

Final Biology Committee Meeting Summary
March 10-11, 2016

PARTICIPANTS

Biology Committee: Dave Speas, Jerry Wilhite, Harry Crockett, Dale Ryden, Krissy Wilson, and Pete Cavalli (Brandon Albrecht and Melissa Trammell could not attend). Via phone: Tom Pitts.

Others: James Roberts, Travis Schmidt, Tom Chart, Kevin McAbee, Tom Czapla, Angela Kantola, Mike Mills, Barb Osmundson, and Creed Clayton. **Via phone:** Kevin Bestgen, Jana Mohrman, Tildon Jones, Matt Breen, Sonja Jahrsdoerfer, Julie Howard, and Kirk LaGory.

Thursday, March 10

CONVENE: 8:30 a.m.

1. Report Reviews

- a. *“Population Status of Humpback Chub, Gila cypha and catch indices and population structure of sympatric Roundtail Chub, Gila robusta, in Black Rocks, Colorado River, Colorado, 1998-2012”* by Francis and Bestgen (*Final draft sent to the Committee on February 25, 2016; another version with minor edits sent February 26.*) – Dale Ryden and Tom Czapla said a new version (3) responds to a few minor organizational comments from Koreen Zelasko. Dale said the report was strengthened considerably by additional analysis of earlier years’ data. One new recommendation relates to suspected angling mortality of humpback chub in Black Rocks. That would need to be addressed by CPW. Krissy asked about similar concerns in Westwater and Dale said he thinks fishing pressure is higher in Black Rocks where it’s common for rafters to camp for several days throughout the rafting season, whereas rafters tend to run the rapids at Westwater and move on. Krissy wondered if it still might be easier to enforce any regulation changes if they applied to both Black Rocks and Westwater. The Committee thought a very different group of rafters use Westwater’s whitewater than Black Rocks’ flat water. Harry said it might be easier to change a regulation down to the state line, but CPW would need to look into it. Dale said Travis talked to BLM about potential signage and BLM is amenable to that. (Tom Czapla recommended they talk to Melanie Fischer about signage.) Most of the angling in Black Rocks is for catfish baitfishing and Kevin Bestgen noted that bait angling tends to result in higher mortality. >Harry will recommend revised language for the angling recommendation. Dale said the combined population estimate for Black Rocks and Westwater Canyon is still below the 2,100 fish called for in the 2002 recovery goals and that species composition seems to be shifting to more roundtail (and also more smallmouth bass and some walleye). Kevin Bestgen said the survival rate of large fish has not changed much. Continued low abundance and declines from late 1990s levels likely result from lack of recruitment of small fish. Young fish are difficult to sample and to identify. We need to better understand young fish dynamics. Smallmouth bass are very hard on young chubs in the Yampa and Green rivers and walleye likely have the same effect. Dale said YOY seining is recommended and will be conducted on an exploratory basis this year. Pete Cavalli asked if bar graphs legends had been addressed and Dale said he thought they had. Dave asked about the unusual survival at length curve (Figure 13, high survival of very small fish) and if it’s an artifact of the lack of large, tagged fish. It seems to contradict other lines of evidence in the report. Kevin Bestgen agreed it doesn’t seem intuitive. The influence of a few, large fish that were never recaptured is what drives this. They found the same thing with Colorado pikeminnow. Kevin suggested it might be appropriate to truncate the graph at 200mm so as not to extrapolate below

that size. Dave Speas suggested some explanatory text be added (perhaps also to the Westwater report). >Kevin Bestgen will work with Travis to add explanation here. Kevin noted that 375-400mm fish likely are 30-40 year old fish. Dave asked if future Black Rocks and Westwater reports may be combined. Dale said it will depend on the Committee's recommendation. Dave noted the two reports look at fish condition differently (relative weight in Westwater and relative condition factor in Black Rocks). >Dale will ask Travis to look at that. >Travis will make changes (in track changes) and return it to the Committee for e-mail approval.

- b. *“Abundance Estimates for Humpback Chub (*Gila cypha*) and Roundtail Chub (*Gila robusta*) in Westwater Canyon, Colorado River, Utah 2011–2012”* by Hines et al. – Kevin Bestgen said this report has a similar message of historical population estimates that have changed a little, with the same basic pattern of relatively high capture rates early in the sampling history (especially in '98 and '99), and then reduced abundance since then). Confidence intervals were high due to low probability of recapture. Roundtail estimates were high and remain so. Survival rates are similar (and >Kevin said they can include explanatory language as recommended for the Black Rocks report). Dave questioned the comment about not seeing utility of electrofishing for young fish, since Dave thought they'd captured more than expected with this technique in the past. Dave noted that researchers in the Grand Canyon have targeted smaller fish by electrofishing much slower. Dave suggested contacting Scott Vanderkooi. With regard to sampling smaller fish, Kevin suggested we may need to apply morphological tools and subsequent tagging (and hopefully recaptures) since fin ray counts may not be as definitive as we thought. Dave Speas asked about fin clips; Kevin said that might be another method. Pete cautioned against handling stress of extensive measurements plus tagging. Tom Chart recommended tagging fish down to 100mm TL. Krissy was surprised the report did not mention what other species were encountered; the Committee agreed >that should be added. Krissy will ask Brian to make changes (in track changes) and return it to the Committee for e-mail approval. Dave emphasized the importance of talking to lower basin folks like Scott Vanderkooi about handling/investigating small fish. Dave suggested a session or presentation at the 2017 researchers meeting might be helpful.

2. USGS proposal to collect tissue samples of Upper Colorado River fishes in tributaries to develop a long term sampling strategy to track the status and trends of Hg and Se – James Roberts and Travis Schmidt of the USGS Fort Collins Science Center Aquatic eXperimental Laboratory (AXL) described their work to monitor mercury (Hg) and selenium (Se) in the upper Colorado River basin. They are working on a project for BLM to assess indirect effects of coal extraction on fish and one for CWCB to look at ecosystem-scale Se accumulation. Although they have >3,000 samples collected over >50 years, most of these data are for nonnative species or forage fish, with only 180 samples of native, endangered fish. USGS would like to work with the Recovery Program to expand the BLM and CWCB projects so that they can characterize spatial and temporal trends in HG and SE in native and surrogate species throughout critical habitat in the Upper Basin. Barb Osmundson endorsed this as a great opportunity to leverage existing funding for this work. Creed Clayton emphasized the importance of being sure that as this work is expanded basinwide, we don't lose focus on the Yampa and White rivers in light of commitments in the coal-related Section 7 consultations. Dave Speas said the Committee would appreciate the opportunity to review results before they are published; James and Travis said they understood and would most definitely be willing to report back to the Program on results before they are published.

The group discussed sampling protocol and James agreed to revise the draft protocol to address the need for a smaller punch for small endangered fish. Tom Czaplak asked if we also want to sample fish before they are stocked; Travis and James and Barb said definitely; James will add that to the protocol. >Krissy Wilson will set up a conference call of PIs and James and Travis (Biology Committee also invited) to discuss species and protocols (USGS sent a revised protocol via email on March 16th). Perhaps a set of questions can be

sent in advance (e.g., numbers of which species PIs expect to capture in which reaches).

3. 2016 Green River flow request update – Tom Chart noted that in January, the BC had discussed requesting elevated base flows as proposed under the Backwater Synthesis report and a spike flow to disadvantage smallmouth bass as proposed under the smallmouth bass early life history draft report, in addition to larval trigger flow. Tom realized that we would need to develop a study plan and do outreach on the proposed spike flow first, so the draft letter didn't include that component. Reclamation had concerns about elevated base flows and recommended that they might be able to use flexibility within the ROD to elevate base flows to a certain point, but we're unlikely to meet target in Reach 2 if it's a dry or moderately dry year. Tom Chart is revising the letter to address those concerns and should be providing a new draft next week. Over the next year, Reclamation will explore flexibility in the ROD and whether supplemental NEPA would be needed to address spike flows and elevated base flows in future years. If and when we get to place where these were included in revised flow recommendations, then Reclamation would need to determine required NEPA. Meanwhile, we'll commit to study plans for all three pieces over the next year.
4. Nonnative fish
 - a. Elkhead Net timeline update – Kevin McAbee said Reclamation finalized the FONSI on February 29, and contracting is now moving forward. Ray Tenney is working on 404 permitting, dam safety permissions, etc., and working to arrange a site visit with the net manufacturer next week. Net installation is scheduled for this fall.
 - b. Proposal to change nonnative fish end-of-year planning process and suspend 2016 Nonnative Fish Workshop – Kevin McAbee noted that the scope and purpose of the nonnative fish workshop has changed over the years and recommends suspending the nonnative workshop in 2016 to save time and travel for PIs and others (see Attachment 1). Kevin recommends a modified process that still attempts to meet the key purposes of the workshop. The species specific PI conference calls will still be held for PIs to talk about each year's data, analysis, conclusions, and recommendations, and prepare the researchers meeting. Species specific presentations would still be provided at the Researcher's Meeting. Then we would add a half day to the Biology Committee meeting (to include PIs) that follows the researchers meeting to discuss nonnative fish projects and any needed scope of work changes. Pete, Harry, Dave, and Krissy agreed. Kevin said that PIs support the idea, also. Kevin Bestgen had suggested we test this out in 2016, and then see if we want to make any changes going forward. Krissy agreed, noting that we could have a workshop every other year if needed. Kevin McAbee said he'll continue to keep the Committee informed of reservoir and other nonnative projects throughout the year. The Committee approved the proposal.
 - c. Update on cross collaboration with out of basin experts: AFS North Central Technical Committees Meeting July 25-28 in eastern NE – Kevin McAbee said the North Central Division of AFS's Walleye, Esocid, and Centrarchid technical committees will meet in late July to discuss a variety of topics. The technical committee chairs support a four hour, half-day technical workshop to discuss the Recovery Program's walleye, bass, and pike management. The BC discussed who would participate. In addition to Kevin and folks from LFL and USFWS, both Utah and Colorado thought they could send representatives. Hopefully this could create a collaborative network of biologists and the technical committee members could subsequently work with PIs as questions came up. The Committee supported this approach. Kevin McAbee will send the basic meeting information (dates, location, etc.) (*done*) so that folks can make their general travel requests and then will send more details within a couple of weeks. Dale said his one concern is that 4 hours isn't very long, so we'll have to be sure time is allotted for their feedback. Kevin agreed, and said they've also been invited to stay a day or so to interact over the social times, etc. Tom Chart asked if we might send a packet of information in advance to give the

committees a sense of the system, etc. >Kevin M. agreed to do that.

5. Sheppard Bottom floodplain restoration – Kevin McAbee described the Service’s plans to modify the Sheppard Bottom floodplain on Ouray NWR under a recently funded Cooperative Recovery Initiative proposal. ONWR and PDO were funded to modify Sheppard to meet refuge and Recovery Program goals, primarily to function as razorback sucker nursery habitat and connect under the Larval Trigger Study Plan. The project was funded from the same source as the Johnson Bottom. The project design will be similar to Johnson Bottom, with an open wetland for razorback sucker entrainment, but won’t have nonnative fish exclusion or water control at the wetland breach. Rather, Kevin said they hope to have control structures on some of the units within Sheppard, but not across the entire bottom. Rather than draining fish back to the river, like at Stewart Lake and Johnson, we’ll likely need to physically move fish. Engineering and design will begin soon, but will likely take about a year. Kevin said the goal is to have Sheppard connect at much lower river levels (estimated at 15,000-18,000 cfs) in the future. Sonja said construction should begin next year. Tom Chart encouraged the group to stay alert for opportunities for similar restoration on the Colorado River. Dale said they’re looking and having discussions about Audubon and also Pickup Pond.
6. Review of RIPRAP revisions and assessment

RIPRAP Tables

General

II.B. Dave Speas asked if we know what levels of mercury affect endangered fish; Tom Chart said not for our Colorado River fish and that he and others have asked about that.

III.A.1.c. The group discussed hybridization and the recent AFS workshop. Could the photos/genetic identification information presented there be made available to our PIs? Perhaps we could we have a similar presentation at next year’s joint meeting of CO/UT/WY AFS in Grand Junction (tentatively scheduled for February 21-23, 2017).

With regard to Asian tapeworm in bonytail at Ouray NFH, Krissy Wilson recommended following the Wahweap’s treatment protocol (she thinks they treat twice). Any razorback on the same water source also would need to be treated before stocking.

Green

I.D.1.g.: >Krissy will work with Ryan Mosely to make sure UDWR provide annual tailrace survey report data to the nonnative fish coordinator.

Dave Speas wondered if we’re managing our floodplains to the best advantage and suggested that perhaps the Committee should have another field trip to Ouray NWR now that we have the LTSP, the work at Johnson and Sheppard, and a new manager at ONWR. Kevin McAbee added that Vernal BLM now has a fisheries biologist, too. Tildon said ONWR is interested in restoring natural floodplain function. Rather than gates and culverts, this typically involves large breaches. What we’ve found, however, is that intensive management/infrastructure are needed to promote larval native fish. >The Committee will consider a site visit to ONWR in the near future.

RIPRAP Text (Friday)

Tom Pitts suggested that Section 2.0 contain just brief descriptions of each Program element and discussion of basin-specific actions be moved to Section 3.0. Angela Kantola noted the flow protection descriptions for Colorado and Utah would need to stay here. Chart asked if other committee members supported Tom Pitts' suggestion; Pete Cavalli said he'd support it if it would streamline the RIPRAP. The PDO will see what might be moved to Section 3.0.

On page 24, Harry asked if we actually determined low *rates* of entrainment in the Maybell Canal since we didn't study this until after Colorado pikeminnow populations had declined in the Yampa River: "The Service's 2014 Sufficient Progress memo concluded that due to relatively low rates of entrainment, an exclusion device would not be cost effective. The Service recommended that the Recovery Program should strive to offset impacts at the Maybell Canal by completing the Yampa River nonnative fish control actions identified in the RIPRAP addendum included in their 2013 memo." Kevin McAbee said the number of fish entrained was compared to the estimated Yampa River Colorado pikeminnow population. The language in the RIPRAP text mirrors that in the 2014 Sufficient Progress memo.

Tom Pitts requested a map of designated critical habitat in the upper basin be added to the text. The PDO created the map (see Attachment 3) and will add it to the text

>PDO will check page 34 and make needed revisions to the ISP discussion.

Report Recommendations (Friday)

Dale described the ongoing sediment issue at the Grand Valley Project fish return pipe. The Committee encouraged >Dale to continue to work with Reclamation on further resolution (a long-term fix would be very expensive). Dale said the best case is to have the river sluice in front of the facility as much as possible. Krissy asked if we need some sort of risk assessment to evaluate short and long term solutions; Dale will bring that up with Reclamation. Dale noted that the Service recently did the environmental compliance on short-term (trackhoe) O&M work, so that can be done with greater ease now.

With regard to the suggestion to Floy-tag the native three species at Redlands, >Harry will look at possibly providing some PIT tags for this purpose. Dale said they could PIT-tag all these fish on most days.

Krissy recommended we support the #164 recommendation to stock bonytail either in the Johnson Bottom canal during high flows, or directly into the wetland. The annual report noted that bonytail stocked into the canal could access the river, and the canal could serve as a low velocity transition area.

Krissy asked about the potential to stock bonytail in in Stewart Lake; Kevin said he doesn't think Reclamation (Provo) will support intentional stocking into this selenium-remediation site. Kevin said Reclamation has indicated to the FWS's Utah ES Office they want to re-initiate consultation on Stewart Lake. Krissy said she hopes we can consider stocking bonytail in Stewart in a couple of years, at least.

98a: Jerry asked about and Harry suggested we need to keep a potential future northern pike population estimate on our radar. Harry noted that the pikeminnow vs. pike graph we use in *Program Highlights* is becoming increasingly out of date. We're not doing this in 2016, but should consider it in the future.

123a: Krissy asked about when smallmouth bass are being marked (thinking that Rich Valdez had suggested and we'd agreed that except for the study reach, marking should occur on the second pass

because so many fish are caught on the first pass that are never seen again). Others recalled instances where we decide to mark on the second pass because more fish are caught then. Julie thinks they catch about the same number of fish on the first and second passes in this project (they're done back-to-back), and this year, they tagged on the first pass. Perhaps a protocol or decision tree would be helpful in making this decision for each project each year?

7. Results of humpback chub genetics analysis – The Committee discussed the results of the genetic analyses on the humpback chub offspring (F1) that were found (July 2015) in a pond also containing adults collected from Black Rocks in the fall of 2014 (sent to the Committee by Tom Czapla on 2/25/16). Dale said most of these offspring were from three adults and Wade does not recommend keeping them for further broodstock development, release to the wild, or recovery/restoration activities. Dale noted low survival of fish this size stocked to the wild and wondered if we could stock some based on the few that would survive. We can put at most a few hundred into various aquaria (and >Tom Czapla will contact Denver Aquarium). Dale said the fish need to go somewhere else by early May at the very latest. The fish are currently ~120-125mm. Tom Czapla asked if the Committee would consider putting a few hundred into the CDOT pond at the top of Debeque Canyon. Pete noted that if there are very few fish in Debeque Canyon, we probably shouldn't put these fish there. Dale said there are largemouth bass in the pond now. Harry asked if there's a number that we could safely put back in the wild, but it doesn't seem like there is. The Committee reluctantly agreed to keep the number wanted by aquaria and dispose of the rest per our excess fish disposal policy. >Committee members will let Dale know of any aquaria needs. Potential aquaria include the one in Fruita and the Sonoran Desert Museum in Tucson.

ADJOURN: 4:50 p.m.

Friday, March 11

CONVENE: 8:30 a.m.

(Review of RIPRAP revisions and assessment and report recommendations, continued)

8. Green River Evaluation and Assessment Team (GREAT) Update – Kirk LaGory said the team has been holding bi-monthly calls and had a meeting in late January. The report outline has been fleshed out, assignments made, relevant reference reports identified; the Green River Study Plan Table 2 annotated, and a SharePoint site created. Heather has been updating CRSS to include LTSP flow triggers. This will help identify the ability to meet targets under various scenarios. Documentation has been developed for how well we've met flow and temperature recommendations over time. Jana is working with Heather to document how well we've complied with the ROD. Dave drafted a section on temperature. Bestgen drafted species status summary. A master table of all the recommendations in Muth et al. has been developed. The Team had planned to complete their preliminary working draft this month, a draft report to the Committee in May, and a final report in November, but everything is delayed about 3 months, and the new dates are preliminary draft July 2016, draft report to the Biology Committee September 2016, and final report January 2017.
9. Instream flow updates
 - Peak Flow Technical Supplement recommendations:

The supplement was approved by the Biology and Water Acquisition committees. The next Water Acquisition Committee webinar (3/28) and GREAT meeting will address a monitoring plan for suspended sediment in the Green River in 2017 (a high priority in the Peak Flow Technical Supplement).

Toby Minear, USGS, provided a summary of hydrophone use in the Gunnison River. This is an inexpensive technique to directly address flows required to move bed sediment in specific habitat units (riffles, pools, etc.). They use frequencies (0.6 to 3.7 kHz) that are only responsive in the 8 mm to 128+mm range (bedload). A number of previous papers found this range to be relatively robust across a range of different rivers and USGS independently verified it with the San Joaquin and Trinity River data (both gravel-bed rivers like the Gunnison). They cut off frequency below the higher frequency range most likely tied to small bedload and sand movement, but no one has convincingly shown it. Thus, USGS is currently limiting findings to moderate and large bedloads. Perhaps one day someone will be able to convert it into sand load.

USGS uses two different types of hydrophone systems:

1) An in-situ system stationary (similar to traditional bedload sampling but much less expensive) that can be either uncalibrated or calibrated with bedload sampling. If it is uncalibrated, it measures if the bed is moving or not, whereas, with calibration it is used to compute actual bedload transport volumes. USGS used two uncalibrated in-situ hydrophones installed at two riffle sites during the 2014 work on the Gunnison with hourly measurements made over a month on the receding limb of the peak releases.

2) A mobile hydrophone system that is attached to a survey-grade GPS receiver and ADCP. This instrument is mounted on a non-motor boat, which then quietly transits the river reach while recording bedload movement. This is the system that USGS will use this year on the Gunnison, following up on successful tests they did in 2014 on the receding limb of the hydrograph. This year they will make more measurements and primarily target the rising limb of the hydrograph.

- CWCB is working on Board approval and outreach in the Basalt community to lease the Ute Water Conservation District water from Ruedi again in 2016 (up to 12,000 af [9,000 af used in 2015]). This water may be secured in time to use the regular Ruedi water if “April Hole” conditions develop in the 15-Mile Reach. The Ute water will serve as a backup in late summer. The lease stipulates using at least 6,000 af each year. It can be renewed annually.
- The White River water management scope of work is being updated to describe: 1) how Service flow targets will be finalized parallel to the modeling by the consultant; 2) define signatories to the plan; and 3) incorporate future demands from the Yampa/White/Green Rivers roundtable and Utah’s demands will (to be modelled by the consultant). CWCB is expected to finalize the contract soon (it may get a final review by the technical group first). The WAC will discuss who will be on the technical group.
- The GRUWAT is circulating a draft report among the technical group. On their next call (March 31), they will discuss the modelling report from Utah on what is needed to protect the Green River flow targets.
- 2015 assessment for the 15-MR PBO – Jana said this is 80% done and they hope to complete the review by the end of this calendar year. A draft should be available for technical committee review by late spring or summer.

10. Recovery plans update – Tom Czaplá reported:

- a. Razorback sucker SSA – Brandon Albrecht was contracted to do this work and is working on a Delphi approach to canvass researchers throughout the basin.
- b. Humpback chub recovery plan development – A species status assessment is being led by Rich Valdez

and Shane Capron. A workshop was held last month and the next step will be a qualitative assessment of viability (similar to razorback)

- c. Colorado pikeminnow PVA – The kick-off meeting was held earlier this week. The question is “will the species be viable in the near-term?” which is very different than the San Juan PVA (focused on mercury risks). The group had considerable discussion around the terms “near-term” and “foreseeable future”; ultimately, this will be a Service call, but with considerable input from the PVA participants. Next steps are a webinar with Phil Miller at the end of April and a workshop in mid-May (open). Model to be used is Vortex10.
11. Upper Basin Researchers Meeting – Dale Ryden said the San Juan Program discussed the Researchers Meeting at its recent Coordination Committee meeting. This year’s meeting was hosted by the SJ Program. The typical rotation is that the SJ Program hosts one out of every 3 years, and per their bylaws, all meetings they host must occur in the San Juan Basin (Durango or Farmington). Despite hosting, the San Juan program wasn’t well represented at the meeting, likely because their 2-day data presentation meeting occurs less than a month later. San Juan PIs have to prepare very extensive (60-80 page) annual reports in advance. Since having the San Juan Program host the meeting doesn’t really change the number of San Juan presenters, and the San Juan Program office has such a small staff, some San Juan Program participants wondered whether the San Juan should continue to be in the host rotation unless the dates can be changed to better fit the San Juan Program. >The Upper Basin and San Juan Program Director’s office will discuss this and the timing disconnect and see if they can suggest a mutually-acceptable path forward. Dave Speas said he didn’t care for the Durango venue. Krissy said she thought Farmington would be better. Dale said the Farmington Civic Center can work as a venue. There is an airport in Farmington.
12. Electrofishing data request (see 3/1/16 e-mail from Angela Kantola to the Biology Committee) – The Committee endorsed this request from Pat and Larry and asked each agency to make sure the PIs are submitting the requisite data and using the modified electrofish setting charts based on three ranges of water temperature. Julie Howard said they’ve been recording temperatures and conductivity along with other water quality measurements for the past 2-3 years and have submitted that to Larry. >Tom Czapla will clarify with Pat and Larry what they want since PIs believe they are submitting the requisite information. Julie also asked for clarification on whether the request applies to boats as well as rafts; >Tom Czapla will clarify this with Pat and Larry and also check to see if temperatures are being requested daily or more often. Julie said it is a burden to take temperature at every stop, but they can continue to do this if needed. Tom Chart suggested we ask Pat or Larry to call into next week’s CPM population estimate PI call to discuss this for a few minutes (or perhaps Cameron Walford can cover this part).
13. Review previous meeting assignments – *See Attachment 1.*
14. Review reports due list.
15. Schedule next webinar or meeting and identify agenda items – The Committee scheduled a webinar for June 7 from 9 a.m. to 2 p.m. with a 45 minute break for lunch. Agenda items will include the Bestgen and Hill smallmouth bass report; an update on the bonytail call; LaGory’s backwater synthesis report; updates on the Tusher Wash rebuild and the Elkhead net; etc.
16. Consent item: Review and approve January 13-14, 2016, Biology Committee webinar summary – No comments have yet been provided on the draft summary sent to the listserver by Pete Cavalli on January 26, 2016. Angela Kantola will post it to the listserver as final (*done*).

ADJOURN: Noon

Attachment 1: Assignments

The order of some assignments has been changed to group similar items together. For earlier history of items preceded by an ampersand "&", please see [previous meeting summaries](#).

1. Humpback Chub (population estimates)

- ***& Humpback chub combined population estimate** from Gary White. 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. 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 (included in draft FY16-7 SOW). Czapla said we have new due dates of January 2015 for the Black Rocks and Westwater reports. 5/28/15: Travis was working with Kevin Bestgen on the methods section; Kevin has provided revisions and Travis anticipates completing a draft by the end of June. Brian Hines said he's on a similar schedule and will have something by the end of July or August. 7/28/15: both reports now expected by the end of August. Peer reviews submitted and should be on the March 2016 agenda. 3/11/16: Both reports to be approved via e-mail after track-changes revisions submitted to the Committee.*
- Harry Crockett will recommend revised language for the angling recommendation in the Black Rocks humpback chub report. Kevin Bestgen will work with Travis to add explanation to the unusual survival at length curve. Dale will ask Travis to review differences in how the Black Rocks and Westwater reports look at fish condition (relative weight in Westwater and calculated in Black Rocks). Travis will make changes to the report (in track changes) and return it to the Committee for e-mail approval.
- Kevin Bestgen will include explanatory language in the Westwater humpback chub report as recommended for the Black Rocks report. Krissy asked that the report include what other species were encountered. Brian Hines will make changes (in track changes) and return the report to the Committee for e-mail approval.

& Humpback Chub (broodstock development / genetics)

- As identified in the 2012 sufficient progress assessment and requested by the Management Committee, the **Program** will develop an action plan for establishing refugia for humpback chub (avoiding getting bogged down in genetic analysis). Mike Roberts has recommended building in limiting factor/life history studies to better understand what's going on in the system that's affecting humpback chub populations. *After Wade's report is received, a workshop should be held to include discussion of when and where fish would be stocked. Tom Chart recommended outlining questions for a workshop, conducting the workshop, and then finalizing the action plan. 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). 8/26/14: Reclamation is working on the funding agreement (may inform index of effective population size different than that for the Grand Canyon population). Tom Czapla said Moab handled at least 25 Deso and WW humpback chubs during smallmouth bass removal and got fin clips from all of them. Tom Czapla said he thinks the priority for analysis should be the Desolation, Westwater, and Black Rocks fish. Moab may still collect some more in Westwater this year. The roundtail chub would be a lower priority. 10/27/14: Reclamation awarded contract to SNARRC for analyzing remaining fin clips and completing report (including lower basin data). 1/15/15: data on upper basin chubs will be written up within about a year. The subgroup developed a list of questions for Wade to address (Tom Czapla sent to BC 1/21/15); **>Melissa Trammell will find and send the plan development proposal document to Tom Czapla by January 21 and Tom will send it to Wade with a***

courtesy copy to the Biology Committee and Kevin Bestgen. (Done). Wade said he will revise the scope of work (done; any comments due by January 29). Additional work pending results from Wade.

2. **Brent Uilenberg** and **Harry Crockett** will be working with CPW and Reclamation engineers to evaluate the potential for a permanent barrier downstream of Ridgway Reservoir. 6/11/14: Harry said Brent would like to define the sideboards before committing time to this. The **Program Director's office** will begin the conversation on this and Elkhead with Brent. Meeting/conference call was held on August 6th in Glenwood Springs. 8/26/14: a meeting is scheduled September 4. Dale Ryden said they sampled from Delta to Redlands and didn't find any bass, so that's good news. 3/4/15: CPW, CWCB, and Reclamation have talked to Tri-County and they will attempt to avoid spilling again this year. 5/28/15: Kevin McAbee is working on setting up a stakeholder meeting in July (7/28/15: now contemplated for September or October). We will keep reservoir updates as a standing agenda item. 10/13/15: Stakeholder meeting was held September 2 to discuss long-term solutions for how Ridgway might parallel the Elkhead process (net or similar escapement prevention, LMP revision, etc.) and how woody debris might be managed. 1/13/16: Another meeting will be held on March 17, 2016 in Grand Junction at 1 p.m.
3. Regarding white sucker hybrids, **Harry Crockett** will talk to **Kevin Bestgen** about any further work needed subsequent to the identification guide that Pat Martinez distributed last year. 8/26/14: Ongoing (very complex issue that really deserves a combined genetics and morphological study). This could be put into the next round of Program Guidance (**PD's office** did) and we should be considering potential outside funding sources, as well, since this relates to more than listed fish. 1/13/16: The 2016 Colorado-Wyoming AFS meeting will have a dry lab workshop on sucker identification and hybrids. Kevin Bestgen recommends a genetics study linked to a morphological study. 3/11/16: The joint meeting of the CO/UT/WY AFS chapters next year may be an appropriate venue to have another mini-workshop on identifying hybrid suckers.
4. Related to the peak flow study plan, **Jana Mohrman** will look into cost estimates for additional aerial photography analysis. **Committee members** will continue their review of the draft plan and provide comments by the end of September (the same will be requested of the WAC). Within two weeks, **Tom Chart et al.** will prepare a short background outlining the genesis of this work and restate the objectives (done). **PDO** sent revised plan to BC & WAC for review; comment deadline extended to January 23; revisions and review pending. 5/28/15: Jana said the study plan is still being revised and more tightly connected with the Green River and Aspinall study plans. The 2011 aerial photos will be posted on the internet by the end of this summer (not georeferenced). 7/28/15 The **Program Director's office** received a revised draft on August 11, 2015. 10/13/15: Tom Chart is reviewing and will send to the BC and WAC by the end of October. Argonne provided an estimate for 200 hours of georeferencing, orthorectification, and color-balancing; and 300 hours for mosaicing (image rotation and shifting) previous 2011 high flow Green River aerial photography for \$55-\$65K. Price estimates for new photos are included in the Peak Flow Technical Supplement. In the fall of 2015 LiDar was flown for the Green River corridor from Canyonlands NP to Flaming Gorge and should be available in the spring of 2016. It was paid for by the State of Utah and the National Park Service and will be quality checked by the USGS. 1/14/16: the **Program Director's office** will post the final peak flow technical supplement on the Program website next to the study plans under technical reports under the instream flow section.
5. **Krissy Wilson** will find out if PIT tag data from the San Rafael and Price rivers are being submitted to Travis. 3/4/15: Some has been submitted in past years, but not the most recent year or two; UDWR will submit to Krissy who will submit to Travis by March 15. 5/28/15: Krissy submitted a partial list, but will submit more once the antenna data is available. 7/28/15: Dan Keller will update this shortly. 10/13/15: Krissy said all the San Rafael data have been submitted; **Krissy and Dave** will check with others (Peter McKinnon) about the Price and Dolores river data. Peter and CNHP are aware that all of the antenna data needs to go into STReaMS.

6. As the time to stock bonytail approaches, **Tom Czapla** will seek the Committee's approval of stocking locations via e-mail. 5/28/15: *Wahweap bonytail went to locations identified in the plan (Green River at Jensen Bridge and Green River State Park and Dewey Bridge on the Colorado). Dale would like to add a site near Rifle (this year or later) for about a fourth of the fish they stock (~2,500). In light of anglers around Rifle, Dale will check on planned stocking dates. Harry wondered if downstream around Rulison would be better; Dale will check truck access. Tom Chart asked if hits on the Price-Stubb antenna might provide information; Dale thought it could help, but wouldn't be definitive. Harry asked if we could more formally analyze what's working in terms of stocking locations; others endorsed this idea. The Committee concluded this won't happen until we have someone in the database position to do the analysis. Meanwhile, Tom Chart said he has no objection to trying other sites. Krissy Wilson recalled the bonytail that went into Stewart a few years ago and left as flows receded; therefore, we should continue to work to find low velocity habitats from which bonytail can leave of their own volition. Dale said one difficulty has been that low velocity sites are often quite inaccessible for safe transport of fish. Another option is to stock fish far enough upstream of low velocity habitat so they can drift in. Dale will stock at previous locations for now and further explore low velocity habitats in this area and discuss sites with Harry. 7/28/15: Dale said they have a couple of locations to consider in lower-water years. Sherm said Lori and Jen observed that when we put bonytail in Butch Craig showed up in the Gunnison River at larger sizes. To use Butch Craig for this purpose again, we need to address access issues (re-establish contact with and permission from landowners) and rotenone to remove nonnative fishes. CPW and FWS will continue to discuss and decide how to move forward to re-acquire access and remove nonnative fishes. Dale also will check to see if Butch Craig is part of the Colorado River floodplain refuges. 10/13/15: Dale said BLM oversees Butch Craig access and he hopes to meet with the landowner in the next week or two in hopes they can do some netting in the pond, determine boat access, notch condition, etc. Dale will coordinate this with Jenn Logan. 1/13/16: Dale said they got access (we have an easement for access across private land as part of the Colorado River management area) and discovered many largemouth bass in Butch Craig (likely a bait bucket type of introduction) and that they'll be working on that this spring. CPW would be willing to treat it. Harry noted we've had good results with bonytail at Butch Craig in the past.*

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

Kevin McAbee suggested the first **database manager's** assignment should be to summarize and analyze bonytail data in STReaMS, in order to provide the committee and hatcheries with an initial idea of the number of fish that remain in the system over time, and the characteristics of those fish. The Committee agreed.

Tom Czapla will reconvene the bonytail group (including hatchery folks) via conference call or webinar within the next week or two to outline a plan of action. 2/26/16: Tom Czapla recommends waiting until after the mid-March STReaMS workshop where the bonytail information will be summarized. 3/11/16: *Additional queries will need to be developed to further mine the bonytail data. >Tom Czapla will arrange a webinar or call to discuss stocking sites for 2016 (and will work with Dave Speas on other potential agenda items).*

7. The Committee endorsed an experiment to tag smaller hatchery razorback and bonytail (for fish coming out of floodplains); >**Tom Czapla** will investigate which hatchery could do this. **Tom Czapla** will check the BO written for scientific take permits to see if any change in permitting would be required. 1/13/16: **Matt Fry** is experimenting with tagging smaller fish and will document this work for the Committee in the Ouray NFH 2016 annual report.

8. **Angela Kantola** will make a note for the FY18-19 work plan review it would be good to have more introduction of new or significantly revised scopes of work from PIs (perhaps on a webinar a week in advance of the work plan review meeting). *Pending*
9. **Darrel Snyder** will send the “Fishes of the Upper Colorado River Basin” information that includes a map of the UCRB with boundaries for its 8 HUC (4-digit) sub-basins and a table summarizing the recent (past decade) distribution and general relative abundance in lotic and lentic habitats within those sub-basins information to Tom Czaplá (or the database manager if the position is filled by the time he is ready to send it). The **Program Director’s Office** will maintain this information on the Program website.
10. **Biologists** will identify the most important Yampa River locations where we need to improve communication with landowners. We should consider including field folks in discussions with landowners, as well as people who may already have relationship with the landowner. Chris said in stretches with lots of backwaters, they need landowner permission to stop more frequently than the every 2 mile stops they’ve made in the past. **Hawkins, Noble, and Smith** will work on the specifics of this item and determine a path forward.
11. **John Hawkins** would like to do a Yampa pass with a GPS with Google Maps live to specifically identify and record key locations and asked for any technical expertise folks could offer to that. >**Chris Smith** can help or **Kevin McAbee** can help find someone else.
12. **Krissy Wilson** will set up a conference call of PIs and James Roberts and Travis Schmidt (Biology Committee also invited) to discuss species and protocols for the Hg and Se sampling (USGS sent a revised protocol via email on March 16th). Perhaps a set of questions can be sent in advance (e.g., numbers of which species PIs expect to capture in which reaches).
13. **Kevin McAbee** will send a packet of information to the Esocid and Centrarchid technical committees to help give them a sense of the Colorado River ecosystem.
14. **Krissy Wilson** will work with Ryan Mosely to make sure UDWR provide annual tailrace survey report data to the nonnative fish coordinator.
15. The **Biology Committee** will consider a site visit to Ouray NWR in the near future.
16. The Biology Committee encouraged **Dale Ryden** to continue to work with Reclamation on further resolution of the ongoing sediment issue at the Grand Valley Project fish return pipe (a long-term fix would be very expensive). The best case scenario is to have the river sluice in front of the facility as much as possible. Dale will raise the idea of a risk assessment to evaluate short and long term solutions.
17. With regard to the suggestion to Floy-tag the native three species at Redlands, **Harry Crockett** will look at possibly providing some PIT tags for this purpose.
18. **Tom Czaplá** will contact Denver Aquarium to see if they want some of the excess humpback chub. **Biology Committee members** will let Dale Ryden know of any other aquaria needs.
19. The **Upper Basin and San Juan Program Director’s offices** will discuss the hosting and timing of the Researchers Meeting and see if they can suggest a mutually-acceptable path forward.

20. **Tom Czapla** will clarify with Pat Martinez and Larry Kolz what electrofishing data they need (PIs believe they are submitting the requisite information), clarify whether the request applies to boats as well as rafts, and find out if temperatures are being requested daily or more often.

Attachment 2

To: Biology Committee members & Nonnative Fish Management Principal Investigators
From: Nonnative Fish Coordinator
RE: Recommended Changes to the End of Year Planning Process for Nonnative Fish Projects, Including Suspending the Nonnative Fish Workshop for 2016.

The Upper Colorado River Endangered Fish Recovery Program's Nonnative Fish Workshop (NNF Workshop) has provided considerable guidance to Program stakeholders over the past decade. The cooperation, communication, and coordination that emerged from these meetings provided the foundation for our current management of nonnative fish in the basin. Nonetheless, many Program participants have requested changes to the content and format of the NNF Workshop, citing the current format as more of an annual report presentation event rather than a 'workshop'.

In an attempt to improve the relevance of the NNF workshop, additional topics were added during the past two years. Topics outside of mechanical removal were considered, such as reservoir management, public outreach, novel techniques (piscicide development), and harvest regulations (incentives versus must-keep). However, to many participants it seems that NNF workshop, especially the project summary portion, is simply going through the motions rather than setting Program guidance or establishing new protocols.

In order to consider how the NNF workshop could be changed, it is important to remember its primary purpose. The NNF workshop was created to provide an open forum for Program stakeholders, researchers, and PIs to discuss how to manage the emerging threat of nonnative fish. Initially, the Program had a lot of uncertainty on how to implement field activities and allocate Program resources. The NNF workshop allowed PIs and BC members to process new information and make necessary adjustments to the work plan in each successive year. In keeping with that goal, in recent years the two goals of the NNF Workshop have been to provide:

1. Recommendations, with justification, to the Biology and Management Committees on how the Recovery Program could more effectively reduce the threat of nonnative fish in future years; and
2. Clear direction on the types of analyses needed for three collaborative presentations to be given at the Annual Researcher's Meeting.

Over the past few years, work plan tweaks in support of goal #1 have become relatively minor as the Program has finalized major research projects and increased nonnative fish removal efforts to a near basin-wide scale. Even as recently as five years ago, the Program was making decisions on large issues, such as harvest regulations, reservoir sources of nonnative fish, and continued spawning in the rivers. However, the Program has made those decisions and is now in an implementation phase for nonnative fish management. This is largely a result of many advances in how the Program faces this threat to recovery.

Primary reasons why the NNF workshop has lost some of its function are the improved techniques and understanding our Program has developed in managing nonnative fish species. The recent completion of the northern pike¹ and smallmouth bass² synthesis reports provided clear guidance on what general actions need to be taken to disadvantage these species – disrupt in-river reproduction and prevent immigration, such as reservoir escapement. To that end, we now implement smallmouth bass spawning disruption in many key locations, net northern pike prior to spawning in the Yampa River, and are targeting any signs of walleye attempting to spawn. To accomplish these projects, our field crews have undertaken unprecedented cooperation in field activities and data management. Many projects, such as Yampa River and Island Park smallmouth bass spawning disruptions, Yampa River northern pike backwater netting, and lower Green River and lower Colorado River walleye removal, are being implemented by multiple agencies in order to maximize effectiveness.

The completion of the chemical fingerprinting report³ has provided us with clear guidance on which reservoirs to focus escapement prevention efforts. Program stakeholders are now revising key Lake Management Plans, chemically treating reservoirs where feasible, and installing screens and nets in other reservoirs. In addition, the Program has implemented other practical changes such as completing the standardization of our electrofishing fleet and discontinuing translocations of smallmouth bass and northern pike. Concurrently, our State partners have implemented updated harvest regulations for problematic species in the basin, namely must-keep regulations in Utah and Wyoming, and unlimited bag and possession in Colorado.

By completing these technical reports, implementing the recommendations, and achieving strong coordination, communication, and cooperation, many of the original goals of the NNF workshop have been achieved. Although it may seem that many of the reasons the NNF workshop was established are no longer as pertinent to our Program, fundamentally, the concepts of cooperation and communication are as important today as they were a decade ago.

This is why I struggle with the concept of the NNF workshop's utility. On one hand, it is a valuable time for principal investigators, researchers, coordinators, committee members, and stakeholders to get together and exchange recommendations and ideas; on the other hand, completing the field season,

¹ Zelasko, K. A., K. R. Bestgen, J. A. Hawkins, G. C. White. 2014. Abundance and population dynamics of invasive northern pike *Esox lucius*, Yampa River, Colorado, 2004-2010. Final Report to the Upper Colorado River Endangered Fish Recovery Program, Project 161b, Denver. Larval Fish Laboratory Contribution 185.

² Breton, A. R, D. L. Winkelman, J. A. Hawkins, and K. R. Bestgen. 2014. Population trends of smallmouth bass in the upper Colorado River basin with an evaluation of removal effects. Final report to the Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado. Larval Fish Laboratory Contribution 169.

³ Johnson, B.M., B. Wolf, and P.J. Martinez. 2014. Chemically Fingerprinting Nonnative Fish in Reservoirs. Final Report of Project C18/19 to the Upper Colorado River Endangered Fish Recovery Program.

finishing the annual report, creating a presentation, and traveling to Grand Junction creates a gauntlet of actions for many during the holiday season. I know that the annual report deadline, Thanksgiving holiday, NNF workshop, Christmas & New Year holidays, and Researcher Meeting gauntlet can be a stressful time for everyone. Add in the ever later field season, in which most crews are still working into November, and it is beginning to seem like an untenable schedule for our field crews and project leads.

As difficult as the schedule may be, it is imperative that we provide a forum for PIs to communicate as a group, and provide the NNF coordinator, all PIs, and the BC members the basin-wide conditions for each fiscal year's activities. It is also imperative that we provide a meaningful conversation concerning recommendations to the Biology Committee for work-planning purposes.

I propose that we retain the key aspects of the NNF workshop, but do so with less travel and less formal work products. As such, here are my recommendations for 2016.

My recommendation:

- 1) Retain the due date and review/completion timeline of nonnative fish annual reports.
 - a. This timeline allows PIs and BC members to have access to the reports on the Program website by mid-December.
- 2) Permanently retain the species-specific PI conference calls in early December.
 - a. This will be the primary discussion forum for PIs to swap data, conclusions, recommendations, and ideas. The conversations will focus on brainstorming, fact-finding, and synthesizing information. As such, these calls will remain open only to PIs, so that a clear message can be presented to other stakeholders after the calls.
 - b. During the calls, we will select three presenters for the Researcher's Meeting to discuss smallmouth bass, northern pike, and walleye results. These three presenters will be tasked with summarizing the Program-wide results, conclusions, and recommendations of each species' projects.
- 3) DO NOT hold an in-person NNF workshop in Grand Junction in 2016.
 - a. Tentatively suspend the NNF workshop until a specific need arises to re-convene the workshop, either through PI or BC requests.
 - b. Debate a new frequency of the NNF workshop. Should we still have NNF workshops every two years, to match the Program Guidance or Sufficient Progress rotations?
- 4) Continue to provide three species-specific talks at the annual Researcher's Meeting for smallmouth bass, northern pike, and walleye.
 - a. This will be the primary forum for BC members to hear the annual data, which will largely be summarized.
 - b. Any additional noteworthy presentations will also be presented here, such as native fish response, or technical reports.
- 5) Provide a substantial block of time at the January BC meeting to discuss the previous year's nonnative fish projects.
 - a. BC members will be prepared to ask any specific questions about the annual reports, conclusions, and recommendations at this meeting. BC members will still need to review the annual reports prior to discussion.

- b. PIs will present any new recommendations and any specific updates to Scopes of Work at this time.
- c. Technical report discussions not presented at the Researchers Meeting can also be presented.
- d. Related topics, such as reservoir screening updates or harvest regulation changes, will also need to be presented.

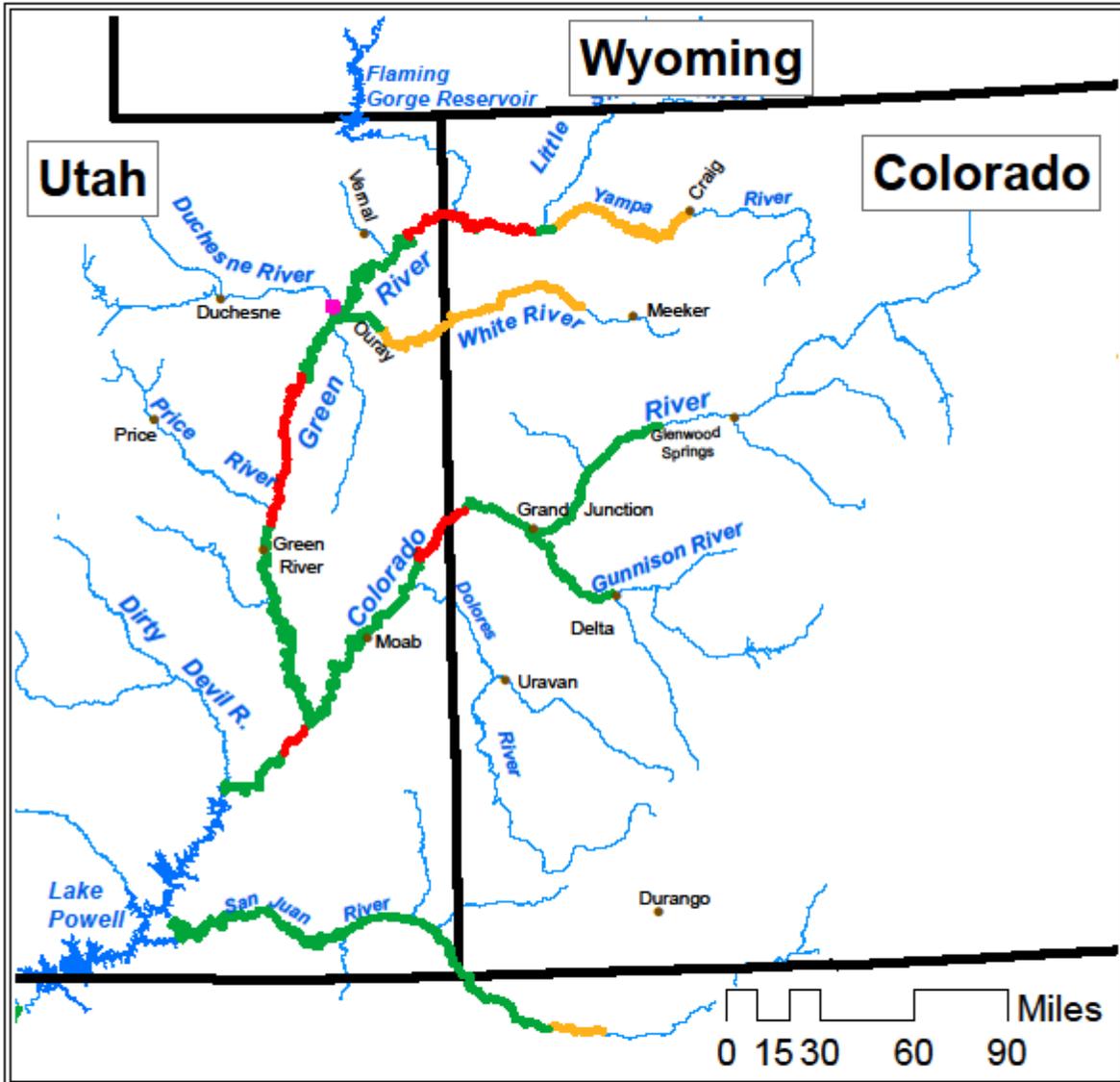
This process has a few main practical outcomes:

- 1) Less travel for PIs and BC members by not attending the NNF workshop;
 - a. This could result in some minor cost savings to the Program, but could also be offset by increased attendance at the January BC meeting (see below).
- 2) Ease of timing around the holiday travel and leave season;
 - a. The PI calls can be any of the 2-3 weeks between Thanksgiving and Christmas and should have less impact on PIs personal leave and travel during the holiday season;
- 3) Less stress for PIs by no longer having to create a stand-alone presentation for the NNF workshop;
 - a. PIs would still need to create slides or submit data to assist the species lead on their Researcher's Meeting presentation.
- 4) Potentially longer BC meeting following the Researcher's Meeting;
 - a. This could be the entire morning block the day after the Researchers Meeting.
 - b. The January BC meeting would likely become a 1.5 day meeting beginning Thursday morning and ending at noon on Friday.
- 5) Requiring NNF PIs attend the BC meeting following the Researchers Meeting.
 - a. BC members and NNF PIs should therefore plan to dedicate the entire week preceding the Dr. Martin Luther King Jr. holiday to Researchers Meeting/BC each year, with travel on Monday and Friday afternoons.
 - b. Thus, over the next 5 years PIs and BC members should plan on blocking off the following dates:
 - i. Jan 9-13, 2017
 - ii. Jan 8-12, 2018
 - iii. Jan 14-18, 2019
 - iv. Jan 13-17, 2020
 - v. Jan 11-15, 2021

I submit this revised concept for the NNF workshop for BC debate, and support the input of all nonnative fish principal investigators. It is my hope that by beginning this debate, we can reach a conclusion in advance of the scheduled 2016 NNF workshop, so we can all plan accordingly.

I appreciate everyone's consideration and input on this important topic.

Designated Critical Habitat in the Upper Colorado River Basin for Federally Listed Colorado River Fish



Upper Colorado River



**Endangered Fish
Recovery Program**

Legend

Critical Habitat

- Colorado Pikeminnow
- Razorback Sucker
- Razorback Sucker, Colorado Pikeminnow
- Razorback Sucker, Colorado Pikeminnow, Bonytail Chub, Humpback Chub

State Boundaries

Created by Kevin McAbee
using FWS & USGS data.
March 11, 2016.

