Upper Colorado River Endangered Fish Recovery Program

Dated: August 26, 2014

Final Biology Committee Conference Call Summary
June 11, 2014

PARTICIPANTS
Biology Committee: Dave Speas, Melissa Trammell, Jerry Wilhite, Harry Crockett, Dale Ryden, Krissy Wilson, Brandon Albrecht, Tom Pitts, and Pete Cavalli.
Others: Mike Mills, Paul Badame, Brent Uilenberg, Bob Norman, Doug Osmundson, Bridget Fahey, Andrew Gilmore, Jackson Gross, Tildon Jones, Carl Saunders, Heather Patno, Tom Chart, Jana Mohrman, Kevin McAbee, Tom Czapla, and Angela Kantola.

CONVENE: 9:00 a.m.

1. Report review: Colorado River Colorado pikeminnow population estimate – The final report with response to comments was sent to the Committee for review and approval on February 21. Dave Speas, Melissa Trammell, Pete Cavalli, and Brandon Albrecht commended Doug on the report and his response to comments. Regarding the recommendation to expand sampling for various life stages, including larval fish (as done in the Green River), Dave said this seems valid for the Colorado, but asked what we've learned about environmental correlates from similar collections on the Green River. Melissa noted the backwater blocking project by the Service and UDWR (no report yet). Tom Chart said this dataset also will be a primary component of the backwater synthesis report and agreed it would make sense to consider similar work on the Colorado once we have the Green River backwater synthesis. Doug said Green River larval drift net sampling seems to show fairly constant larval production from the Yampa River, but the bottleneck comes later with available habitat and survival. On the Colorado, we don't really know how much larval production we're getting each year and where bottlenecks may occur. Dave asked about Gunnison drift sampling; Doug said Anderson found a few larvae via drift sampling in the 1990s. The group agreed this is a valid recommendation. Dave Speas asked about the no-stocking recommendation. Doug noted discussion about stocking in the Gunnison, but cautioned against stocking fish too small to PIT tag. Harry Crockett agreed and asked Dale if younger fish stocked in the San Juan show more fidelity to where they're stocked. Dale said stocking younger Colorado pikeminnow in the San Juan is more cost effective and many more fish can be stocked, so more fish stayed put because they're saturating the river with them. Dale also noted that in the case of the San Juan River stocking, stocked fish can be distinguished from wild fish for the first year or two because of their size difference. Tom Chart and Melissa asked if Doug would reconsider his recommendation against stocking if the fish were marked and Doug said he wouldn't necessarily be opposed to stocking if the fish could be PIT-tagged and >will revise this recommendation. Tom Czapla said this hasn't been addressed in the stocking plan currently in revision, >but that it will be incorporated. Dale cautioned that raising pikeminnow overwinter is more complicated because the must be constantly sorted and heavily fed to reduce cannibalism. Tom Czapla said we've asked Dale Ryden to consider moving pikeminnow captured in the Redlands passage further upstream in the Gunnison River. Dale said they have a small stocking trailer they could keep parked at the passage. Seven to twelve pikeminnow pass through Redlands each year. The Committee generally supported moving fish from the Redlands passage farther upstream. The Committee approved the report with the aforementioned revision to recommendation #3.

2. Tusher Wash update

    a. Electrical barrier study – Kevin McAbee said that per the February Biology Committee discussion, Jackson Gross revised a draft study plan for the electrical barrier study to support the Tusher Diversion.

Jackson updated the proposal based on recommendations to test more sizes of pikeminnow and remove one of the smaller bonytail classes and to respond to the Committee's discussion regarding how to best mimic field conditions. Jackson said he also recently received input from Bob Norman on the channel angle (7°, not 40°) and will update that in the proposal, as well. With regard to the potential to direct fish, Jackson said he doesn't think they can address that in the hatchery study. Jackson indicated that he recently completed a study very similar to this one using Asian Carp and that those results and lessons learned will help improve his endangered fish study. Bob Norman said that if fish have no alternate escape path in the study, the chance likelihood of them going over the wall probably would be higher, and would seem to produce results more likely to indicate the need for an electric barrier, or to produce results indicating an electrical field higher than what is truly needed. Kevin thought we might consider Hogback a baseline for how many fish go over the weir wall without electricity. Bob Norman noted that there would be value for an electric barrier when the fish return pipe is closed from debris clogging and lack of available water for fish return. Melissa asked about small vs. large fish response in Jackson's recently completed carp study. Jackson said small fish moved faster and big fish withstood more electricity. Fish also responded differently to anodes than cathodes. Dave Speas asked about approach velocities; Bob Norman said you try to keep velocity around 3 cfs to move sediment, but the 1.8 cfs Jackson proposes probably could work. Kevin said that this study would conservatively estimate fish response, giving us a good baseline for real world conditions. Then, if we construct an electrified weir wall, we'll have PIT antennas in the canal to refine our understanding of fish reaction and adjust electrical fields accordingly in the future. Jackson added that he also learned that frequency is very important to avoid interfering with fish swimming ability. With regard to budget, Kevin had advised Jackson to first hone in on a study design acceptable to the committee, so a proposed budget is as accurate as possible. >Kevin asked Committee members to comment on the merits of the study design to the whole Committee, Jackson, and himself within 2 weeks; and then we'll put this on the next Biology Committee agenda with a budget.

b. Canal Salvage – Kevin McAbee recalled the Committee's February discussion, and our plans to ask Dale, Tildon, and/or Moab-UDWR to conduct canal salvage. Dale said the window to conduct this work lasts just a couple of weeks post-irrigation/canal drainage and pre-freeze (typically the second week of November to just before Thanksgiving). Dale's shop has two other canals to salvage and would have to work this in (potentially reducing some of the Grand Valley salvage work), and would need a Utah permit. Tildon said their collection permit doesn't currently cover this, but Krissy said it would be simple to amend the permit. In the Grand Valley, captured endangered and native fish are released at the closest river access. Paul Badame questioned whether a truck-mounted system would work on Tusher due to limited roadway (might need to be on foot or use a barge or canoe, instead). Tildon said they have a barge setup and their office have electrofished the canal with a raft in the past. >Dale and Tildon and UDWR-Moab will discuss and get back to the Committee with a plan to salvage fish from the Green River Canal this fall. >Kevin will coordinate a canal walk-through, if needed.

3. Nonnative fish

   a. Strategy – Pete Cavalli has noted that although the 2009 Nonnative Fish Stocking Procedures permit routine salmonid stocking above critical habitat, the compatible species list (Appendix C) of the Nonnative Strategy includes some cold-water species, but omits several salmonids that should be included (e.g., cutthroat trout, grayling, tiger trout, splake, rainbow/cutthroat hybrids). In the Strategy, we probably should have just said "salmonids" as was done in the Procedures. However, the Strategy does not supplant the Stocking Procedures; therefore, the Program Director's office recommended that the Committee simply document the inconsistency in this meeting summary since a management

conflict on this point is unlikely to arise in actual. Dave Speas suggested adding an errata page to the Strategy; >the Program Director's office will attach an errata sheet to Appendix C.

Pete Cavalli also noted in a recent email that "[his] interpretation of the [2009] Stocking Procedures is that reviews are only needed in cases involving nonnative non-salmonids." As such, the recent LMP for Strawberry Reservoir would not have needed a full review (Krissy said she sent the Strawberry LMP to the Nonnative Fish Stocking Procedures signatories in the spring of 2014 because of the language in the plan that recognized that Utah would respond if an illegal introduction occurred.) The Service agrees that if a state wishes to stock salmonid species upstream of designated critical habitat, it does not require a Service review. However, if a LMP is updated to change the non-salmonid, nonnative species stocking (even change in number, but not species), it does require review. It is important to continue these discussions as the 2009 Stocking Procedures are implemented.

b. Ridgway Reservoir smallmouth bass update – Kevin recalled the concern about smallmouth bass found in close proximity to the spillway and Tri-County's commitment to try to avoid a spill. Spilling has been avoided this year (and potentially could be avoided in the future, but perhaps not in all years) and future management options are being discussed. Harry said chemical reclamation is probably technically feasible, but has real operational concerns. The main need for an occasional spill is to move woody debris out of the lake. CPW will submit an issue paper for August proposing to remove bag and possession limits (the Southwest Region did not approve a must-kill proposal). Melissa asked if the woody debris could be moved in other ways. >Harry will investigate this. Melissa also asked why the Southwest Region didn't approve the must-kill proposal. Harry said law enforcement folks think these regulations would be unenforceable and they also would require solving the no-waste-of-game regulations (Wyoming and Utah found ways to solve this; CPW is being urged by Program partners to reconsider their position on must-kill regulations). Tom Pitts said the water users have asked why the harvest regulation couldn't be implemented on an emergency basis. CPW has told them emergency regulations are only made for human safety, but water users do believe this is an emergency. The water users find CPW's position on must-kill unfathomable and believe must-kill regulations need to be implemented basinwide for smallmouth bass, northern pike, walleye, and burbot. The reservoir operators have made it clear they can't guarantee no-spill every year (and spills also could occur in a fall monsoonal situation). Harry noted that a must-kill regulation won't eliminate the bass from the reservoir. Harry said he continues to advocate for harvest incentives, also. Dave Speas understands a must-kill regulation won't eliminate smallmouth bass from Ridgway, but it's part of a broader strategy and sends an important message. Tildon described how the must-kill regulation helps with messaging and a unified position: when they encounter the public in their work, they inform them that their removal is consistent with the state regulation – anglers also must kill these species. Melissa noted that CPW often says they don't think a must-kill regulation will be biologically effective; however, that's not the point. The point is to send a message. Harry said they're supposed to be able to provide a biological basis for their wildlife regulations. Pete Cavalli asked if any of Colorado's regulations are more sociologically than biologically based; Harry said they might be, but likely had a biological basis that the Commission accepted. >Harry will investigate if other CPW regulations have a more sociological/economical basis. Tom Chart said he's encouraged to know that chemical reclamation is still on the table at some level. In light of the catastrophic threat that smallmouth bass in Ridgway present to the Gunnison River, Tom encouraged CPW to conduct the necessary reconnaissance to understand of distribution of smallmouth upstream of Ridgway(>Harry will circle back with CPW on this).

c. 2014 Nonnative Fish Workshop – At the 2013 workshop, it was suggested PI's meet for a day to a day

and a half (to allow space to discuss recommendations and ideas at length before taking it to the Biology Committee level) followed by a shorter meeting with the Biology Committee. Kevin suggested we reserve the week of December 8 in Grand Junction on the calendar (noting CRWUA in Las Vegas is December 10-12), and then toward the end of the field season, we'll flesh out how the workshop will be structured and who should attend when. The Committee agreed it would be better to have the workshop the second week of December rather than the first week (which is the week after Thanksgiving). The Committee will discuss this again at their next meeting.

4. Database – Dave Speas said the technical proposal evaluation committee (TPEC) met by phone yesterday. They provided excellent, detailed comments, but have not yet made a selection. Kevin added that they received some excellent proposals. The TPEC will have another call in early July. Dave said where the database will be housed and who will maintain it is still very much in question. We also may need to retain expertise to assist PI's in running data queries, doing pre-analyses, or conducting analysis not part of an existing scope of work. We can expect a significant period of time (possibly up to a year) wherein the contractor will be communicating intensively with PI's to obtain data files and sort through questions.

5. Field updates – Krissy reviewed UDWR activities (see Attachment 2). Paul Badame said the net below the stilling basin at Starvation Reservoir held up until beaver and muskrat damaged it. He reinforced the net with metal fencing, but it was also somewhat critter-compromised. However, this temporary net was a good test of a screening device in that configuration and location and little to no debris accumulation was observed. UDWR will treat the spillway stilling basin in September, and then meet with stakeholders to discuss engineering and costs for a metal fence-type structure to be installed before next year's spill. >Paul will update the Starvation plan to include this information.

   Tildon Jones said they've captured razorback sucker larvae in all the wetlands they can currently access and manage (Escalante, Stewart Lake, Above Brennan, and Stirrup). Kevin said we might not have gotten as many days as intended above 18,600 cfs, but we've clearly had biological success this year.

   Pete Cavalli said Bobby Compton removed eight northern pike in his sampling in the Little Snake River, one of which was tagged by Kyle Battige and presumably from the Yampa River. Bobby plans to sample the Little Snake River for juvenile pike in the fall. Harry described Kyle Battige's work in six backwaters over ~ 3 weeks in the Yampa rive, which resulted in removal of >600 pike (about the same number were removed in 98a and also in 98b in 2013), a majority of which were pre-spawn, making this very important in our pike removal efforts. Kyle also netted below Elkhead during early part of spill. Too few bass were captured to calculate a White River population estimate (only 21 fish over 4 days) below Rangely, so all fish were removed. Jenn Logan (CPW) plans to continue nonnative fish removal efforts on the White River on June 13 and the Service plans to assist on the White River during the last two weeks of June. CPW continues to work on the Snyder (aka LaFarge) Pond gravel pit (the levees of which are notched and can connect to the river), but found to have pike and largemouth bass. They conducted pre-runoff removal and continued electrofishing and netting and caught lots of suckers and huge numbers of carp entering the pond. No endangered fish have been captured. Twenty-one pike were captured which they don't think are entering from the river because they are the same size and poor body condition as those caught in the pond before runoff. Billy Atkinson began pike removal from Catamount and tagging in Stagecoach. Eric Gardunio began mechanical removal of the illegally introduced pike in Crawford Reservoir (North Fork of the Gunnison) this year; removing an estimated 74% of the adults (Eric plans to continue this work in future years).

   Harry said John Hawkins reported that they intended to conduct a northern pike marking pass and two

removal passes from Steamboat to Hayden on the Yampa, but had to modify this plan somewhat due to high water. They haven't yet been able to electrofish the upper portion of the section but were able to sample the lower portion where they removed three pike and observed two others. Harry said that John recommends that we cancel the removal pass because of concerns about impacts to trout (and thus, landowner support) later in the season. >Kevin McAbee and others will discuss this.

Dave Speas encouraged Committee members to review Travis Francis' e-mail reports on the recent Lake Powell razorback sucker collections.

6. Presentation from Carl Saunders on burbot research in Flaming Gorge – Carl briefly described burbot life history and described study objectives. Burbot are firmly established in Flaming Gorge, found throughout, with highest densities in the inflow and lowest downstream in the canyon reach. Burbot are capable of moving long distances in a short time and exhibit an adfluvial life history pattern. Timing of spawning/larval emergence varies throughout Flaming Gorge. Burbot spawn later in the southern portions. Spawning has been observed in close proximity to perennial tributaries. Larval fish were collected in tributaries and are susceptible to capture late May – June (depending on water temperature). Within-reservoir recruitment is also possible. There is a congregation of burbot at Anvil Draw where large larval burbot were collected. Melissa asked if we might be able to target spawning aggregations; Carl said it's possible, for example, targeting fish with angling in November above the Firehole boat launch. Carl indicated that he will follow up with his colleagues about rumors of sport-caught burbot below Flaming Gorge Dam.

7. Presentation from Heather Patno (USBR hydrologist) on recent updates to the Green River Model, which incorporates the Green River Flow and Temperature Recommendations and 2006 Record of Decision using daily subroutines on Reclamation's monthly Colorado River Simulation System model. Reclamation uses a hydrologic modelling tool called RiverWare to simulate the Colorado River from Fontanelle to Mexico via rule-based logic. This modelling helps understand how frequently we can expect to meet the flow targets. Jerry asked if we can use this type of analysis as we implement the larval trigger study plan; Heather said she believes it can be tweaked to be useful for this.

8. Review previous meeting assignments – *See Attachment 1.*

9. Review reports due list – The Committee reviewed and updated the list (distributed with this draft meeting summary).

10. Schedule next meeting and outline agenda – The Committee scheduled an August 26 webinar from 9am to 4 pm. Agenda items will include André Breton's smallmouth bass report, Tusher Wash electrical barrier study, format of the December nonnative fish workshop, draft revised ISP, and more.

11. Consent item: Review and approve February 20-21, 2014, Biology Committee meeting and April 29, 2014 (sent to the Committee on May 2) webinar summaries – No comments received to date on either summary. The February 20-21 summary will be considered final. The April 29 summary will remain in draft for now.

ADJOURN: 2:25 p.m.

Attachment 1: Assignments

Note: 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. & Tusher Wash Screening: *1/26/12:* **Tom Czapla, Dave Speas and Kevin McAbee** will draft a Tusher Wash mortality study and literature review RFP (or similar) for review by folks who would not be submitting a proposal. *7/12/12: no proposals were submitted in response to the RFP, >**the ad hoc committee** will work on completing the literature search portion of the mortality study (which will aid the discussion in the biological opinion). Need to assign lead.*

- *The **Biology Committee** will review Jackson Gross's proposed scope of work (to evaluate potential e-barrier impacts) (done-only Objective determined to be needed for ESA consultation requirements).*
- **Kevin McAbee** will keep the BC updated on developing a recommendation for how to accomplish Objective 1 (determine the minimum electric gradients needed to prevent downstream passage while minimizing the risk of injury).
    - *1/16/14: Jackson Gross presented preliminary concepts at BC meeting.*
    - *2/21/14: The Committee considered Jackson's recent study outline and framework (Attachment 3 to 2/21/14 meeting summary). Melissa suggested also testing smaller pikeminnow than Jackson is contemplating (adding a third size class) and eliminating the juvenile bonytail size class. Several Committee members questioned whether field conditions can be mimicked adequately in a hatchery and would like to see a schematic of what the testing setup would look like. Dave Speas suggested adding another test variable of no electricity. The Committee suggested considerable cost-share from Smith-Root would be appropriate. >Kevin will discuss Committee ideas and concerns with Jackson and ask for cost estimates. Dave Speas suggested we consider a value engineering study for Tusher; others agreed.*
    - *6/11/14: Jackson presented an updated version of the proposal (see 6/11/14 meeting summary) that includes Melissa and Dave's recommendations. It does not mimic exact field conditions in order to keep costs low (save on purchase of materials and construction of a new set-up). > **Committee members** will let the rest of the Committee, Jackson Gross, and Kevin McAbee know if they are comfortable with Jackson's revised study design by June 25. >Jackson will then craft a budget based on committee review.*
- ***Dale Ryden, Tildon Jones, and UDWR-Moab** will discuss and get back to the Committee with a plan to salvage fish from the Green River Canal this fall.* >Kevin McAbee will coordinate a canal walk-through, if needed.

2. & Revise the Integrated Stocking Plan (ISP) and related issues. **Tom Czapla** is convening a group to revise the ISP.

- *9/27/12: Revised draft ISP sent to ad hoc group by 9/27/12; comments due by the end of October. 5/2/13: Comments received from Zelasko, Wilson and Cavalli; 7/10/13: Czapla will incorporate comments and try to have to Biology Committee by end of July 2013. 9/27/13: Czapla sent revised draft to Committee for review July 31; Cavalli comments submitted September 26, McAbee September 27; 10/10/13 Tom Czapla sent those to the Biology Committee. 1/16/14: **Krissy Wilson** will complete her portion by the end of February and the small group will get it in shape to send it to the Committee. 6/11/14: **Tom Czapla** anticipates getting this out to the Biology Committee for review within about a week (for approval at the next meeting), and will incorporate recent discussions stocking marked Colorado pikeminnow in the Gunnison River.*

Humpback Chub (population estimates)

- 3/7/13: **Program Director's office** will check with Kevin Bestgen on a revised due date for the humpback chub combined population estimate from Gary White. *3/14/13: LFL will turn this around as quickly as possible after they receive the most recent data from the Service (scheduled for 3/19/13). 3/19/13: The **Program Director's office** will discuss with Kevin Bestgen what it would take to use the 131 analysis of Westwater/Black Rocks to identify clues as to early life history dynamics and recruitment failure. >**Dale Ryden** will provide revised due date. 6/28/13: Three reports are pending: a 2011-2012 Black Rocks report, a 2011-2012 Westwater report, and a 1998-2012 combined analysis report. Previous discussion indicated the combined analysis would be provided by LFL and tacked onto the Black Rocks report, but it doesn't fit neatly into either the 2011-2012 Black Rocks or 2011-2012 Westwater reports because it has data from both. Further, Grand Junction CRFP's SOW only covered writing a Black Rocks report, not a combined report. 10/10/13: Biology Committee will discuss later after Kevin, Travis et. al. recommend how to proceed with reporting (after Travis completes this year's fieldwork). 1/16/14: What Kevin Bestgen presented was the joint report and parts of it will appear in the individual reports. A young-of-year sampling effort may need to be added back to the fieldwork. >Czapla will follow up on due dates.*

&Humpback Chub (broodstock development / genetics)

- *3/6/12: **Tom Czapla** will remind the humpback chub genetics ad hoc group to submit comments (7/13/12 comments still pending). 1/17/13: Some comments received and incorporated; comments still pending from **Trammell**.*
- 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. *5/2/13: **Program Director's Office** will provide outline to Biology Committee in advance of the July 10, 2013, meeting. 7/10/13: **PDO** will forward the document that a smaller group has worked on and the Biology Committee will discuss in October 2013 (discussed 1/16/14). Tom Czapla received comments on the draft from Dave and Tildon and is trying to reach Wade Wilson regarding his genetics work on the fin clips we've provided. **Dave Speas and Tom Chart** will see if a deliverable on Upper Basin fin clips was mentioned in Wade Wilson's Lower Basin scope of work). 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. 2/21/14: No deliverable on Upper Basin fin clips; cost would be ~$37K (Committee considering, but not our highest priority; see 2/21/14 meeting summary). 6/11/14: Dave recommended making a decision on whether we want to fund analysis of the fin clips this year.*

- *10/16/12: Age-0 Gila from Westwater were going to be brought to the Horsethief Canyon ponds this fall, but river conditions won't allow safe transport until spring (timing will depend on hydrology). Tissue samples from those humpback and fin clips collected from humpback in the field in 2012 will be analyzed by Wade Wilson to provide information needed to determine if we can use local humpback chub for broodstock development, if needed, or if we will need to incorporate fish from the backup broodstock at Dexter NFH (from the Grand Canyon). Fish will be brought in fall 2013. 10/10/13: Dale said they brought ~25 fish they caught into ponds, but have less than a dozen at this point. They will try to build these numbers in future years if the Biology Committee supports that (1/16/14: the Committee supports this).*

3. & Nonnative fish management follow-up:

- **Melissa Trammell** offered to work with **Travis** in summer 2013 and report other nonnative fish data (e.g. gizzard shad, nonnative fish captured during Colorado pikeminnow estimates to the Committee each year).

The **Committee** will review the information Melissa provides in working with Travis and then discuss what further analysis may be needed.

- In 2013, population estimates for smallmouth bass will only occur in Project 125. The **Committee** will reconsider resuming the smallmouth bass population estimates throughout the current Yampa River population estimate reaches in 2014, based on an analysis from André. *1/16/14: To be revisited after workshop on projection tool. 6/11/14*: *Pending.*
- The **Committee** agreed to suspend all mark / release of northern pike Program-wide in 2013. They made a **firm agreement** to revisit this issue (northern pike population estimates) when results of the northern pike synthesis are available.
- **Harry Crockett** will check to see if Colorado's Parks folks might be interested in administering a harvest incentive program. *7/10/13: response pending. 10/10/13: Harry said CPW is open to considering this in some situations and will discuss further with the Program Director's office (Kevin McAbee, Harry, and Vernal CRFP to discuss and consider bringing proposal on this and a potential White River incentive program to the nonnative fish workshop). 1/16/14: Harry said CPW is discussing this and thinks it may be implemented in one or more places in 2014 (though not on the White River). Ongoing.*
- Walleye**: UDWR** will modify their proposed addendum to 123a and submit it to the Committee for discussion and approval (via e-mail, if possible). *Done.* >**Kevin McAbee and Paul Badame** will work on organizing a "walleye summit" with appropriate outside expertise. *Pending.* **PI's** should fully document walleye captures (date/time, length/weight, and river mile).
- Walton Creek**:** Action items after the site visit were to determine if fill material is available and what topography information is available. *6/11/14: Harry Crockett believes funds for this work will be available this fall.*
- Private (LaFarge, aka Snyder) Pond near Rifle: **Harry Crockett** will find out if the landowner will allow and if CPW can reclaim the pond before spring runoff (considering a seismic gun option); >**Tom Chart** will coordinate with **Harry** and **Brent Uilenberg/Bob Norman** on repairing the notches after runoff. *6/11/14: Sampling ongoing and Reclamation will work with CPW on notch removal. Harry said rotenone is still an option.*
- Starvation Reservoir escapement: The **Committee** will hear more about escapement control options once the **strategy work group** can discuss **Reclamation**'s evaluation. **Dave Speas** will see if he can find out when USBR-Provo will provide their *evaluation (2/21/14: pending; Paul Badame said Reclamation has asked for more information)*; **Krissy Wilson and Paul Badame** will call for a follow-up meeting (will include CUWCD). **Paul Badame** will send Tom Pitts his presentation, his report, and the 2005 escapement report and then schedule a call with Tom to review. *2/21/14: If an in-reservoir net solution is selected, Krissy believes a portion can be paid for with UDWR boating safety funds. 6/11/14: an in-reservoir net is no longer considered an option. UDWR will treat the spillway stilling basin in September 2014, then meet with stakeholders to discuss engineering and costs for a metal fence-type structure to be installed before next year's spill.* >***Paul Badame*** *will revise the description of this alternative in the Starvation plan.*

4. **The Program Director's office** will work with States to compile all the Lake Management Plans. *Pending — McAbee. 2/21/14: Kevin received a number of plans from Utah (though three still under review are outstanding), Pete and Harry are working on compiling Wyoming and Colorado's. 6/11/14: Harry has almost completed his list and Pete Cavalli just sent Kevin a large number of plans.*

5. The **Program Director's office** will recommend boilerplate language (including identifying reduction targets) to be used across applicable nonnative fish management scopes of work. *Pending (PD to include in FY16-17 Program Guidance).*

6. **Kevin Bestgen** and Dale Ryden will work up estimated costs for addressing additional razorback data being

collected (need for additional data analysis on both Green and Colorado rivers). *Dale said Kevin wants to wait until after the end of the field season to ascertain the number of records to be analyzed (probably ~150,000 fish records). This may be a fairly involved effort. 2/6/14: FWS project #163 has task for razorback pop. est. in Gunnison and Colorado, though not enough razorback captures/recaptures to do much with the Gunnison River data. Osmundson developed razorback matrix for 2008-2010 and Gary White ran this data through Program MARK in 2013 (data to be reported in 2015). PIs recommend also including 2013 razorback data (from the Colorado River pikeminnow population estimate study) in this analysis ($2K in SOW for White to help with data analysis in 2015, adding 2013 razorback data shouldn't add to cost). Developing razorback population estimates in the Green and Yampa will be more difficult, probably not in existing SOWs, and probably should be separate effort. PD's office will discuss costs/mechanism (e.g., add-on to #128) with LFL. 2/21/14, cost estimate pending from* ***LFL****).*

7. **Brent Uilenberg** and **Harry Crockett** will be working with CPW and Reclamation engineers to evaluate the potential for a permanent barrier downstream of the 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.*

8. **Harry Crockett** will look into what it would take to add a marking pass in Billy Atkinson's reach on the upper Yampa. *6/11/14: Harry noted this is somewhat confounded since John Hawkins doesn't anticipate completing a marking pass this year.*

9. **Harry Crockett** will contact **Jackson Gross** and let him know the Committee appreciate Smith-Root's interest in the Snyder Pond work (and willingness to bring considerable cost-share) *(done)*, but would like to see a proposal that includes evaluation of success and a report. *6/11/14 Jackson indicated that the availability of hydraulic pumps had been a problem this spring, but that pumps are now available from Smith Root.*

10. The **Program Director's office** (Czapla) will discuss Ouray electric repairs with Reclamation and Dave Schnoor. *6/11/14: Tom Czapla reported the hatchery also has had well problems, and Reclamation has drilled two new wells. Tom thinks the Service may be able to fix a number of the electrical problems.*

11. **Harry Crockett** will discuss with CPW Krissy Wilson's proposal to provide $10K to Colorado toward upgrading a hatchery to produce more and larger tiger muskies in exchange for half the fish production. *6/11/14: Harry said CPW is still interested in sharing fish, etc., but this project is done.*

12. 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. *6/11/14: Pending.*

13. The **Nonnative Fish Subcommittee** should discuss need for completing long-term syntheses for Yampa River native fish response and Lodore/Whirlpool Canyon (funding has not been available so these syntheses had been placed on hold).

14. The PD's office (**Czapla**) will ask LFL when the cyprinid key will be completed and ask Darrell to report his progress and anticipated submission date on the next call.

15. The **PD's office** will review and summarize fish screen operations over a longer period of time (and as it relates to hydrology and conditions under which the irrigators are not required to operate the screens). **Jana Mohrman** and **Tom Pitts** will discuss concerns about fish screen operation with Brent Uilenberg and Bob

Norman. *6/11/14 Jana has been compiling history.*

16. The **Program Director's Office** will work with **Western, Reclamation, and Kirk LaGory** and others to incorporate the two Flaming Gorge "discussion papers" (evaluation of flow recommendations and experiment to disadvantage smallmouth bass) into a draft scope or scopes of work in advance of the June 11 webinar. *6/11/14: Pending.*

17. **Harry Crocket** will let the Committee know when CPW will make their draft Elkhead plan available. *6/11/14: CPW and CRWCD don't have date yet, but are planning public meetings in September.*

18. **Doug Osmundson** will revise recommendation #3 and finalize his Colorado pikeminnow population estimate report.

19. The **Program Director's office** will attach an errata sheet to Appendix C of the Basinwide Strategy.

20. **Harry Crockett** will investigate whether woody debris can be removed from Ridgway Reservoir by means other than spilling. **Harry** also will circle back with CPW on conducting the necessary reconnaissance to understand distribution of smallmouth bass upstream of Ridgway. Harry will investigate if other CPW regulations have a more sociological/economical basis.

21. Harry Crocket related a message from John Hawkins who recommended that once the Yampa River high flows subside, we cancel the Steamboat/Hayden smallmouth bass removal pass because of potential impacts to trout (and thus, landowner support) later in the season. >**Kevin McAbee and others** will discuss this.

Attachment 2: UDWR Field Season Update

NERO/Vernal office field summary

We electrofished in sections B and C on 4/29, 4/30, 5/6, and 5/13, avoiding shocking entirely in the vicinity of Razorback bar. On 5/6, >40 razorbacks were caught by the two boats in section B, and spawning aggregations were noted in section C, leading to stretches of river being skipped on account of high razorback densities.

Take home message is that we are seeing RZ spawn in numerous areas and not just designated spawning bars (razorback bar and Escalante bar); important to know. Our section C begins at RZ bar and continues downstream for 5 miles. The gist of it is that we observed extremely high densities of razorback, all or most in spawning condition, the entire length of river between the two known spawning bars (approximately 2-3 river miles).

Fyke: 135 overnight sets (btwn 3/17 and 5/20)
3 CPM
6 WE

MC EF: 5730.68 min effort (btwn 4/14 and 5/15)
23 CPM (catch rate = .24/hour)
80 WE (catch rate = .84/hour)

Trib EF: 780.16 min effort (btwn 4/15 and 5/21)
2 CPM (catch rate = .16/hour)
4 WE (catch rate = .31/hour)

UDWR Stewart Lake Report, Spring 2014

Preparations for entrainment of larval razorback suckers began in early May with barge electrofishing for carp in the shallow residual watered channel, which revealed evidence of northern pike spawning (6 spent adults of both sexes). To eradicate juvenile pike, a rotenone treatment was applied on May 20th. On May 28th, USFWS light trapping detected razorback sucker larvae at Cliff Creek, triggering increased Flaming Gorge releases. Planning on a lag-time of several days between larval detection and arrival of supplemental water at Jensen, on May 28th we installed a weir system with in- and out-traps on the river-side of the concrete outlet gate structure. (Since installation, the traps have been monitored 24/7 by rotating crews). With over 15,000 cfs at Jensen, the water level on the river side of the Stewart outlet gate was ~10 cm above the 1.8 m high rods in our weir panel at the time of installation (by a swimmer), necessitating attachment of wire mesh extensions and blocking nets on top of the structure to raise its height. On May 29th, sandbagging along the submerged floors of the traps was completed to prevent any gaps, and backpack electrofishers were used to shock the pool—now sealed—between the weir and the gate. No fish were seen or caught during shocking. Daily light trapping failed to detect any razorback larvae staging in the Stewart outlet channel until Sunday, June 1st, on which day we partially opened the gate and began filling. Constrained by a bottom-hinged outlet gate designed to swing open toward the river, we experienced considerable difficulty pushing the gate open against a high head of water, leading to the rental of a backhoe. With the backhoe bucket, the gate was pushed open, but could not be secured against the current; it ultimately slipped free of the bucket and swung open into Stewart, breaking off two vertical

support beams. Despite now articulating in the wrong direction, we still have control of the gate's angle through cable attachment to the gate wheel. As river levels fluctuate, we have made minor adjustments to the inflow, striking a balance between quickly filling and keeping the current gentle enough to protect the integrity of our weir installation. We have also tried to avoid flows that result in a violent hydraulic that would be unfavorable to larvae. With recent Green River flows between 19,000 and 20,000 cfs, we have seen small flows over the road at two low spots, both of which have been secured with blocking nets to prevent entry of adult nonnatives into the wetland. On June 8th, the inlet gate (also protected by a weir panel) was opened slightly for the first time, and water is now flowing into Stewart Lake through both the inlet and outlet canals.

Daily light trapping inside Stewart Lake confirmed the first larval razorback sucker on June 5th, and capture rates have been slowly increasing since then (with 8 confirmed RZB on June 7th). Once the water level inside Stewart reaches equilibrium with the river, both gates will be closed, entraining the greatest possible water volume in the wetland throughout the summer. Densities and development of larval razorback suckers will be continually monitored.

SERO Moab office update

Spring Project Updates:

Larval Razorback Sampling: This year we have doubled our effort for this project and have expanded our sampling into the Colorado River in addition to the Green. We began sampling using light traps in the beginning of May and will continue until mid-June. We have collected larval fish throughout the river in almost all of our sites on the Green and Colorado River. We do not identify these samples to species in-house but Brian has been able to identify them as suckers. We are quite excited about the findings on the Colorado as this is the first year of this effort. This past week our crew set light traps in 9 flooded tributaries and washes on the Colorado from Moab downstream to RM 21.2 and captured larvae in every light trap that was set! Obviously, I'm pretty excited about this and can't wait to send them to the Larval Fish Lab for identification. We continue to collect larvae in all of the sites we sample on the lower Green as well. Julie is the PI on this project and Jonathan has been helping her coordinate the effort. Once spring sampling concludes, Julie will write an update to send out to the Biology Committee and other interested parties.

Lower Green Walleye Removal: We began sampling in March just downstream of the Tusher Diversion Dam. Due to river levels, we could not sample from a boat so we focused our effort using other equipment: fyke nets, trammel nets, hoop nets and angling. We did not have much success with any of this equipment without boat access. Once we were able to motor to the site (6000 cfs- April 23) flows were too high to safely and effectively set this equipment. One walleye was captured. However, once we were able to use motorboats we immediately switched to electrofishing from Tusher down to Ruby Ranch. This proved much more effective. Flows in the lower Green have been ideal for electrofishing this spring and we are capturing more fish of all species than the last two years (2012 and 2013). This is not a huge surprise as we are able to access a lot more habitat with higher water. We've seen hundreds of razorbacks and more pikeminnow than I remember catching during the past two years- mostly found in flooded vegetation and flooded tributaries that were not open in 2012 and 2013. I haven't looked at total number of walleye removed yet but I would guess it is around 150. Julie is technically the PI on this as it is funded under smallmouth bass removal but Chris (with help from Zach A) has been heading up most of the field work. Chris will write up a more thorough update once sampling concludes in the next few weeks. Seems like when flows allow, electrofishing is the way to go. My one concern with this spring electrofishing approach is that we are also hammering the native fish in a season and location that is particularly important to them. Thoughts?

Outreach: We were asked to present at the annual BLM Guides and Outfitters symposium a few months ago. Chris and Zach A designed a wonderful presentation about our fish, our projects, the Recovery Programs and the UDWR. The three of us spent the day at the symposium, gave an hour presentation and gave participants a hands-on look at our electrofishing boats. It was very well received. I look forward to Chris and Zach taking their presentation to other venues/audiences in the future.

Looking Ahead:

Green River Smallmouth Bass Removal: We begin our smallmouth bass removal effort on June 14th in Desolation Canyon. We have two 7-8 day passes scheduled for Deso and four 3-day passes scheduled for Echo/Split from June thru July. I anticipate that flows during the first trip may be a bit high for optimal electrofishing but as we have to schedule these trips months out for permitting reasons, we have to do our best with what we've got. After the last two years I'm looking forward to rowing these rapids with some water! Julie is a joint PI on this project and collaborates with Tildon Jones with the USFWS.

YOY Razorback Sampling: With our light-trapping effort wrapping up in the next few weeks we will begin to focus our effort on this year's age class as they grow out of the larval stage. Depending on water levels, we will begin seining in July on the Green and Colorado and will sample each reach monthly through October. Julie will once again be in charge of this project with assistance from Jonathan.

DWQ NRSA Sampling: Zach A has been coordinating this effort with the Division of Water Quality. He attended a training in Denver last month and began sampling today.

YOY Pikeminnow Monitoring (ISMP): Chris will once again be in charge of this annual monitoring project in mid-September. We will seine backwaters looking for YOY pikeminnow on 110 miles of the Colorado and 120 miles of the Green.

Desolation Humpback Chub Estimate: This is the first year of a two-year effort. We have not done this project since 2011. We have three 8-day passes scheduled in September and October. Julie is the PI on this project. Our effort will focus on trammel netting and electrofishing with some ancillary capture methods (baited hoop nets, minnow traps) if possible.

Lower Green Walleye Removal: This will be a 10-day electrofishing effort in October on the lower Green to remove walleye and assess their distribution within the reach. We do not typically electrofish this reach other than in April and May so I am excited to see what else we find.

Wahweap Bonytail Stocking 2014

Dolores River: 24 May 2014,stocked 5278 adult PIT tagged and 5923 YOY no tags, stocked at the Rio Mesa center, 8 miles upstream of confluence with Colorado River.

White River: 27 May 2014, 5237 adults PIT tagged stocked above the Bonanza Bridge.

San Rafael River: 29 May 2014, 5158 adults PIT tagged, stocked at the Chaffin Ranch about 6 miles upstream of Green River confluence.