

Biology Committee Webinar Summary
9:00 a.m. – 3:15 p.m., Tuesday, May 4, 2012

PARTICIPANTS

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

Others: Pat Martinez, Tom Chart, Angela Kantola, Joe Skorupski, Matt Breen, Kevin McAbee, Jana Mohrman, Tom Czapla, Kevin Bestgen, Aaron Murphy, Bob Norman, and Carl Burger.

CONVENE: 9:00 a.m.

1. Review reports due list – The Committee revised the due dates to the cyprinid key and backwater synthesis report to September 30. The pikeminnow population estimate report may be submitted closer to the end of May. >Angela Kantola will send out a revised list in advance of the next meeting.
2. Review of position paper on role of the Price River – Tom Chart e-mailed a revised draft of this report on April 23, 2012. Tom Chart discussed changes, including looking at different years and a better representation of a range of flows between July – September which should provide for Colorado pikeminnow use from April to October. In response to water user comments, Tom said he included a paragraph about Section 7 consultation and added Table 6 and Figure 7 to clarify July-September flows, and took a closer look at sampling conditions in years when one pikeminnow captured in each year. Tom Chart described minor changes he made after a conversation with Tom Pitts yesterday. Dave Speas suggested a schematic or step-wise description of some kind might help explain how they came to the Price flows. Tom Pitts said he thinks the conclusion about the frequency analysis is the important part. Dave Speas suggested adding something along the lines of “the purpose of this is to derive exceedances in looking at the Price River gage” after the first sentence on page 16 (or this could go in the overview). Tom Chart said he’d try to put it in both places. Krissy agreed, noting that if this document is what we refer to as we work to provide flows, it will be helpful to more clearly explain our process for deriving the exceedance range of flows. In the overview, Melissa suggested moving the “when the Woodside, Utah gage was inoperable” sentence to the beginning of the next paragraph where the other gages are discussed. The Committee felt the revisions improved the report and approved it with the minor additional revisions just discussed. >Tom Chart will finalize the report and submit it to the Management Committee.
3. Review of "Native Fish Response to Nonnative Fish Removal from 2005-2008 in the Middle Green River, Utah" – Pat Martinez e-mailed this final draft report to the Biology Committee on March 5, 2012. Joe described the major concerns addressed: 1) goals and objectives outside of the scope of work were removed; 2) correlation analyses of biotic and abiotic variables removed; 3) addressed smallmouth bass and northern pike information /timespan of pre and post-removal analyses; and 4) removed discussion of electrofishing impacts to native fish. No definitive response of native fish was detected (likely due to project duration and level of effort). Dave Speas said this is a much improved and more focused report (Harry Crockett and Krissy Wilson agreed); though he would suggest some changes to the explanation of statistics (>Dave will send Joe those comments by the end of next week). Joe explained how he used ANOVA (will clear this up in the methods). With regard to bluehead suckers, Joe described the varied responses, so that needs to be made clear (the third conclusion leaves out “potential” response). Dale said in the San Juan, they’ve been trying to detect responses of bluehead and flannelmouth suckers for ~16 years and have found it very difficult. It seems to take a huge decline in nonnative fish populations to see a native sucker response (and bluehead and flannelmouth aren’t necessarily good surrogates for razorback suckers). >Dale will see if there’s a citation from a San Juan summary document that he can send Joe. Melissa suggested mentioning intensive smallmouth bass removal in reach above the study reach (page 7). Also, in

some places smallmouth bass removal is described as “intense” and elsewhere as “minimal). Joe will clarify (e.g., deleting “intense” at the beginning of the discussion. Pat Martinez said Phaedra Budy provided a general trend over time of the three species, and it might be useful to connect this as a citation (supports the length of time it takes to see a response), but Krissy said this is currently preliminary data analysis. “Feasible” in the second recommendation should be “sufficient.” Also, find a different term to describe the sampling timing concern (instead of “limiting factor”). The parenthetical “i.e., while nonnative predators are utilizing the same habitats” assumes they *are* using the same habitats, so that needs to be clarified, too. Dave asked if the speckled dace absence has continued; Joe said it has. Line 457 should read “represented by low abundances.” Melissa suggested explaining why all five species aren’t shown across figures 4 – 6. The Committee approved the report with the foregoing revisions; Committee members will send any additional comments by May 11; >Joe will revise the report and send to the Committee by for final approval by May 25, then the Committee will approve via e-mail by June 8 (with no response indicating approval).

4. 2012 field operations/schedule adjustments – Some 2012 field activities/schedules may need to be adjusted in light of predicted low flows. Pat Martinez said the Nonnative Fish Subcommittee agreed that field personnel will know firsthand what changes need to be made as the field season unfolds (e.g., can they complete scheduled passes, can they move passes up, etc.); therefore, we need to afford them flexibility probably not spelled out in SOWs to adapt to flows. The Subcommittee suggested Pat Martinez discuss and approve changes on behalf of the Biology Committee in light of quick responses needed. Tom Chart outlined work we likely can’t do this year in light of low flows: running fish passages on the Colorado mainstem (since contracts specify that passages won’t be operated if they interfere with irrigators ability to take their full water right); and floodplain studies (UDWR study hopefully will continue with Stewart Lake connected, but FWS-Vernal floodplain work at higher flows may not occur this year). Tom suggests using those crews/funds on any additional nonnative fish removal effort that can be made. Dale said Aaron thinks he can still get into Old Charlie Wash, also could do nonnative fish removal in Thunder Ranch. The Service also will be working to get as many passes on the White and the Yampa, moving those up to earlier in the season. Dale said the Service may put a third raft on their nonnative fish control passes, and also continue work downstream from Loma to Westwater. The Service also may be able to help with the surge. Matt said UDWR is trying to get as many passes in as quickly as possible (e.g., White River passes as soon as they complete the pikeminnow work). Middle Green River bass removal will proceed as planned. And they should be able to put more effort into the pikeminnow backwater effort. We may not get enough water into Stewart to do 4 weeks of sampling, but they will proceed with this project as-is for now. The pikeminnow estimate passes were stalled by variable flows and they need to do one more pass. The Committee appreciated the update and agreed the field crews will need to continue to make adjustments in response to flows (>with PI’s providing e-mail updates on changes and conditions and news to the Biology Committee as things develop, since this year will be so unusual). Annual reports also will need to discuss what changes were made from what was outlined in SOWs. Dave Speas said Reclamation will try to be flexible with regard to changes in response to flows and work to solve any funding problems (e.g., moving funds from one project to another) as they come up. Reclamation’s main focus is whether deliverables/objectives are met. Tom Chart asked about access to the lower White River; Dale said Mark Fuller has been helping and the permit requests resubmitted to the Tribe, but there’s no news yet. Jana said the White River flow recommendations would be helped by low flow data points from this year, so she’s asked around to see if TNC or others might want to fund RHABSIM work like that Modde et al. did previously. The Green River peak hopefully will be 8,300 cfs; folks will be out looking for razorback sucker larvae next week.
5. Proposal for electrical fish barrier at Tusher Wash diversion – Tom Czaplá e-mailed Smith-Root’s proposal to the Committee on April 2. Aaron Murphy joined the call to answer questions regarding barrier specifications, effectiveness and maintenance; impacts on drifting larvae; etc. (see also subsequent e-mails from Tom Czaplá and Melissa Trammell). Tom Czaplá said a small *ad hoc* group has been working on a mortality study and considering screening, at minimum, the Green River Canal Co. irrigation canal. This proposal would divert fish with an electrical barrier at the top of that irrigation canal. Pete Cavalli noted

that on page 4, where it says the Green River has an average flow of 28,000 cfs, this must be the average *maximum* flow. Melissa said average peak flow is 26,000 cfs. Aaron Burger said they would conduct further analysis to understand flows and velocities at the barrier site. Pete asked about fencing; Aaron said the 8x12' control unit building and any associated back-up power (generator, propane) would need to be fenced. The barrier adjacent to the riverbank would need to be fenced, also, but there wouldn't be any fencing in the water. Pete asked if there's concern about debris hanging up on the equipment placed in the water. Aaron said no, because the electrodes can be flush mounted and recessed into a concrete slab. Pete asked about sedimentation and Aaron said they've experienced sediment up to 2' with no effect on the field. Aaron said they wouldn't expect the barrier to cause any increase in sediment collection. Harry asked about scour behind the slab; Aaron said the barrier has a different friction value and can increase velocity somewhat, but not enough to create much velocity change/erosion. Dave asked how these barriers affect fish (e.g., compared to attracting fish in electrofishing). Carl Burger said electrodes angled such that fish are deflected away from the side channel without becoming incapacitated/immobilized and thus drawn into the channel. Approach velocities can be critical, and if they're too great, fish aren't deflected. Aaron said they have multiple sets of anodes and cathodes in the water to provide a field strength appropriate to the fish species. Melissa asked if the field adjustment isn't primarily related to fish size. Carl said the idea is to get an avoidance reaction to an irritant, with field strength increasing closer to the canal entry. The array is angled and started far enough upstream so fish have a chance to make that avoidance response. With regard to larvae (10-20mm), Carl said they don't have much experience, and this could present a real challenge. Melissa said we assume larvae can make it through the power plant, but want to know what effect the electrical field would have on them (it seems very little work has been done on this, especially on long-term effects). Barrier field strength is much lower than that used for electrofishing, but effects on larvae could be tested in captivity. (The group also discussed whether current mechanical screens pass larvae.) Larval exposure time to the field probably would be limited. Carl pointed out that fish injury from electrofishing reported in the literature is at much higher pulse frequencies than proposed here (and smaller fish are affected much less than larger fish). Larval spatial distribution varies, but the proportion of overall river flow being diverted can be quite high. Tom Chart asked how the larval drift period lines up with the diversion amounts/timing relative to the entire flow. Kevin Bestgen responded later in the discussion after he looked at the '91-96 drift data and mean flows and estimated that the Tusher Wash diversion represented on average 24% of river flow, and that gives some indication of potential mortality. Melissa asked if we could consider not operating the electric barrier during larval drift. Kevin Bestgen said it would be hard to know how much the larval drift periods are separated from post-spawning adult movement. Tom Czaplá suggested the field might be tested on surrogate larvae at Dexter, though replicating the field in the lab may be a challenge. Kevin McAbee said the diversion owners have received a grant to rebuild the diversion, and asked if Smith-Root would suggest any structure modification that could increase the effectiveness of the barrier? Aaron said this could open a whole new realm of opportunity. Kevin said he thinks they'll probably keep it the diversion dam the same height and size, but it would be from new material. Aaron said the structure currently has a low point that would be important to maintain for fish passage. Aaron said that if the wall was rebuilt, a less permeable concrete could be used, along with including reinforced plastic instead of steel on the upstream side near the barrier to improve electrical barrier effectiveness. Kevin McAbee said he would send the Committee anything he gets with regard to a preferred alternative. Tom Chart asked Pete Cavalli's take on the concern about potential upstream movement by fish and exposure to the electrical field on river right. Pete said in low flows, a lot of that diversion dam on river right doesn't have water. Right under the water wheel on river left is probably the easiest place for a fish to move. Tom Chart asked how Aaron and Carl how they'd characterize trying to deflect downstream movement at this site compared to other sites where they've worked. Aaron and Carl both thought this site looked very promising with the caveat that no downstream barrier is 100% effective. Pete asked about the total of "other costs." Tom Pitts suggested Reclamation work with Smith-Root to put all the costs (barrier, coffer dam, construction, etc.) in a report for the Committee's review. >Tom Czaplá will work with Smith-Root and Reclamation to produce that. Dale said it would be very helpful to clearly identify capital versus ongoing maintenance costs. Tom Pitts suggested we also need to describe the process for making a decision

on how to proceed at Tusher, or at least identify what information we will need to make a decision. What actually will happen at Tusher has been something of a moving target, but with their recent federal grant, that may solidify somewhat, so we might be able to create some kind of flow chart or decision tree describing how we would proceed depending on different scenarios. Kevin McAbee said NRCS wants the EA completed by mid-October. Dave asked if we should be doing the turbine mortality study if there are better options (e.g., electrical barrier). The results of the mortality study are about a year and a half out. Carl Burger mentioned a paper by McMichael showing a 5% injury rate in 250mm rainbow steelhead at 30Hz. One possibility would be to build design features for the electrical barrier into a rebuilt diversion without committing to building that barrier. Also, the ad hoc group said they would do more investigating of information on larval mortality. >Tom Czapla will work on the cost estimate, decision process/information needed, and provide that to the ad hoc Committee so that we can have something back to the Committee by the next meeting.

6. Park Service Yampa River studies – Melissa described studies the Park Service is conducting (funding jointly with WRA) on the Yampa River (see attachments provided with this revision of the agenda on 4/25/12). The sediment and riparian SOWs are underway with reports coming soon. The Park Service is interested in tapping experts' opinion on flow needs for sediment, native fishes, and riparian vegetation. Each SOW is in two phases: 1) flow prescription ; and 2) synthesis of available knowledge to develop long-term research and monitoring needed to protect resources. They've stayed away from the term "flow recommendation" since that's a USFWS responsibility. Kevin Bestgen will be working on the "Develop Yampa River Flow Prescription and Long-term Research and Monitoring Recommendations for Protection of Native Fish Resources in Dinosaur National Monument" SOW. (Kevin noted that the WRA funding amount is not yet assured.) The Park Service would then write (or contract) a synthesis of the three reports. Subsequently, the Park would work with the Program on potential flow protection/patterns (since the Park has no mechanism for this). Tom Chart said the Park Service has stayed in close contact with his office on this and he will stay plugged into this as it develops.
7. Nonnative Fish Subcommittee Update – Pat Martinez summarized the meeting from earlier this week. The meeting topics (from previous Biology Committee and subcommittee meetings/calls) ranked as follows (draft):
 1. Status/scale of NNF problem & progress toward reducing threat to recovery: Pat stressed that we are on cusp of making significant progress or losing substantial ground in next decade depending on our capacity to deal with source populations of invasive fishes. A matrix for prioritizing nonnative fish sources for treatment/reclamation was envisioned (which will help bring objectivity to the process; see item 7 below). Pat will draft the matrices, NNFSC will review & revise for presentation to BC this summer. (Pat noted that the Yampa River above Hayden came out on top in the first draft of the matrix, and Flaming Gorge was one of the waters that ranked last.)
 2. Rapid response to emerging invasions: Do we have one? Do we need one?: While annual SOW adjustments refocus removal efforts, the Recovery Program lacks a rapid response capacity ("fire truck") per the guidance in invasive species protocols. Needs include identifying immediate NNF crises, finding/funding a crew and deploying personnel/equipment rapidly. Speas will explore potential funding "reserve" via USBR, the NNFSC asked about NFWF funding, and Brandon indicated that consultants may be more nimble in hiring and deploying crews on short notice. Melissa will initiate work on a "decision-tree" for rapid responses.
 3. Low flows in 2012 and response & adjustments to optimize NNF control: Flexibility must include recognition that crews may not fulfill slated passes for 2012, but at the same time, they will require flexibility that may not be spelled out in their SOWs to adapt as flows during the 2012 season unfolds. The Nonnative Fish Coordinator should make these adjustment calls on behalf of Biology Committee as these adjustments are reported by field crews and need to be made.
 4. Yampa River northern pike work above Hayden: Two sampling/removal passes will be performed by Colorado Parks and Wildlife near Chuck Lewis State Wildlife Area. Harry will assist Billy during one of these passes next week. (Harry assisted on both passes and they will provide a data summary when they've had a chance to develop it)
 5. Dolores River smallmouth bass and NNF escapement from McPhee Reservoir: Jim White, Colorado Parks and Wildlife

Aquatic Biologist for San Juan and upper Dolores river basins, joined this discussion by phone. The Dolores River native fish community is seriously affected by dramatic flow reductions and alterations. The situation with smallmouth bass fits into the Recovery Program's overall preventive effort to respond to emerging problems that may ultimately become an additional source of this species in critical habitat.

6. Northern pike in river, ditches, ponds & reservoirs near Rifle, CO: Colorado Parks & Wildlife is trying to look at suspicious waters that connect to the Colorado River and may harbor northern pike. Lori Martin is looking at complex of gravel pits in area and will also be performing northern pike removal in the Colorado River from Silt down to Beavertail (where FWS takes over). Harry said that Lori is attempting to get permission to access these gravel pits and will sample them if successful.

7. Prioritization of reservoirs for chemical reclamation of nonnative fish populations: Pat prepared a draft Matrix of nonnative, nonsalmonid piscivore risk or confirmation of escapement/emigration into critical habitat for endangered fishes in the upper Colorado River basin. Rankings in each category contribute to a final score for each species in each reservoir. NNFSC will review and provide comments and improvements. Harry clarified that he understands that we're making the matrix to categorize the threats, but chemical reclamation isn't the only possible response. Pat agreed.

8. Assessment of invasion risk by burbot in releases from Flaming Gorge Reservoir: Melissa, Pat, Krissy & Jerry: A doodle will be sent after May 15 to set a date for this meeting.

9. Green River walleye; sources & spread: Preliminary isotope results indicate walleye captured in the Green River have escaped from Starvation Reservoir. Krissy will initiate a discussion with UDWR sportfish managers. Walleye in Utah's reservoirs are resident and are not stocked. The Utah sport fish staff will evaluate the present problem and determine the best option to control escapement, but most likely will need Recovery Program funding assistance to implement.

10. Basin-wide Strategy: The ranking tables/Matrix above should become a prominent part of the Strategy. A version of a socio-economic matrix that would be a companion to the Matrix above and would help rank non-physical and non-biological factors such as feasibility of treatment, local community issues, economics, etc.

11. Illegal introductions in Gunnison basin reservoirs: Illegally established northern pike in Crawford Reservoir currently present an invasive threat to critical habitat in Gunnison River basin. To date, Crawford Reservoir water managers have opposed the use of rotenone (although a recent informal conversation suggested they might be willing to reconsider this position), so Colorado Parks & Wildlife plans to undertake mechanical removal of northern pike from Crawford. The reservoir was not stocked with trout in 2011 (and won't be in 2012), so as not to feed pike any more trout.

12. Adjustment of NNF removal targets: Not discussed (but should be high on the list for the July 10 webinar).

13. Possibility of Highline illegal introductions: Not discussed. (Three or four confirmed northern pike were caught by anglers in Mack Mesa Reservoir in 2007-2008. These fish could only have reached the lake via illegal introduction. Subsequent sampling by CPW did not collect northern pike. There have been infrequent additional reports since then, with one confirmed in 2012. There was a single unverifiable report of a northern pike caught by an angler in Highline Lake. Fish in Mack Mesa can only move downstream into Highline when water is being transferred between the two lakes; reportedly this does not happen in most years, but can.)

14. Illegal fish stocking: Discussed as part of other topics above.

15. I&E Committee contribution: NNFSC will submit comments to Pat by June 29 who will forward them to the I&E Committee.

16. Electrofishing safety & procedures: Not discussed.

The Subcommittee's next meeting is a July 10 webinar.

8. Electrofishing training courses – Dave Speas and Pat Martinez have attended recent courses led by Jim Reynolds through the Northwest Environmental Training Center. Dave went to the boat course in California and John Hawkins organized a similar course by Jim in Fort Collins (which Pat attended). Dave stressed the importance of the background in electrical circuits and fields. Other topics in the boat course were fish behavior/welfare, boat electrofishing systems, boat operations and safety, field trip exercises, and sampling design and applications. Dave suggested the Program consider making a request of Reynolds and

the Center to conduct a 3-4 day course for Program participants in Grand Junction. This would provide folks the background they need for the standardization we're working to achieve. Pat discussed this with Jim Reynolds and he's very enthusiastic about doing a dedicated course specifically for the Recovery Program. (Jim asked Pat to draft a manual for this, which Jim will edit for the course.) If Program participants have sufficient interest, we can pursue a similar course in Grand Junction (with a price break like offered in Fort Collins). Dave said many CSU personnel were able to attend the Fort Collins course, but other Recovery Program participants couldn't attend. USFWS personnel get some training along these lines, but Dave would recommend this more specific course. Harry concurred with this idea, noting it would be great if the Program might be able to cover the cost. Dave said he thought we'd need to look into the payment aspect, since it's really appropriate training for each agency to cover. Dale said FWS folks have to get motorboat operations training and they've been fortunate to get courses designed just for their boats. The electrofishing course they have taken is more general, but he can really see the advantage of a course tailored to the Recovery Program. Pat said the tailored course really gets the topics boiled down to the most critical information. The Committee supported the concept of a Program-specific course and suggested that >Pat and Dave poll agencies to determine the number of folks they would want to send and what time of year would be best. (The Fort Collins course had 25 participants). Tom Chart asked that as a large percentage of Program field personnel get exposed to this tailored course, would there be a shorter refresher course, or would it just be best to take this one again; Pat and Dave said they thought the full course is the best choice, even as a refresher.

9. USBR procurement updates – Dave Speas said their Acquisitions Management Division was recently audited which will result in tightened guidelines/requirements on SOWs in the Recovery Program. Typically, agreements are set up for a minimum of 5 years, but now SOWs will need a 5-year budget for that (beginning in 2013). Dave said the budgets for years 3-5 will need the same level of detail as years 1-2, but can simply be calculated out by adding ~3% in the out-years (and this can be adjusted as needed). Dave advised doing SOWs with spreadsheets to facilitate this. This will apply to agreements expiring in 2012 (many of the USFWS agreements) beginning in 2013. Dave advised doing SOWs with spreadsheets to facilitate this. A little less certain is a potential new requirement to get everything in by mid-May, so if there are any more SOWs needing funding this year, please get them in ASAP.
10. Review previous meeting assignments (see Attachment 1).
11. Schedule next meeting and suggest agenda items – The next meeting will be July 12-13, from 1-5 pm on Thursday and 8-noon on Friday, in Grand Junction. >The PD's office will reserve a meeting room. Agenda items will include: razorback sucker monitoring report, Elkhead escapement report (final drafts for both will need to be submitted to the Committee by June 28), update from the NNFSC, Tusher Wash update, electrofishing course update, etc.
12. Consent items: Review and approve: a) [February 24, 2012 Biology Committee webinar summary](#) (sent by Melissa Trammell 1/25/12); b) March 6, 2012 Biology Committee webinar summary (revised summary sent with this agenda). The summaries were approved as written.
13. White River PIT tag antenna – Dave Speas said they did a site visit in mid-April and it looks like the County will approve installation of the antenna on a site just downstream of the Bonanza Bridge. Travis will send the endangered species information to Tildon and the three species information to Matt Breen. Dave added that a reader also has been installed on the lower Price River within about a mile of the confluence. The Maybell Ditch reader has been up and running since April 16. Dave said there's a fair bit of electromagnetic noise in the area, but the readability looked good. Krissy thanked Dave for Reclamation's funding of these great stationary antennas. Krissy said UDWR put some flat-plate antennas they'd been using for three species in the inflow to Stewart Lake.

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. & The **Service and Program Director's office** will provide the Committee a draft addendum to the White River report that will present the measured flow requirements in a historical hydrologic perspective. The Program Director's office also will research where we left Schmidt and Orchard's draft report on peak (channel maintenance) flows and recommend whether to have it reviewed by the geomorphology panel.
 - 5/6/10: *The Program Director's office will complete the addendum to the White River report and provide a status update and recommendation on the draft Schmidt and Orchard report on peak (channel maintenance) flows for Biology Committee review by July 1, 2011.*
 - *Sent to BC July 1, 2011. 9/30/11: conflicting comments have been received, Tom Pitts has asked Jana for an extension on the comment deadline (extended to Nov. 2). See also agenda item #3c.*
 - *3/6/12 **Jana Mohrman** will provide a revised report to BC and WAC by mid-summer.*

2. *& **Program Director's office (Jana Mohrman and Tom Chart)** expect to provide a draft of the Price River report by the end of August 2009. 7/13/09: *Dave Speas said the goal for the Narrows EIS is to get it out for public review in the fall, so the above schedule should work. The PD's office will keep the Service's SLC-ES shop in the loop on Price River.*
 - *12/12/10 Program Director's office will use the information currently available to >develop a position paper on Price River flow recommendations for Committee review. The Program Director's office will revise the draft Price River position paper and get it to the Biology Committee within the next week, with comments due a month later.*
 - *Price River position paper sent 12/30/10 with comments due Jan. 31/ 11. UDWR may submit a Price River PIT tag proposal for "activities to avoid jeopardy" funding.*
 - *3/11/11: **Tom Chart** will respond to comments and revise the report (in consultation with the Service) and bring it back to the Committee by July 1, 2011.*
 - *6/21/11: Sent to Biology Committee; on 7/12/11 agenda (7/12/11: review/approval deferred to 9/30/11 at Tom Pitt's request); 9/29/11 Pitts' comments submitted; 9/30/11: >**Tom Chart and Jana Mohrman will meet with Tom Pitts** to work out technical issues and get recommended revisions back to the Committee as quickly as possible. The Committee tentatively approved the report pending Committee e-mail (or potential conference call) approval of changes to be provided via the listserv from Tom Chart subsequent to he and Jana meeting with Tom Pitts. Tom Chart anticipates clarifying hydrologic analyses, but not overall report recommendations. Tom Pitts will still file a report on the non-technical issues. These issues were discussed at the [Management Committee on October 12](#). Potential technical revisions pending.*
 - *1/26/12 **Tom Chart** circulated Tom Pitts' recent draft technical and programmatic/policy comments and he and **Jana Mohrman** convened a small group (Tom, Jana, Tom Pitts, Krissy Wilson, and FWS-ES Utah (Amy DeFreese or other) to review the comments.*
 - *2/21/12 Tom Chart provided BC with draft responses to the water users' concerns along with a list from Tom Pitts of water user issues still not addressed.*
 - *3/6/12: Based on his proposal and today's discussion, **Tom Chart** provided the Committee with a revised draft on April 23. Committee discussed; Tom will finalize for MC*

3. *&The **Program Director's office** will prepare a list of issues to be resolved regarding Tusher Wash screening (e.g., levels of mortality acceptable for what size classes, potential O&M costs, etc.) to help move this decision forward (and provide that to the Biology Committee and the Service). *Done.*

- 5/6/10: A small group (Melissa, Kevin McAbee, Dave Speas, Tom Pitts, and Tom Czapl) will work with Kevin Bestgen to review/build on the risk assessment, focusing on understanding existing impacts and what could be gained by various screening options. Tentatively, it would seem the best choice would be fish friendly runners with a screen on the irrigation ditch (contingent on further analysis). *BC to submit proposal to MC by 12/31/10.*
 - 12/13/10 BC discussion: The Biology Committee recommended >starting with a literature review (there may be good information from low-head structures in the eastern U.S.); working on outlining what would be needed in a mortality study (including engineering considerations); and further investigating whether the owners would consider full or partial decommissioning.
 - 3/1/11 As **Kevin McAbee** gets engineering info from the irrigators, he will share it with the ad hoc group. **Kevin** also will inquire more about the purpose of the 9” (at riverbank) – 20” (at center) concrete cap, to determine whether it is to benefit the existing diversion, or both the existing diversion and the proposed diversion on river left.
 - 5/13/11: Dave provided questions from Juddson Sechrist; the **Tusher ad hoc group** reviewed and discussed these on April 4 (summary sent to BC 4/20/11), agreed to have another meeting (site visit) this summer, and re-iterated the need for an initial literature search/review focusing on fish mortality at other sites with small hydro-electric facilities and smaller hydraulic head differentials. Krissy Wilson would like to participate in the site visit. >**Tom Czapl** will schedule the site visit (and talk to Kevin McAbee to see if he can arrange for the group to tour the inside of the facility). The **Program Director’s office** and **Reclamation** will discuss how to accomplish the mortality study after information needs and timeframe are determined.
 - 9/30/11: The **Program Director’s office** will ask if **Brent Uilenberg** and **Bob Norman** can provide description/specifications of the hardware at Tusher to help us understand if it can be retrofitted (11/8/11: awaiting reply). **Tom Czapl** will send a Doodle request to reconvene the ad hoc group to discuss who should do the literature review.
 - 1/26/12: **Tom Czapl, 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. 4/17/12: RFP sent out April 13; proposals due June 15 (which can be cancelled if we decide to pursue a different option).
4. & Revise the Integrated Stocking Plan (ISP) and related issues. **Tom Czapl** is convening a group to revise the ISP.
- 5/13/11: Cost-benefit analyses should be included in the revised ISP; Tom Chart said he thinks the Program Director’s office can initiate this analysis. Results of the health condition profile meeting held at Dexter in March should be incorporated into the revised stocking plan. Discussion of humpback chub and back up pikeminnow broodstock were prominent in this meeting. Horsethief pond water may be whirling disease positive, but Krissy said that Utah can apply for a variance from their Fish Health Board since the fish will be stocked where whirling disease is present and razorback are not known to carry WD.
 - 6/2/11: Core ad hoc group identified: Harry Crockett, CDOW; Krissy Wilson, UDWR; and Pete Cavalli, WFG; Dale Ryden and/or Dave Schnoor, Travis Francis, USFWS; Dave Campbell and Scott Durst, San Juan Program; and input from hatchery managers as needed (particularly as it pertains to space at facilities).
 - 4/17/12: Tom Czapl send out a rough draft revised ISP to the core group on April 13, 2012 and they’ll have a conference on May 9 to assess if we’re headed in the right direction.

Humpback Chub (population estimates)

The **Program Director’s office** will communicate with Gary White to determine how many and which of the questions from the HBC workshop to focus on. Pending. **Derek Elverud** will provide the database for Westwater for Gary White to combine with Black Rocks, which will require a separate SOW.

- 5/13/11: Black Rocks and Westwater data have been transferred to Gary White; **Program Director’s office** will check to make sure we’ve got this analysis covered. 3/6/12: Done and 131 SOW revised accordingly.
- After the ad hoc group meets, Melissa Trammell will draft an Environmental Assessment of the impacts of

the humpback chub captivity management plan (also addresses how to deal with captured roundtail chub); **Krissy Wilson** will work with **Melissa** on the EA. **Tom Czapla** will send out the briefing paper he received with the humpback chub genetic data to the Biology Committee (*done*). **Melissa Trammell** will review *Dexter's new plan to see if it may impact this (also will talk to Tom Czapla)*. 3/6/12: *This is on hold (if even necessary) until the humpback chub ad hoc committee finishes their plan. If fish are not removed from the Yampa River, an EA won't be needed.*

Humpback Chub (broodstock development / genetics)

- 11/22/11: *Conference call to discuss humpback genetics and potential refugia/propagation held 11/2/11; draft action plan materials sent to group from Tom Czapla.*
- After the ad hoc group meets, **Melissa Trammell** will draft an Environmental Assessment of the impacts of the humpback chub captivity management plan (also addresses how to deal with captured roundtail chub); **Krissy Wilson** will work with **Melissa** on the EA. **Tom Czapla** will send out the briefing paper he received with the humpback chub genetic data to the Biology Committee (*done*). **Melissa Trammell** will review *Dexter's new plan to see if it may impact this (also will talk to Tom Czapla)*. 3/6/12: *This is on hold (if even necessary) until the humpback chub ad hoc committee finishes their plan. If fish are not removed from the Yampa River, an EA won't be needed.*
- 1/26/12: **Tom Czapla** will provide researchers direction on collecting fin clips from adult humpback in Westwater and Black Rocks and other populations, i.e., Cataract Canyon, Desolation/Grey Canyons, Yampa Canyon, or wherever else they may be encountered. 5/4/12: *pending. Fin clips should be taken from all fish identified as humpback chub (also roundtails, under a different project). Tom Chart said it would be great to have a photo of the fish on a grid board; Krissy agreed. Tom Czapla will include that in the protocol.*
- 3/6/12: **Tom Czapla** will remind the humpback chub genetics ad hoc group to submit comments.
- As identified in the 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.

Razorback Sucker

& **Dale Ryden** and **Dave Schnoor** will summarize Ouray hatchery needs (water source for Randlett and generator for Grand Valley) and submit it to the Program via Tom Czapla. **Dale** also will seek Service funding. The report will include a discussion the relative risks of power outages at Grand Valley. **Melissa** suggested that for the long-term, we need a feasibility study for alternative water sources for Randlett.

- 5/13/11: *Dale said Reclamation says alternative water sources would have a \$10M price tag. The Service has been discussing the manganese problem and will convene a group to discuss (Program Director's office, hatchery folks, Reclamation, etc.). Dave Schnoor has explored the idea of a generator for the Grand Valley unit. The Service should have a more comprehensive idea about these things in a few months.*
- 7/6/11: *Dale e-mailed write-up (discussed briefly at 7/10-11 BC meeting).*
- 8/24/11: Service purchased Grand Valley Unit generator. Service/Reclamation met to discuss manganese; proposal to hire contractor and install additional filters pending.
- 9/30/11: *Proposal for contractor review of alternatives for remediating manganese approved by Management Comm.* 3/6/12: **Tom Czapla** will check on the status, as the contractor has not yet been onsite. 5/4/12: *Contractor has recommended two options in a preliminary report; likely the selected option will be to install one more bank of filters/BIRM.*

Bonytail

- **Dave Schnoor** will write up his thoughts on bonytail stocking and temperature (3/6/12: *draft provided to Tom Czapla, Dave Schnoor revising and will send to BC*). The **Mumma and Wahweap hatcheries** will compile their records of stocking temperatures and provide that to **Tom Czapla** for consideration as part of

the integrated stocking plan. *Done; Tom Czaplá included Dave's recommendations in the draft ISP. Krissy will get river temperature at stocking prior to 2008.*

5. The **Biology Committee** will work on prioritizing their list of potential additional capital projects at a future meeting. *Ongoing.* By September 22, 2010, **Committee members and others** who suggested capital project ideas will provide short explanatory/descriptive text (preferably just a paragraph), and then the **Committee** will decide when to take the next steps (individual ranking, group discussion of combined ranking, etc.). *UDWR comments submitted; next BC discussion on hold. Tom Chart noted that the Thunder Ranch repairs are complete, but there will be costs for repair of the Price-Stubb apron, also.*
6. The **Program Director's office** will follow up on establishing a process to track percentages of hybrid suckers using standardized protocol for identification of hybridization at fish ladders and in monitoring reaches. *Pending. 1/11/12: Discussed on 1/5/12 NNFSC call.*
7. Northern pike synthesis – 5/13/11 **Harry Crockett** will let **Billy Atkinson** know it will be helpful to compare the recruitment information to Billy's tag records from above Hayden (Harry will ask Billy to make his data available to Kevin Bestgen and Koreen Zelasko). *Done.*
8. Spring Flows 2011 – aerial photography - 7/10/11: *See Attachment 2 for reaches flown. The Program Director's office will look into potential partners to help fund stitching and georeferencing. 8/24/11: In progress. 9/30/11: CWCB's floodplain mapping unit has offered to assist. COE may help, but hasn't found funds yet. WAPA also may be interested. 1/26/12: Program contingency funds added to cover stitching; also georeferencing and habitat delineation for the 13 floodplain sites.*
9. **Krissy Wilson** will forward the Committee UDWR's plan for larval light trapping in Flaming Gorge Reservoir (looking for burbot) when she gets it. *9/30/11: this survey for larval burbot couldn't be completed as the likely window was missed this year; willing to consider in next year's work plan. This will be discussed at the nonnative fish workshop. 1/11/12: Gardunio said burbot are attracted to light during larval stage, but such trapping in winter could be difficult. 3/6/12: Krissy will provide the annual report (and other relevant reports) to the Committee; Pete Cavalli will forward a copy of Wyoming's report(s), also. Krissy said she asked and they do not capture smallmouth bass or burbot just below the dam. Melissa Trammell and Pat Martinez and Krissy Wilson and Jerry Wilhite will work on a Flaming Gorge burbot risk assessment (after May 15).*
10. **Tom Chart and Jana Mohrman and Kirk LaGory** will convene fish biologists involved in developing flow recommendations and geomorphologists (e.g., John Pitlick and Cory Williams) to identify logical next-steps (e.g., is MD-SWMS modeling the best way to proceed) to evaluate flow recommendations, particularly on (but not limited to) the Gunnison where sediment transport is so important. *Pending.*
11. New 2012 SOWs and revisions:
 - **Jana Mohrman** will work with Reclamation on the aerial photography SOW. *Pending*
 - **Jana Mohrman, Tom Chart and Kirk LaGory** will work on a SOW to assemble a team to interpret the findings of Project 85f. *Pending*
 - **Tom Chart and Jerry Wilhite** will work with **Argonne** on a SOW for the C-6 Hydro work to assist with physical aspects of larval trigger study plan. *Pending.*
12. The **Nonnative Fish Subcommittee** will put together a list of reservoirs where we have concerns about escapement and try to begin prioritizing those for treatment. *3/6/12: captures of smallmouth bass in the Dolores need to be included in this discussion. 5/4/12: Done; incorporated as part of nonnative strategy.*

13. **Kevin McAbee** will ask BioMark about battery packs for the solar arrays (said to only last ~5 years, with replacements at \$7-11K) and determine if replacements need to be worked into the negotiation with Questar. *Pending.*
14. **Dave Speas** will check on what gets prepared/distributed in the way of a FGTWG meeting summary (per mention in the draft flow request letter). *Dave said the summaries are sent to the FGTWG.* **Kevin McAbee and the Service** will work with Reclamation and the PD to draft a letter that covers the remaining years of the Larval Trigger Study Plan, and will discuss this at the March 8 meeting.
15. **Jana Mohrman** will investigate the option to install a redundant temperature logger on a separate cable at the Yampa/Green confluence site. **Dave Speas, Jana, Kevin Bestgen, Carrie Cordova and Jim Renne** will discuss all this (including other sites) further. *5/4/12: Done; group had a conference call and discussed where loggers should be installed.*
16. **Harry Crockett** will provide a summary of Kenney Reservoir Sampling ('07, '08, '10, no smallmouth detected). *Done; Harry provided the following on 4/20/12:*

Our recollection was that both Kenney and Rio Blanco were sampled in all 3 of those years, but when we dug out the data we found that only Rio Blanco was sampled in 2010. I apologize for the misinformation. Although the available data for Kenney are less recent than I thought, the facts remain that we have never collected a smallmouth bass in Kenney Reservoir (which was also sampled several times in the '90s), nor has one been reported to us by anglers. Recent anecdotal accounts from anglers are in agreement with this. Kyle fully intends to sample Kenney in 2012, so we should soon have more up-to-date information, barring unforeseen difficulties. Kyle is going to be a very busy guy.

In both years otoliths were collected for Martinez/Johnson microchemistry studies, and either those researchers or their students/technicians were among the crew.
17. **Angela Kantola** will send out a revised list in advance of the next meeting.
18. **Tom Chart** will finalize the Price River report and submit it to the Management Committee.
19. **Dave Speas** (and any other **Committee members**) will send **Joe Skorupski** additional comments on the #144 report by May 11. **Dale Ryden** will see if there's a citation from a San Juan summary document that he can send Joe. **Joe** will revise the report and send to the Committee by for final approval by May 25, then the **Committee** will approve via e-mail by June 8 (with no response indicating approval).
20. **Principal investigators** will provide e-mail updates on work changes and river conditions and any other pertinent news to the Biology Committee as things develop, since this year's field season will be so unusual.
21. Tom Pitts suggested **Reclamation** work with **Smith-Root** to put all the costs (barrier, coffer dam, construction, etc.) in a report for the Committee's review. **Tom Czapl**a will work with Smith-Root and Reclamation to produce that. Dale said it would be very helpful to clearly identify capital versus ongoing maintenance costs. Tom Pitts suggested we also need to describe the process for making a decision on how to proceed at Tusher, or at least identify what information we will need to make a decision. What actually will happen at Tusher has been something of a moving target, but with their recent federal grant, that may solidify somewhat, so we might be able to create some kind of flow chart or decision tree describing how we would proceed depending on different scenarios. Tom Czapl will work on the cost estimate, decision process/information needed, and provide that to the ad hoc Committee so that we can have something back to the Committee by the next meeting.
22. **Pat Martinez** and **Dave Speas** will poll agencies to determine the number of folks they would want to send to a Program-specific electrofishing course led by Jim Reynolds and what time of year would be best.

23. The **PD's office** will reserve a meeting room. for the July 12-13 meeting in Grand Junction.