supplemental wild food or not, size or age differences). Observations of spawning and subsequent collection of larvae could also be a portion of the study. Enhanced spawning areas using gravel placement or other wetland modifications could be accomplished to learn more about the species needs/requirements.

3) Detection/occupancy/movement of RZB larvae in rivers and floodplain wetlands

Movements of RZB larvae downriver from spawning areas and into backwaters and floodplain wetlands is an integral part of the ecology and management of this species but little is known about factors that affect those movements. River flows, swimming speed of larvae, distances to floodplain wetland entrances, entrainment rates, and other aspects are poorly understood but critical to the process of RZB recovery using floodplain wetlands in the Green River. Even the ability of light traps to detect occupancy and abundance of larvae in near shore habitats is poorly understood, in spite of that capture technique being a central part of the Larval Trigger Study Plan. A series of experiments in the lab with hatchery fish and light traps in raceways and ponds, and field releases of marked larvae in appropriate places (river upstream of wetlands, wetland entrances, and backwaters) could test capture efficiency and entrainment of marked and wild larvae. Such sampling could be followed by sampling in wetlands, where detection and abundance of early life stages of razorback sucker is an important part of the LTSP evaluation.

4) Reproductive phenology of UCRB native and non-native fishes

Schedules of reproduction for native and non-native fishes are important to understand effects of prevailing flows and water temperatures on timing of appearance of larvae, and potential future effects of climate change on those schedules. Overlap of reproduction timing also may promote competition among species, or reveal potential for hybridization among one or more taxa (white sucker and razorback sucker). Correlation of spawning times with environmental parameters may allow for predictions of timing of spawning and flow needs of species. Long-standing sampling programs have 20+ years of data that describe aspects of spawning/reproduction phenology in the upper Green River basin including light trapping in the middle Green River, and drift net sampling in the lower Yampa River. That data, combined with additional sampling, could provide an extensive database to describe patterns of spawning by the resident fish community. Temporal analysis of that data may also detect trends consistent with climate change, or potential for such, and offer information on future spawning phenology in the face of various climate change scenarios.

5) Field identification young chubs in the genus *Gila*

Status of humpback chub in the upper Colorado River basin has declined over time and recruitment limitation has been identified as a main impediment to bolstering populations. A better understanding of factors that affect recruitment among years would assist with determining mechanisms that drive population dynamics of humpback chub. However, a main limitation has been inability to identify age-0 chubs in the wild so that recruitment strength can be quantified. Field sampling and identification of young chubs in key locations such as Black Rocks and Westwater canyons, where typical deep-bodied humpback chubs occur, would be useful to understand veracity of field identifications of young chubs. Field identifications would be verified by subsequently rearing some fish suspected as either roundtail or humpback chub. Fish could also be tagged if of appropriate size for future recapture and verification of species identity. Molecular genetic techniques may also be useful to obtain species identity determinations, but the veracity of those techniques to decipher that information needs further investigation.

Notes:

Certain of these investigations have the obvious advantage of having ready access to various life stages of hatchery-produced fish, which is very useful for field experiments and monitoring for various life stages. Some study locations also overlap with existing studies, which is a potential benefit in terms of sampling efficiency and labor needed for field studies.

\*\*\*\*\*

- I. Recovery Program Director's Office Discusses the Potential Graduate Studies (provided by Dr. Kevin Bestgen via email on July 13, 2016) to Assist in Achieving Program Goals

July 21, 2016

Angela Kantola, Kevin McAbee, Tom Czaplá, Tom Chart

- 1. We were all extremely appreciative of Kevin Bestgen for taking the time to work up these ideas. We all agreed that the proposed research topics and objectives were on target and recognized real Program needs.
- 2. Prior to this PDO discussion, Kevin McAbee provided some ideas of his own:

- A) *Triploid walleye study* – Consider the behavior of newly stocking triploid walleye. Do walleye exhibit spawning behavior? Do they cause fertile walleye spawning failure? Do they avoid spawning areas, thus enhancing fertile walleye efficiency? Stockings taking place at Red Fleet Reservoir, Big Sand Wash, and Rifle Gap Reservoir offer differing conditions for post hoc data analysis.
- B) *Green River Canal entrainment study* – the weir wall at the Green River Canal should be built in fall 2017. We have collected lots of antenna data from inside the canal, and salvage data, over the past three years. We will keep the antennas in place (and salvage) after the weir wall is built, in order to evaluate the change in entrainment rate. We have many questions about the entrainment at Tusher – how many fish have returned to the river? What species are most susceptible? How is entrainment related to flow? I also think an evaluation of entrainment mortality rates, including a robust use of Bestgen’s 2010 population modeling & the CPM PVA would be a really nice mathematical component to this work.
- C) *Green River Diversion antenna project* – If the above project wasn’t enough, it could be combined with analysis of antennas at the newly built diversion. The student could evaluate effectiveness of the fish passage, spawning movement of CPM, and transition times of small CPM from the lower GR habitats. Tags could be employed in walleye in Powell to see if they move upstream (if the otolith work demonstrates walleye are coming from Powell).
- D) *Three Species use of the White River* – Breen and McAbee have discussed the various ways to use the UDWR’s fish community monitoring data with the White River PIA system. We have been trying to document survival of that species in that system, and have conducted a pilot analysis, but can’t find time to truly work up the data. In addition, the antenna demonstrates interesting annual and diurnal movement patterns of three species tagged in the system. Combine this with razorback and pikeminnow movement in the area, and there could be some native fish community questions answered.
3. We agreed with Bestgen’s general priorities.
  4. We also discussed McAbee’s ideas ‘B’ and ‘C’ and decided that these could be tasks for our new Dbase manager, but not likely for a couple of years.
  5. The PDO felt we should try to prioritize amongst these ideas.
    - a. We felt that the research ideas should be directed at our greatest threats / uncertainties.
    - b. We suggest focusing on Bestgen’s # 1 and 2, and McAbee’s walleye triploid behavior idea.**
      - i. Although we may want to flesh these ideas out a bit more, we felt they serve as good conversation starters as written.
    - c. Additional thoughts regarding the short list of studies:
      - i. Bioenergetics Studies with WE – we were thinking that this might be the project to direct toward a prospective CSU student, mostly because of some opportunities in UT for the floodplain idea (see below). We think there are plenty of ongoing field activities that could contribute to this research – pop estimates, nnf control. (Note – although we should look for ‘economy of effort’, we must avoid falling into the trap of glomming on to existing management oriented projects). The Recovery Program already has our foot in the door with USGS on some add’l otolith micro-chem through a Quick Research Proposal (QRP). At a minimum we might parlay that relationship into a larger SSP grant proposal to explore this research topic.
      - ii. Floodplain use by Endangered Fish – We thought the Matheson Preserve might be a good study site and a UDWR employee (based out of the Moab Field Office) could be a prospective student. Other reasons to consider the Matheson Preserve: 1) proximity – a couple of miles from a field office, 2) this could be a very important (ecologically) floodplain, 3) we need to expand our floodplain thinking into the Colorado River; 4) State of Utah recently contributed ESMF funding to renovate the site, 5) we should take advantage of the State of Utah agreement w/ USU to fund grad projects for current State employees.
      - iii. WE Triploid behavior – this is really a sport fish management issue, but with very real endangered fish implications. There is a lot of interest (nationwide) on what these triploids are doing when released. There are probably multiple funding sources to explore (Section 6, WSFR, States, Walleye Unlimited).
  6. Program funding – we should discuss the possibility of extra-Program funding sources, but in reality the Program should be prepared to at least bring a cost-share. This, inevitably raises the “Where will the funds come from?” i.e. Program-wide prioritization question.

## Attachment 4

### A Proposed Workshop to Discuss Endangered Fish Population Estimation, Sampling Techniques and other Related Topics:

#### General Topics:

1. Simultaneous sampling for juvenile / adult Colorado pikeminnow and razorback sucker – a reality check
2. Pikeminnow capture probability from a long term perspective – has this shifted since population estimation began?
3. PIA (stationary and portable) information
4. Database Management moving forward.

Proposed Purpose - The Program Director's Office (PDO) is recommending a workshop with principle investigators (PIs), hatchery folks, and database managers to discuss some issues that have been raised through the years. Generally, the Program Director's office would like to facilitate an open discussion with the PI's who will be asked to share their field and analytical perspectives.

Timeframe - We are proposing a 1-day workshop held immediately before or after the STREAMs database workshop scheduled for March 2017 at Colorado State University.

#### Suggested Agenda topics:

- 1) **Simultaneous sampling for juvenile / adult Colorado pikeminnow and razorback sucker – a reality check-**
  - a) Was the 2016 Green River CPM population estimation sampling protocol manageable and something we can / should continue into the future?
  - b) Sampling over spawning bars – pros v cons?
  - c) For the time being, should our RBS sampling be focused on detecting presence of juveniles or should we continue to pursue M/R population estimates for this species? The PDO supports pursuing the RBS population estimates.
  - d) Other issues?
- 2) **Long Term Pikeminnow Capture Probability – has this shifted since population estimation began?**
  - a) Have we influenced capture probability?
    - i) The PDO knows that pop estimation is a ton of work, but are we expending adequate amount of effort?
    - ii) Do pikeminnow respond to the ETS field differently than earlier e-fishing systems?
    - iii) Are we causing a change in pikeminnow behavior through increased exposure to e-fishing from nonnative fish control?
    - iv) Are the abundant RBS causing a shift in pikeminnow habitat use / preference and / or pikeminnow catchability?
    - v) Other than the obvious impacts of competition and predation are NN predators also shifting native fish habitat use / preference or catchability?
    - vi) Other topics?
- 3) **Incorporation of PIA (stationary and portable) information (CPM, RBS, and HBC)**
  - a) What is our long term plan to incorporate PIA detections into our estimates of survival and abundance?
  - b) Consider inviting Dr. Mary Conner (USU) to speak to these topics and discuss her related work funded by BOR.
  - c) What are our thoughts about future PIA deployments? How many, where, and why?
- 4) **Program Director's Office will provide an update on PVA's and SSA's**
  - a) Back casting into the pre-PIT tagging years to use CPE data to extend our understanding of long term population trend / viability – PDO has promoted this, but what are our vulnerabilities.
- 5) **Database Management moving forward**
  - a) Get to know the new DBase manager (PDO Dbase Manager)
  - b) Provide the DBase manager with a forum to discuss initial observations, questions, and concerns.
- 6) **STReaMS update (Colorado Natural Heritage Program):**
  - a) Review the latest updates.
  - b) Review the batch upload process.