

Final Biology Committee Meeting Summary
Clarion Inn, Grand Junction, Colorado
January 16, 2014

PARTICIPANTS

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

Others: Tom Chart, Paul Badame, Kevin McAbee, Tom Czaplá, Angela Kantola, Tildon Jones, Julie Howard, Katie Creighton, Rich Valdez, Mike Mills, Jackson Gross, Dave Schnoor, Alecia Stewart, Matt Breen, Brent Uilenberg, Bob Norman. Via phone: Trina Hedrick, André Breton, Brett Johnson, and Brian Wolff.

CONVENE: 8:00 a.m.

1. Nonnative Fish Strategy final approval – Tom Chart said a draft went out in January 2012, his office worked closely with the States to address their comments, a revised draft went out in October, comments from Brandon and Dave Speas and revisions followed, and the January 2014 draft now comes to BC for approval (and also will go to Management Committee in light of policy implications). Brandon said that Tom did a good job of addressing his comments.
 - a. Review adding wipers to the compatible list – Tom Chart said this has been included in the revised draft strategy. Krissy offered background, noting the 2009 Nonnative Fish Stocking Procedures provide a process by which a State can propose stocking a new species not in an approved plan for the specific body of water. This proposal is to put wipers in Cottonwood and Bullock reservoirs. Krissy described a tour they took of the “plumbing” of the reservoirs, noting that they concluded it was almost impossible for fish to escape. Wipers have the ability to backcross, but we have no records of striped bass in the Green River. Striped bass are in Lake Powell, but Lake Powell managers are not concerned. Melissa expressed concern about the fact that the proposal relies heavily on the conclusion that wipers can’t escape from these particular reservoirs. Tom said the strategy characterizes approval on a case-by-case basis, so he doesn’t think it would be more easily approved in another location (from which they might more easily escape, for example). The Committee approved adding wipers to the compatible list.
 - b. Committee approval – The Committee approved the strategy.
2. Nonnative Fish Workshop review
 - a. Outcome of workshop, post-workshop, PI discussions and plans for next year

Kevin McAbee said at the workshop it was suggested to convene PI’s for smaller, species specific conversations. Kevin subsequently scheduled three webinars (bass, walleye, pike) in which the PI’s discussed recommendations and how they might work together most effectively.

Kevin said the bass discussion focused on flexibility in 2014 to shift efforts where most needed based on spawning (per recommendations from SMB assessment and projection tool). Since it’s key to disrupt the early season spawning, the group recommended a “roving surge,” a large, coordinated effort to hit spawning as it occurs in the different reaches (e.g., as the different reaches get to 16°C). Part of this idea would likely be extra boats and volunteers where needed. The group will reconvene shortly and identify

where bass spawning may be expected over time (e.g., if it's likely to be sequential in various reaches). Physical disturbance of shocking over nests also will be important. Jackson Gross described devices that could be pulled on pontoons to jet high-pressure water over bass nests (if this can be done without disrupting native fishes). The Committee agreed to the proposed flexibility. Kevin McAbee will report back to the Biology Committee as they develop their strategy. Harry Crockett asked about how we would evaluate the effect of physical nest disruption (e.g., with specialized water guns)?

With regard to pike, the PI's discussed better access to backwaters (concerns regarding seeking access and whether seeking additional access would raise unwelcome attention to the nonnative fish removal efforts). Harry Crockett suggested working through DWM's to identify landowners who are more likely to be amendable. Offering to pay an access fee is another option, though that could set precedent. The group agreed that we need to work through the DWM's and that approaches may vary on a case-by-case basis. Harry recommended prioritizing the backwaters and going from there. Krissy said Utah has a statewide access program that pays landowners for recreational access (which also applies to biologists' access) and Utah's program might offer a template for use in Colorado (e.g., on the Yampa).

The PI's walleye discussion focused on Paul Badame's presentation and how to remove walleye next year in the absence of Colorado pikeminnow population estimate passes. Travis Francis thinks he can work within his project to add autumn passes on the Colorado. To address the lower Green, Krissy said Julie prepared a proposal to add funds to 123a for a fall pass for walleye removal. Since drafting that proposal, UDWR has determined an additional spring pass would likely catch more walleye. Dale said Paul's data showed we're more effective in the spring, but that's mostly when we've been out there. Dale said they just found they caught three times as many walleye in the Cisco-Dewey reach in the fall. Julie said they'd like to do the fall sampling as proposed and add targeted spring sampling (a couple of short sections). >UDWR will modify their proposal to add costs for targeted spring walleye removal and submit it to the Committee for discussion and approval via e-mail, if possible. Kevin said the PIs thought some sort of a "walleye summit" would be useful (e.g., bringing a walleye expert to a 2014 nonnative fish workshop). Dave recommended considering getting input from successful commercial walleye fishing experts from the upper Midwest/Canada. >Kevin and Paul will work on this. Dale encouraged >agencies to fully document walleye captures (date/time, length/weight, and river mile). Katie recommended >agreeing on a protocol for otolith collection before the field season begins.

For the Committee's next gathering, Melissa Trammell has asked USU researcher Carl Saunders to give an update on the location and timing of burbot spawning in Flaming Gorge Reservoir, and the timing and location of larval samples. Burbot are spawning in most if not all of the perennial tributaries including Sheep Creek, and 10-20mm larvae were captured in June 2013 in light traps, on the surface (pelagic) near Sheep Creek (lowest reservoir larvae location). Adult abundance is still very low in the lower reservoir.

- b. Scheduling smallmouth bass projection tool workshop – the tool will be available no later than the end of January. Kevin thinks some time will be needed for André to walk folks through each step, which Kevin recommends be done via a webinar. Folks would be given a month or so to use the tool, and then have a face-to-face meeting to discuss their experience/problems with the tool, more detailed questions/scenarios, and a discussion of plans for use. André has written a user manual and will deliver that with the beta version of the tool at the end of January. Kevin suggested scheduling a webinar in mid-February (>he'll send a Doodle poll (*done 1/22/14*) since the Biology Committee scheduled a meeting for the originally proposed February 20 date); a follow-up face-to-face meeting was tentatively scheduled for March 18 in Grand Junction.

- c. State updates – The Committee reviewed the RIPRAP addendum table that Kevin annotated with information from the States’ updates at the Nonnative Fish Workshop. Harry Crockett provided an update on CPW plans for 2014. The Committee discussed coordination, communication, and future plans/responses. Harry would like to know if there are any potential new screening options (e.g., like the review UDWR recently conducted for Starvation) may offer second lines of defense. Dave Speas asked about potential work at Walton Creek; Harry said there’s enthusiasm for this and Tom Pitts mentioned Brent Uilenberg thought previous concerns have been addressed. Tom Chart said action items after the site visit were to determine if fill material is available from nearby State lands and what topography information is available; >Harry will provide follow-up on this. With regard to the private pond (LaFarge Pond near Rifle) with bass and pike, Harry said the landowner is willing to give us access to fill the notches in the dikes. Tom Chart recommended rotenoning the pond (or other wholesale removal – Tildon Jones asked about the potential to let Jackson Gross use this as a test site for high-impact sound treatment) prior to spring runoff then fixing the notches. >Harry will find out if the landowner will allow and if CPW can reclaim the pond before spring runoff; >Tom Chart will coordinate with Harry and Brent Uilenberg/Bob Norman on filling the notches.
3. Discussion of options for dealing with Starvation Reservoir walleye & smallmouth bass escapement – Krissy said UDWR will pay for part of this project, but does not believe they can cover the full costs. Paul reviewed the options for screening: 1) either a year-round screen below the confluence of the two outlet works (more expensive); 2) a smaller structure below the stilling pond (which would need to be treated after each spill); or 3) in-reservoir screening above the spillway. Ed Vidmar has said Reclamation would evaluate the alternatives. >The Committee will hear more about this once the strategy work group can discuss Reclamation’s evaluation. The group discussed options of a phased approach (e.g., starting with option 2, and later considering some other kind of innovative barrier in the outlet works). Paul said CUWCD is willing to put some sort of temporary barrier across the stilling basin below the spillway while we figure this out. Tom Pitts asked what percentage of the total release can be screened; Paul said that at the stilling basin of the spillway a 1,000 cfs could be screened (more than the total historical release). Below the confluence, screening 1200-1500 cfs would be more costly. Tom Pitts asked if we curtail escapement from Starvation, what we do about Lake Powell. Paul replied that we have to address every source we can. Melissa said we know fish are getting into the Green from Starvation; we don’t yet know how we might be able to address Lake Powell. Tom Pitts said he wants to be sure we take the most effective actions in light of the capital and O&M costs. The proposed walleye summit would be the logical place to address the Lake Powell concern. >Paul Badame will send Tom Pitts his presentation, his report, and the 2005 escapement report and then schedule a call with Tom to review. Dave Speas asked about the Duchesne; Matt Breen said Mark Fuller/Jay Groves captured one walleye below the diversion in 2009, but were unaware of sampling below Myton diversion since then. UDWR hasn’t captured any above Myton Diversion. >Dave Speas will see if he can find out when USBR-Provo will provide their evaluation; >Krissy and Paul will call for a follow-up meeting (will include CUWCD).
4. Final report review/approval: Project C-18/19 “Chemically fingerprinting nonnative fishes in reservoirs” – Dave Speas said some of his comments weren’t addressed. Dave would like to work with the Program Director’s office and Brett on cleaning up a few things in the report. Kevin said he’d noticed some editorial things (spacing, etc.) that still need to be cleaned up. Dave asked why the analysis of the reservoir signatures was so elaborate (whereas Figure 3 seemed clear-cut); Brian said Figure 3 is an overall diagram with all species and all years. Some of the additional analysis went further to use predicted confidence intervals around reservoirs (a more conservative analysis). Dave asked about “Until more is known about factors driving nonnative fish movement past dams, outlet barriers and altered dam operations that 1)

minimize spills and 2) keep the reservoir surface as far above penstocks as practical may be the most effective approach to minimizing downstream emigration of nonnative sport fish,” wondering how reservoir operators may interpret that. Brett said he thinks this is logical inference from the data and is willing to revise the statement to reflect that. Dave also asked about the word “conducive” in the conclusions and suggested he work with Brett on that language (recommend “allows”, instead). >Brett will draft something for Dave’s review, and then he and Dave will propose revised language to the Committee via e-mail. Tom Chart thinks the conclusions regarding dam operations should remain; Dave said he just wants to somewhat soften the language. Tom Pitts said he supports language from Dave indicating that decisions would be made on a case-by-case basis. Dave Speas suggested “may be an effective approach” instead of “may be the most effective approach” (since other approaches, like screens, are other options). Dave and others asked about the emigration rankings on page 67. Brett said more data would be needed to determine the utility of the risk index. Dave recommended including a statement about how to understand and use the risk index. >Dave will send a few comments to Kevin McAbee who will work with Brett to see if they can be reasonably addressed. Jerry said the spillway was also used briefly in 1997; Brett will note that. >Kevin will summarize any changes made and seek Committee approval via e-mail. Pete Cavalli asked if Brett knows of another isotope that could distinguish fish from, for example, Lake Powell or Starvation. Brett said he doesn’t at this point.

5. Tusher Wash update

- a. Update on potential entrainment solution concept design – Kevin reviewed the features of the diversion and new findings from a recent tour of the area. Current sluicing structures may not be well suited for fish due to debris and low water, making it difficult for fish to return to the river. High numbers of fish have been detected by the PIT antenna. It seems the hydro trash rack will “funnel” larger fish disproportionately into the Green River Canal. Kevin said Reclamation contracted with Smith-Root to investigate feasibility of an electrical barrier. Smith-Root evaluated three options for an e-barrier (in-river, and at two locations in the raceway) and recommended the in-river location based on flow variables, ease of fish return, and other benefits. The Program Director’s office and Reclamation reviewed literature and past projects/expert opinions and believe a key for effectiveness are approach velocities under 1.6 ft/s which have the ability to guide fish. They concluded we need to maximize controlled areas with slow velocities; therefore the three options Smith-Root provided would have high uncertainty and risk of poor performance due to water velocities, large volumes of water, and long distances for fish movement (raceway width). With this risk seeming too high, the proposed revised solution is to provide a fish return in the Green River Canal, downstream of the hydropower facility. Benefits are reduced volumes of water, easier to slow velocities, all disproportionately funneled adult fish would be returned, and the irrigators support this solution. Detriments are that larval and small fish still enter the hydro facility (fate unknown) and it wouldn’t screen the 35 cfs irrigation intake at hydro facility (which has a 1-inch trash rack). Bob Norman described how the revised solution would be similar to the Hogback Weir. The idea would be to create a weir wall with tall “saloon-style” gates at the end. It would involve lining ~1,000 feet of the canal with concrete (up to the inlet). The weir wall would end by emptying fish into a ~54” plastic pipe back to the river. A way would be provided to sluice sediment. At the top of the wall, electric nodes would be installed to keep fish down low in the water column to facilitate return to the river. Kevin said this proposal would encourage fish to take a path they’re more naturally inclined to take. Even with the water needed to operate the weir, only rarely would flows be too low to pass over the diversion, and fish passage will receive first priority for that water. Bob Norman clarified that smaller fish would still go through the hydro plant (which is not entirely fitted with “fish-friendly” turbines). Melissa said this plan will address most of our problems (and we can consider a mortality study in the future if we think it remains a concern). Tildon noted that

the pikeminnow detections in the canal were approximately as many as Tildon caught in all his 2013 CPM pop estimate work (~120 miles x 3 passes), which is 10% of the total population. The Committee agreed to support Bob and Kevin continuing down this new path and investigating the electrified weir solution.

- b. Research to support e-barrier operation – Jackson Gross reviewed a proposal to evaluate effectiveness of a weir-wall electrical barrier. Jackson described possible electrical configurations, experimental raceways (recommending the NDOW Lake Mead Fish Hatchery), and study design. The study will be structured according to Committee direction/input. The physiological response of the fish would be characterized over a range of variables. Bob Norman emphasized the need to determine if fish stay down in the water column due to the electrical field or light avoidance. Jackson thinks the study can be done in a span of about 2 months. Dave proposed giving the Committee some time to consider the proposal. Kevin recommend that we first prioritize the variables we want to study: species, size classes, flows, conductivities. Jackson noted flows without electricity might be a control under which to evaluate effectiveness of the weir wall alone. Jackson welcomed input from Committee members on development of a study plan.
6. Cooperative Recovery Initiative proposal – Tildon Jones described a proposal submitted for Johnson Bottom (146 acres) on the Ouray NWR under the Service’s CRI initiative. In FY 2014, the Service proposes to spend \$4,326,000 on restoration and recovery of federally listed species on National Wildlife Refuges and surrounding lands through this initiative. The CRI provides opportunities for focused, large-scale conservation efforts that typically have few venues for funding, and leverages Service resources towards higher priority endangered species. Projects must implement on-the-ground actions that lead directly to recovery or reduce the likelihood of extinction and whose results can be measured. Tildon said they submitted the proposal under the “reduce likelihood of extinction” avenue. Tildon said they’d thought of work at Old Charley a few years ago, but the lease is currently expired. Tom Chart said they discussed locations with Matt Breen and others at UDWR, who supported doing this work at Johnson Bottom. Tildon described the proposal, which would modify Johnson Bottom to easily entrain, grow, and release larval fish (very similar to Stewart Lake operations). The project would allow Johnson Bottom to flood via a canal at ~8,000-15,000 cfs (in low water years). It would then modify the contours of the wetland so it can be easily drained (increasing fish survival during draining). The cost would be ~\$300K (~\$200K for dirt work by USBR-Provo), and includes a large pump to maintain water levels for summer growth and survival. The project would entrain wild razorback larvae from the river and return juveniles back into the river each year, especially during dry years. Work could hopefully be done this fall and entrain water and larvae in 2015. Tildon noted that Johnson can overwinter fish, but that as of now, that is not the current plan. The proposal has been included among three the Service’s Mountain-Prairie Region submitted to their Washington headquarters. Melissa Trammell supported the project and asked if there was any way Committee members can help support it; >the Program Director’s office will check.
7. Elect 2014 Biology Committee vice-chair – Pete Cavalli said the State of Wyoming can’t do this, so Krissy said Utah would.

BC chair rotation through time

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|-----------|------|---------------|
| 1998-1999 | BOR | Larry Crist |
| 1999-2000 | FWS | Frank Pfeifer |
| 2000-2001 | WAPA | Art Roybal |
| 2001-2002 | WY | Paul Dey |
| 2002-2003 | BOR | Tom Chart |

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|-----------|------|----------------------|
| 2003-2004 | Utah | Kevin Christopherson |
| 2004-2005 | NPS | Melissa Trammell |
| 2005 | CDOW | Tom Nesler (1/2) |
| 2005-2006 | BOR | Dave Speas (1.5) |
| 2006-2007 | WY | Kevin Gelwicks |
| 2007-2008 | Utah | Krissy Wilson |
| 2009 | FWS | Dave Irving |
| 2010 | NPS | Melissa Trammell |
| 2011 | NPS | Melissa Trammell |
| 2012 | CPW | Harry Crockett |
| 2013 | WAPA | Jerry Wilhite |
| 2014 | BOR | Dave Speas |
| 2015 | Utah | Krissy Wilson |

8. Discussion of action plan for establishing refugia for humpback chub (e-mailed to Committee on 10/22/13, with subsequent e-mail discussion) – Tom Czapla received comments from Dave and Tildon and is trying to reach Wade Wilson regarding his genetics work on the fin clips we’ve provided. Wade also was working on an Ne for the Grand Canyon population; Dave Speas said he just received that draft. Dale said they plan to bring in more fish this year. Tom Chart said he thinks the question is whether to use purely lower basin broodstock, and, assuming not, the purity of the Black Rocks/Westwater and Green River fish if we’re going to include them in broodstock development. Tildon recalled that hybridization may be adaptive strategy to our stocks to survive changing conditions. Melissa noted that the Douglas’s did not recommend just using Grand Canyon stock. Melissa said she thinks the document could use some restructuring. Melissa agrees we need to conduct a workshop and recommended participants also should make recommendations on when and where fish would be stocked. The workshop would happen after receipt of Wade’s report (unknown if he’ll provide a report on the upper basin genetics; >Dave and Tom Chart will see if a deliverable was mentioned in the lower basin scope of work). Tom Chart recommended outlining questions for a workshop, conducting the workshop, and then finalizing the action plan.

9. Discussion/approval of draft RFP/FOA language for web-based database development (e-mailed by Tom Czapla to the Committee on 11/8/13, with subsequent e-mail discussion) – Dave Speas said that in light of the very large amount of PIT data being collected, this database would need to be automated, online, and accessible to PIs. Dave outlined data to be included. If funds are available, Dave thinks we might be able to issue the funding opportunity announcement (FOA) this year. Based on the antenna data he’s dealing with, Kevin McAbee believes this database absolutely is needed. The current system is inefficient and not completely accurate and we’re reaching a data management tipping point. Harry Crockett said Colorado law prohibits direct release of data collected on private property; there’s likely a way to work with this, but we’ll have to figure it out. For example, the 3-Species data has public level and a biologists level access. The Committee recognizes we may eventually need a full-time database manager; however, we’ll need to wait and see what a contractor recommends it will take to manage the data. Tom Pitts said we’ll also need processing abilities (interface) so it can be easily queried, etc. Dave said this would certainly be included; Tom Pitts recommended making it more clear if it’s implied in the current draft FOA language. Tom Pitts also recommended automating data input as much as possible. What can’t be automated will need to have foolproof electronic data entry forms. Dave Speas asked that >folks quickly send him comments on anything else he should consider including in the FOA. Tom Pitts suggested that Task 1 for the contractor may be to develop a detailed scope of work after talking with PIs, etc. Kevin suggested that said another way would be to give PIs and other key people an opportunity to ask questions of the top proposals; Dave indicated that PIs could be asked to participate in a technical evaluation panel as part of BOR’s selection process. Several Committee members thought the current draft FOA language contains adequate

information for a competent contractor to develop a proposal and it can be further fleshed out once a contractor is selected. Paul noted that the RFP for the 3-Species database had a similar level of detail and resulted in a successful contract. Tom Czapla suggested funding the database/management itself might be ripe for submitting under a NSF's long-term research in environmental biology program next year. Pete Cavalli asked if specific habitat information (e.g. conductivity, etc.) should be included in the data entry form; Dave replied that language covering such data was included in the draft RFP language.

10. Review previous meeting assignments – See Attachment 1.
11. Review reports due list – The Program Director's office will check with Kevin Bestgen on the estimated due date for the late backwater synthesis report.
12. Schedule next meeting and outline agenda – Agenda items likely will include Maybell Ditch report, Tusher Wash, nonnative fish items, RIPRAP revision/assessment review, and potentially the Colorado River CPM population estimate report. The meeting will begin 8:00 a.m. on the February 20th and conclude at noon on the 21st. The Program Director's office will arrange the meeting room. Tom Czapla said BioMark would like to schedule a workshop to showcase new technologies and will be contacting PIs, etc. about it.
13. Review and approve October 10, 2013, Biology Committee meeting summary – Angela Kantola will revise and distribute the final revised summary (*done*).

ADJOURN: 2:07 p.m.

Attachment 1: Assignments

(Asterisked items were on the meeting agenda; items preceded by a “-“ can be deleted after this summary)

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). **Tom Czapla** will work with **Kevin McAbee** and **Dave Speas** (and keep Tom Pitts in the loop) on developing a recommendation for how to accomplish Objective 1 of the proposal (determine the minimum electric gradients needed to prevent downstream passage while minimizing the risk of injury). 11/1: *Kevin sent list of BC/PDO questions, comments, and ideas to make the proposal for Obj. 1 more complete to Jackson Gross (who responded he’d begin laying out a strategy to answer the questions). Smith-Root/Program will discuss if this study needs to be accomplished before e-barrier installation (to determine potential effectiveness levels, barrier configuration, or velocity requirements) or only after installation (to determine effective electrical gradients for an existing e-barrier design and structure).**
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.*

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 recommends 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.*

&Humpback Chub (broodstock development / genetics)

- *3/6/12: **Tom Czapl** 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 Czapl 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 Wayne'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.*
 - *10/16/12: 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 ~40 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. & Flaming Gorge/Green R burbot: **Melissa Trammell and Pat Martinez and Krissy Wilson and Jerry Wilhite** will work on a Flaming Gorge burbot risk assessment. 10/16/12: They held a conference call August 30 and October 15; will have another call November 20, and Melissa will present something to the nonnative fish workshop (done). UDWR is funding two studies (food web and early life history). Late this season, Tildon tried baited hoop nets and other methods in the Green River and did not capture burbot. 12/7/12: **Melissa** will provide a draft to the ad hoc committee members in early February. 1/29/13: **Melissa** asked if **UDWR** could include larval burbot sampling near the spillway in their current work in Flaming Gorge; **Krissy** thought they could. Tildon asked and **Krissy** said they're not doing any sampling in the tailrace for burbot. **Melissa** will provide a draft assessment to the Committee by the end of July 2013. 1/16/14 – **Melissa** assured she'll have this done by the end of February.
4. & 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 **Program Director's Office (Pat)** will provide specific protocol for handling nonnative fish during other work like Colorado pikeminnow estimates (i.e., which species to target, measure, take otoliths from, etc.) and reporting the data (5/2/13: done; main question was when to take otoliths and **Pat** has informed **PIs** to take otoliths from new species or new occurrences of established species in new areas). Walleye, pike, gizzard shad, and other anomalous fish all should be removed. The **Committee** will review the report **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*
 - 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).*
 - ***98c & Upper Yampa: Potential PIs** and the Biology Committee will discuss possibilities for 2014 and make a recommendation for consideration during the 2013 nonnative fish workshop. **Colorado Parks and Wildlife** will review landowner permission for access. Meanwhile, **Harry** also will see if by any chance Billy could add an electrofishing pass from Steamboat to Hayden to the 98c work they've been funding (in 2013). *5/2/13: The 2-3 passes in the upper third of 98c that were done last year will be repeated this year, but Harry doesn't know yet if they'll have landowner permission to work in the remainder of the reach. Three to four times as many pike were collected in 2004-2005 in the upper third of the reach where CPW knows they can sample, however. 7/10/13 – Harry said they worked the upper reach, but won't be able to access the lower reach this year. 1/16/14 – Harry thinks this electrofishing pass needs to be done, but they can't do it without funding due to their budget cuts; CPW is amenable to FWS doing this work. >Kevin McAbee will coordinate with CPW and FWS PIs to provide a draft proposal (from CPW or FWS or both) for Committee review.*
 - Harry Crockett will discuss tube net and rigid weir options for screening the Highline Lake outlet works in future test operation with the engineer. *1/16/14: Done.*
 - ***Walleye: UDWR** will modify their proposed addendum to 123a and submit it to the Committee for discussion and approval (via e-mail, if possible). **>Kevin McAbee and Paul Badame** will work on organizing a "walleye summit" with appropriate outside expertise. **PI's** should fully document walleye captures (date/time, length/weight, and river mile). **>Protocol for otolith collection** is needed before field season begins.
 - ***Kevin McAbee** will send out a Doodle poll to schedule a webinar for André Breton to walk folks through the smallmouth bass projection tool. A follow-up face-to-face meeting is tentatively scheduled for March 18 in Grand Junction.
 - ***Walton Creek:** Action items after the site visit were to determine if fill material is available and what topography information is available; **Harry Crockett** will provide follow-up on this.
 - ***Private (LaFarge) Pond near Rifle:** **Harry Crockett** will find out if the landowner will allow and if CPW can reclaim the pond before spring runoff; **>Tom Chart** will coordinate with **Harry and Brent Uilenberg/Bob Norman** on repairing the notches.
 - ***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; **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.
5. ***Database Management:** The **Program Director's office** will work to define the overall problem/need to improve data management in light of the increased PIT antenna data, draft an overall schedule, and bring

that back to the Committee in advance of the December meeting for discussion. 3/8/13: PD's office provided draft prior to the March Biology Committee meeting. **Tom Czapla will work with Scott Durst, Travis Francis, and Kevin Bestgen**, to develop a problem statement. 5/2/13: Conference call scheduled for May 24. **Dave Speas** will talk to Mark McKinstry about collaborating with this group to develop a scope of work. 10/10/13: Travis Francis, Koreen Zelasko, Scott Durst, Tom Czapla and Dave Speas have held -3 conference calls developed list of requirements. They're reviewing a draft RFP that will go to the Biology Committee, perhaps by the end of next week (sent to Committee 11/8/13). 1/16/14: **Committee members should quickly send Dave Speas any additional comments regarding what they want incorporated in the FOA.**

6. **The Program Director's office** will work with States to compile all the Lake Management Plans. Pending — McAbee. (Krissy said she believes she submitted information to Pat in the past, but can do so again).
7. **The PD's office** will work with **Harry Crockett, Krissy Wilson, Dale Ryden, and Pete Cavalli** to review the otolith analysis situation and make recommendations for FY14-15. *Deferred pending available funding.* >Dave Speas will discuss with Bill Pine, who has a source(s) for this work.
8. After the nonnative fish workshop, 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.
9. **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. 1/16/14: in process.*
10. **Dale Ryden** and **Harry Crockett** will work on next steps for the electrofishing course to be held at Highline Lake the third week of August (updated roster of boats and attendees, etc).
11. **Brett Johnson** will draft revisions to the Project C-18/19 final report for **Dave Speas'** review, then he and Dave will propose revised language to the Committee via e-mail. >Dave also will send a few comments to **Kevin McAbee** who will work with Brett to see if they can be reasonably addressed. Kevin will summarize any changes made and seek Committee approval via e-mail.
12. The **Program Director's office** will find out if there are ways Program partners can support the CRI proposal for the proposed work by FWS at Johnson Bottom on the Ouray National Wildlife Refuge