

Biology Committee Webinar Summary, June 7, 2016**PARTICIPANTS**

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

Others: Tom Chart, Kevin McAbee, Tom Czaplá, Jana Mohrman, Angela Kantola, Tom Econopouly (USFWS Platte River Hydrologist), Tildon Jones, Michael Mills, Zach Ahrens, Jake Moyer (USFWS volunteer with Jana Mohrman), Kevin Bestgen, Julie Howard, Daniel Eddington (UDWR)

CONVENE: 9:00 a.m.

1. Review/modify agenda (Cavalli, 5 min)
2. Report review: “River regulation affects reproduction, early growth, and suppression strategies for invasive smallmouth bass in the upper Colorado River basin” by Bestgen and Hill – This final report was e-mailed to the Committee by Kevin McAbee on April 7, 2016. Kevin Bestgen said they revised the report to provide deeper investigation of reproduction patterns and prediction of smallmouth bass spawning times in three reaches. We can now predict very well the timing, peak, and duration of bass spawning which should help us manage against them (e.g., manipulating flows to turn low-velocity nesting habitats into high-velocity habitats). Cooler temperatures also have been shown to cause bass to abandon nests. Flow management is predicted to be most effective in low to moderate flow years. Kevin is working on a study plan for implementing flow management to disadvantage smallmouth bass. Tom Pitts asked why recommendations aren’t more directly aimed at modifying flows; Kevin said the second recommendation is for the study plan, which will do exactly that (the plan will be finalized in time to implement next year, if everything goes as planned). Tom Chart said this information was considered in preparing this year’s Flaming Gorge flow request letter. As the Program revises the Green River flow and temperature recommendations, Reclamation will determine what level of NEPA might be required to implement those recommendations. Tom Pitts asked if bass could be disadvantaged by flow management in other locations and Kevin said it’s theoretically possible (e.g., Yampa, Colorado rivers), but the proximity of Flaming Gorge to bass habitat and the amount of water it can release make it ideal. Tom Chart thought we might also be able to manage flows in the Duchesne River (from Starvation Reservoir) to disadvantage bass. Melissa asked if the model can be used to look at population-level effects. Kevin said it could; for example, in a no flow-spike situation, you could look at growth and over-winter survival at various conditions, and then re-run the model after early cohorts have been removed. Abundance of fish that over-winter is the critical item. The Committee thanked Kevin for the report and approved the report as written.
3. Verification and voucher specimens – The Program Director's office has asked field crews attempt to preserve or photograph important specimens, per Kevin Bestgen’s recommendation posted to the fws-coloriver listserv on April 7:

“This is in reference to the recent postings on the list regarding a Green River record for pumpkinseed *Lepomis gibbosus*. I find sunfish taxonomy to be a challenge, both personally and as subject matter for students in short courses. This is especially true for small fish, or those from turbid water, because live specimens become pallid and coloration traits which are normally somewhat useful become less so. Also, species like pumpkinseed are known to hybridize with no less than six other taxa, including the introduced *Lepomis* we know now exist in the upper Colorado River basin, which raises the specter of hybrid identifications.

While pumpkinseed would certainly be plausible and the species has been widely introduced, and the field technician making the determination seems to have experience, I believe we should have a different standard for these types of determinations. I think our minimum standard should be enough evidence to have such a finding published in a reasonable peer-reviewed journal, even if such publication is not intended in the future. Minimally, such evidence would be color photographs of

various features useful for identification of that group of fishes, and careful description of morphological characteristics. A preserved specimen (or several), along with well-documented collection site and condition information, and deposited in a reputable museum, would be better yet. Field personnel should be strongly encouraged to always carry a camera, and jars, preservative (formalin and ethanol perhaps), good labels, and a pencil for such collections.

I am not intending disrespect to anyone, but think we owe it to ourselves to rigorously document these types of things. For one, adequate and accurate species identification is a foundation on which base all our work on native fishes. A recent example is the finding and preservation of young chubs in the genus *Gila* from Stewart Lake, which were suspected as bonytail by Bob Schelly and Matt Breen (they are under examination). With specimens and documentation we can do a lot, but without we are limited to conjecture. A new non-native centrarchid in the basin could be a big deal. In a more litigious environment, someone could easily take Program studies to task for not being adequately rigorous, as has happened elsewhere. Also, knowledge that a species is or could be in the area can result in confusion on the part of field workers. We occasionally have questionable identities for specimens in our lab due to intermediacy in morphological traits, damage to the specimen, or other factors, and those fish are reported and cataloged as such to reflect that uncertainty. This seems to be a similar case. Rigorous documentation would remedy the uncertainty.”

Pete Cavalli asked if specimens need to be placed in a museum or repository (in addition to photographic evidence, etc.). Kevin said this is important and the Larval Fish Lab is the appropriate repository. Melissa questioned whether field crews *always* carry the necessary equipment to properly document a new species. The Committee endorsed field personnel being prepared with equipment to provide rigorous documentation of new species (enough evidence to have such a finding published in a reasonable peer-reviewed journal, even if such publication is not intended in the future). Minimally, such evidence would be color photographs of various features useful for identification of that group of fishes, and careful description of morphological characteristics. A preserved specimen (or several), along with well-documented collection site and condition information, and deposited in a reputable museum, would be better yet. Field personnel should be strongly encouraged to always carry a camera, and jars, preservative (formalin and ethanol perhaps), good labels, and a pencil for such collections. >The Program Director’s office will prepare a protocol to this effect with Kevin’s assistance. Krissy suggested the guidance include when fin clips should be taken to identify potential bonytail (e.g., in locations along the Green River where humpback chub aren’t found and roundtail aren’t common). Dave Speas asked if we should extend some or all of this protocol to young of year *Gila*. Kevin Bestgen thinks we can improve our understanding of early life stage *Gila*. With the right training, the morphology can be fairly distinctive, perhaps in fish as small as 50mm. This offers opportunity to look at issues of recruitment. Accompanying this with some genetic work could help us better understand what flows produce more *Gila cypha*, for example. In Desolation/Gray Canyons where we have intergrade fish, this may not work as well, but in places like Black Rocks and Westwater, it might be very effective. Dave asked if bonytail may be easier to identify at smaller sizes. Kevin said characteristics like mouth position (horizontal, terminal, or oblique) and peduncle size and shape are very diagnostic. Fin ray counts and a few good pictures can go a long way to helping us determine the correct species.

4. Hydrology updates

The Yampa/White Basin Roundtable (BRT) received a grant from the CWCB for \$150K to conduct follow-up “StateMod” modeling to refine future demands in the White and Yampa Basins. The River District will handle the contract and Wilson Water Group will do the modeling. The Recovery Program will meet with this group June 21st in Glenwood Springs to see how / if the BRT modeling could satisfy our White River Management planning needs.

The White River Planning team (Tom Pitts, Tom Chart, Jana Mohrman, Michelle Garrison, and Robert Wigington) met June 6 to decide the sequence for approval of White River flow recommendations and management plan.

Ouray refuge manager, Sonja Jahrsdoerfer, has a meeting June 15 with the Northern Ute Tribe and will try to include the White River management plan on that full agenda.

The Program Director's office is drafting a 2017 SOW for continual suspended sediment (SS) monitoring using Doppler radar at the USGS gage stations at Vernal and Ouray. These sites are a high priority to validate flow recommendations as suggested in the Peak Flow Technical Supplement, the GREAT committee, and the BW Synthesis work. Under the proposed SOW, the Grand Canyon Monitoring and Research Center (GCMRC) will install (\$35K each) and operate (\$20K each) (i.e., first year cost \$70K; subsequent year cost \$40K). The monitoring would need to be conducted over enough years to cover a range of hydrologies. Two SS sites will address the sediment budget or whether there is enough stream energy to push sediment through this important reach. This is a new concern since Flaming Gorge spillway cannot be used as originally thought. Understanding seasonal SS transport (hysteresis) also may be useful in knowing which part of the hydrograph could be diverted for any potential new reservoir (e.g., as identified in State Water Plan). Information on this science is found at http://www.gcmrc.gov/discharge_qw_sediment/. Dave Speas asked about costs and Tom Chart said he thinks the information is important for evaluating flow recommendations long-term, but recommends looking for potential cost-share from NPS, BLM, GCMRC, etc. Tom Pitts asked if the limitations encountered with the hydrophones on the Gunnison would impact this Doppler system. Jana said the different substrate (gravel vs sand), monitoring period, and lack of calibration on the Gunnison make it very different than the Green River situation. Jana will check to see if the Doppler method has been calibrated. Tom Pitts said we'll need to make sure we'll have access to the data (so it doesn't linger in a USGS review process). Tom also suggested the Water Acquisition Committee review the kind of data collected by this system in other areas and that the scope of work have a built-in review checkpoint after one year. Tom asked if it would be better to install and operate one station for a year as a test, but Jana said the point of the two sites is to see what sediment moves through. Tom said before we invest in this, we need to be sure it's proven technology. Melissa agreed. Tom Chart said this system has been proven in the sediment-starved lower basin system to the extent that it provides the trigger for High Flow Experimental releases from Glen Canyon Dam. He agreed upper basin rivers could present different challenges, but this technology already has been implemented. >Tom Chart said the Program Director's office will work with Mark Wondzell, the NPS representative on the Water Acquisition Committee, who has considerable experience with upper basin SS monitoring, to address as many of these questions as possible in the scope of work. The Committee supported preparing a scope that addresses these questions. Dave Speas said he'd also like to see a clear discussion of the relationship of the results to fish and their habitat. >Jana said they'll add this as an item to be discussed on the next GREAT agenda.

Draft reports

- 15-Mile Reach PBO review: PDO is hoping to share with the BC and WAC in August.
- GRUWAT flow protection: Utah, working with the GRUWAT technical group just released a Depletion Scenario Analysis, which should be distributed for full GRUWAT review within a month or so.
- Argonne 2012 and 2014 Floodplain Connection Reports – Sent out with 45 day to comment (end of July).

Jana reviewed current hydrologic conditions (see Attachment 2)

5. Field updates

Colorado pikeminnow population estimates – Tildon said his office is completing their Green River work (an extra fourth pass) now. Pikeminnow captures were fairly low in the first three passes. They caught quite a few razorbacks in first two passes, then the numbers began to decline. They finished the White River passes last week with similar low pikeminnow captures. Most pikeminnow caught this year

seemed to be smaller fish (400-600mm), most of the 400-500mm fish were not tagged, and so are new recruits. They captured similar numbers of walleye in the Green River to past years, and Tildon thinks numbers of walleye were roughly equal to pikeminnow. Julie Howard said UDWR completed three pikeminnow population estimate passes in the lower Green and is planning a fourth for next week (replacing the first smallmouth bass removal pass in Desolation Canyon). Their catch rates were higher than Tildon's (30-40 fish/pass), but they saw similar size classes. They captured 450, 560, and 550 razorback suckers across their three passes. USFWS and UDWR were able to process all razorbacks on passes 1 thru 3, but won't be able to net razorback on their fourth pass. UDWR caught ~70 walleye total in their first three passes, with ratios shifting to more pikeminnow on the second and third passes. Kevin Bestgen commended field crews for working in the extra passes.

Larval Trigger: Tildon said they found the first razorback sucker larvae at the Cliff Creek site in Jensen on May 28 and Flaming Gorge releases began the week of Memorial Day. Flows were at an important breakpoint flow of 18,600 cfs yesterday when he and Kevin McAbee toured the floodplains. Escalante Ranch had already connected; Bonanza was connected at bottom; the Stirrup was connected, but connection shallower than expected; above Brennan was substantially connected; Johnson Bottom was connected through the breach and was full; Leota Bottom breached through L7; Old Charley (seen, not visited) also was filled (Refuge thinks it filled through the outer unit breach); neither Wyasket Lake or Pond had water; Baeser (no breach) was not connected. Dave Speas said he was at Stewart Lake yesterday and flows were about a foot below the picket weir on the outflow with water entering quickly. The inside gate of the outflow is not in the correct position (it has a tendency to ride up), restricting inflow, so UDWR will want to discuss that with Reclamation going forward. Bob Schelly had been trap-netting near the mouth and found one bonytail they moved into the wetland.

Bonytail stocking: Matt Fry asking about stocking bonytail in Stewart or adjacent terrace wetlands. Krissy said we don't have permission from Reclamation to stock bonytail inside Stewart Lake, so will stock near outlet and other flooded areas. Tildon said bonytail are going out on the stocking truck today. Krissy asked about stocking at Johnson; Tildon said they've already stocked them (in the breach, so fish could go to river or into Johnson). Tildon said above Brennan, and maybe Stirrup could be stocking sites. Dave thinks stocking on the river side of the Stewart breach would be a good idea and low-velocity habitat should be available there for a week or two. Tildon said we also could stock bonytail at Escalante Ranch (they haven't caught pike there in several years) and it will overwinter fish. Kevin McAbee said another bonytail and a razorback were captured near the outlet gate put into Stewart today (Kevin found the razorback in STReAMS on his smartphone; the fish was originally stocked in 2009).

6. Tusher Wash update – Kevin McAbee noted the Tusher passage is now operational. Pete asked if it has attraction flows and Kevin said the diversion has a couple of features that provide attractant flow (at the water wheel and at a couple of gates between the wheel and the passage). Melissa's panorama photo before the passage was opened gives a good overview:



Melissa said she saw the Coanda screens on the diversion in action and they're very impressive.

7. Elkhead Reservoir updates – Harry Crockett said Elkhead began spilling in early May and spilled for about a month. CPW had nets along the sides of the stilling basin (with assistance from USFWS) and will pull the nets a final time today or tomorrow (> and then Harry will send the BC a final count of fish). They caught northern pike, smallmouth bass, and lots of white suckers (the suckers may have overwintered in the stilling basin and reproduced there). CPW is hosting a smallmouth bass and northern pike fishing tournament at Elkhead June 12-19 to foster local support for changing the sportfishery there. The smallmouth bass tournament at Ridgway is happening now (June 4-12). Kevin McAbee recounted the public meeting in Craig in April. Unlike the first public meeting, many folks came out to express opposition to the tournament and the lake management plan and to say they support a catch-and-release smallmouth bass fishery. All Program partners delivered the consistent message that a net can't provide adequate escapement prevention to support that kind of a fishery.
8. Scott Matheson Preserve presentation – Zach Ahrens outlined UDWR and TNC's work to renovate this wetland and manage it to benefit razorback sucker recruitment similar to Stewart Lake and Johnson Bottom (and to address a number of other local, state, and regional goals from waterfowl to wildfire management). This is the only flooded bottomland on the Colorado River in 64 river miles from Moab to the confluence with the Green River and it was identified as a priority site in Valdez and Nelson's 2006 floodplain management report. Ripe razorback have been documented upstream and razorback sucker larvae in nearby tributary mouths. Zach described the site and the 449 acre Central Pond project area. The engineer's report just in shows that while Central Pond can be drained (to reset to manage nonnative fishes), it can't be filled via the outlet, but could be filled via a northwest diversion point. This presents some new hurdles (e.g., no existing water control structure, larval affinity to northwest site unknown [upstream entrainment at Stewart was poor], sedimentation concerns), but this would be a key site for research on and management of razorback and perhaps bonytail, so UDWR will be investigating larval drift at the northwest diversion and how nonnative fish could be excluded. UDWR would like the Program to: 1) provide guidance/opinions; and 2) consider funding research and management at the site in the near future. Under the best case scenario, the site would be renovated in summer 2017 and operation begun in spring 2018.
9. Recovery planning update: Colorado pikeminnow PVA; humpback chub Recovery Plan & SSA; razorback sucker SSA – Tom Czaplá said a second Colorado pikeminnow workshop will be held in late August where they expect to be able to run through a number of model scenarios. Tom expects the PVA to be completed by the end of the calendar year, then the Program Director's office will complete an SSA based on the PVA. Rich Valdez is working to complete the third draft SSA for the humpback chub (sent to the humpback chub recovery team subgroup later on June 7 with comments due July 8) and they will have a webinar to review that draft SSA in late June or early July. A full humpback chub recovery team meeting is scheduled for

August 17-18 and the team will consider the draft recovery plan and SSA at that time. The second round of surveys on the razorback sucker SSA were due toward the end of May; Brandon said the third and final survey round will go out within the next week or two. Brandon said the work is on track and the Committee should see an early draft of the species needs and current conditions in late July.

10. Bonytail stocking plans and mining STReaMS data – Tom Czapla reported on the recent conference call (and sent a call summary on June 8). Since Wahweap’s bonytail mature so early, going forward, Ouray NFH will receive Wahweap’s bonytail in the fall and stock them in the spring. With regard to bonytail stocking, Tom said Matt Fry called him a few weeks ago about potentially stocking untagged fish; Tom asked them to tag them and put them into Leota. Dave Speas mentioned the river side of the Stewart breach where low-velocity habitat should be available for a week or two (along with the other sites discussed under #4, above). (June 8 update from Tom Czapla: Dave Schnoor said they put bonytail out in Leota 7 and Johnson Bottom. Tildon and others will look at Baeser Bend for stocking later this week. Dave said they’d also look at the area outside of Stewart Lake). With regard to mining the STReaMS data, Dave Speas said the database may not be ready to deliver the data as simply and quickly as it will when it’s completed. Tom Czapla said mining STReaMS for bonytail data likely will be assigned to a soon-to-be-hired database manager. Tom Chart said he hopes the database manager position will be announced within the next week or two.
11. Review previous meeting assignments – See Attachment 1.
12. Review reports due list – The Committee reviewed and updated the list
13. Schedule next meeting and/or webinar; identify agenda items – The Committee scheduled a webinar from 9 a.m. – 2 p.m. on August 22. They would like to schedule an in-person meeting and site visits to Ouray-area wetlands and Stewart Lake in October (possibly October 11-12). >Tom Chart will talk to Sonja Jahrsdoerfer about potential dates and then we’ll send the Committee a doodle poll (with a description of the site visit purpose). The meeting portion would be scheduled around the site visits and Krissy will ask for a conference room at UDWR in Vernal.
14. Harry Crockett reported that Lori Martin’s replacement is Ben Felt from the Monte Vista office. Ben is a Grand Junction native and excited to return.
15. Consent item: Review and approve March 10-11, 2016, Biology Committee meeting summary – Pete Cavalli provided edits which Angela Kantola sent with this agenda. Angela will finalize and distribute the revised summary (*done*).

ADJOURN: 1:30 pm

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. 5/27/16: Travis Francis submitted final, approved version to the Committee on 4/4/16. Brian Hines submitted revised report to coordinator on 5/16/16.*
 - & 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. 6/7/16: Kevin McAbee said Tri-County remains confident Ridgway won't spill this year. Reclamation, Tri-County, and Kevin are discussing contracting mechanisms for construction and installation of an in-reservoir net. The contract likely wouldn't be completed until October 2017, thus the net wouldn't be completed until 2018 or 2019. (A downstream permanent screen would be very, very expensive.)

3. Regarding white sucker hybrids, **Harry Crockett** will talk to **Kevin Bestgen** about any further work needed subsequent to the identification guide that Pat Martinez distributed last year. 8/26/14: *Ongoing (very complex issue that really deserves a combined genetics and morphological study). This could be put into the next round of Program Guidance (PD's office did) and we should be considering potential outside funding sources, as well, since this relates to more than listed fish. 1/13/16: The 2016 Colorado-Wyoming AFS meeting will have a dry lab workshop on sucker identification and hybrids. Kevin Bestgen recommends a genetics study linked to a morphological study.3/11/16: The joint meeting of the CO/UT/WY AFS chapters next year may be an appropriate venue to have another mini-workshop on identifying hybrid suckers.*
4. Related to the peak flow study plan, **Jana Mohrman** will look into cost estimates for additional aerial photography analysis. **Committee members** will continue their review of the draft plan and provide comments by the end of September (the same will be requested of the WAC). Within two weeks, **Tom Chart et al.** will prepare a short background outlining the genesis of this work and restate the objectives (*done*). **PDO** sent revised plan to BC & WAC for review; comment deadline extended to January 23; revisions and review pending. 5/28/15: *Jana said the study plan is still being revised and more tightly connected with the Green River and Aspinall study plans. The 2011 aerial photos will be posted on the internet by the end of this summer (not georeferenced).7/28/15 The **Program Director's office** received a revised draft on August 11, 2015. 10/13/15: Tom Chart is reviewing and will send to the BC and WAC by the end of October. Argonne provided an estimate for 200 hours of georeferencing, orthorectification, and color-balancing; and 300 hours for mosaicing (image rotation and shifting) previous 2011 high flow Green River aerial photography for \$55-\$65K. Price estimates for new photos are included in the Peak Flow Technical Supplement. In the fall of 2015 LiDar was flown for the Green River corridor from Canyonlands NP to Flaming Gorge and should be available in the spring of 2016. It was paid for by the State of Utah and the National Park Service and will be quality checked by the USGS. 1/14/16: the **Program Director's office** will post the final peak flow technical supplement on the Program website next to the study plans under technical reports under the instream flow section. Pending.*
5. **Krissy Wilson** will find out if PIT tag data from the San Rafael and Price rivers are being submitted to Travis. 3/4/15: *Some has been submitted in past years, but not the most recent year or two; UDWR will submit to Krissy who will submit to Travis by March 15.5/28/15: Krissy submitted a partial list, but will submit more once the antenna data is available. 7/28/15: Dan Keller will update this shortly. 10/13/15: Krissy said all the San Rafael data have been submitted; **Krissy and Dave** will check with others (Peter McKinnon) about the Price and Dolores river data. Peter and CNHP are aware that all of the antenna data needs to go into STReAMS.*
6. *As the time to stock bonytail approaches, **Tom Czapl**a 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. 6/7/16: Dale said they're sampling Butch Craig throughout the year. They've removed hundreds of white sucker. Some largemouth bass have been captured, but no smallmouth. They've captured and tagged a number of razorback sucker. The site connected to the river this year.

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.

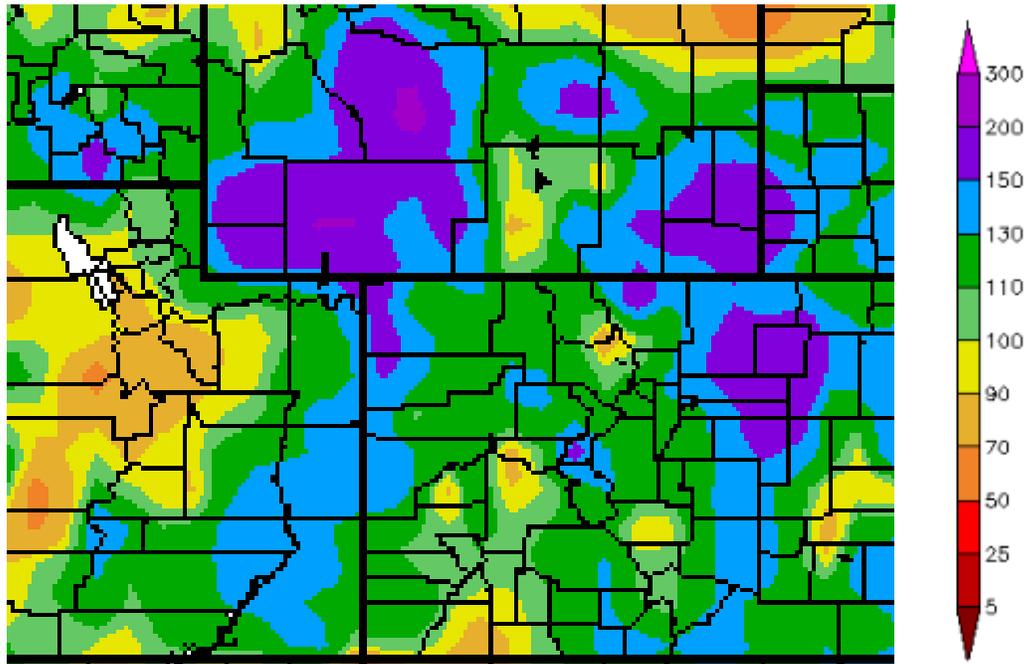
7. The Committee endorsed an experiment to tag smaller hatchery razorback and bonytail (for fish coming out of floodplains); >**Tom Czapl**a will investigate which hatchery could do this. **Tom Czapl**a will check the BO written for scientific take permits to see if any change in permitting would be required. 1/13/16: **Matt Fry** is experimenting with tagging smaller fish and will document this work for the Committee in the Ouray NFH 2016 annual report.
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 Czapl (done). The **Program Director's Office** will maintain this information on the Program website (*pending*).
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 work with Ryan Mosely to make sure UDWR provide annual tailrace survey report data to the nonnative fish coordinator. *Done and Ryan will submit annually.*
13. 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. *6/7/16: Grand Valley Water Users have had the roller bay below the passage open for a couple of weeks now which may help move the sandbar. After we see how effective that was, we can consider what's needed going forward.*
14. 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. *6/7/16: Dale said they haven't seen many fish yet. Tags aren't an issue, but Dale said they don't have time/manpower to tag all the three species, but hope to tag several hundred this year.*
15. 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. *6/7/16: Difficult to schedule for both; keep existing schedule.*
16. The **Program Director's office** will prepare a protocol for field personnel to use to documenting newly observed species and early life stages of *Gila* (**Kevin Bestgen** will assist with references).
17. The **Program Director's office** is preparing a sediment transport SOW for FY17 and will work with Mark Wondzell, the NPS representative on the Water Acquisition Committee, who has considerable experience with upper basin SS monitoring, to address the Committee's questions and concerns discussed on June 7. **Jana Mohrman** also will add this to the next GREAT agenda.
18. **Harry Crockett** will send the Committee a final count of fish captured in the stilling basin below Elkhead Reservoir.
19. The **Biology Committee** will consider a site visit to Ouray NWR in the near future. *Pending. Sonja and Dan are working through CRI process to investigate Sheppard Bottom as a potential restoration site. This would be an interesting thing for the Committee to see if they do a site visit. 6/7/16: Tom Chart will talk to Sonja Jahrsdoerfer about potential dates and then we'll send the Committee a doodle poll (with a description of the site visit purpose).*

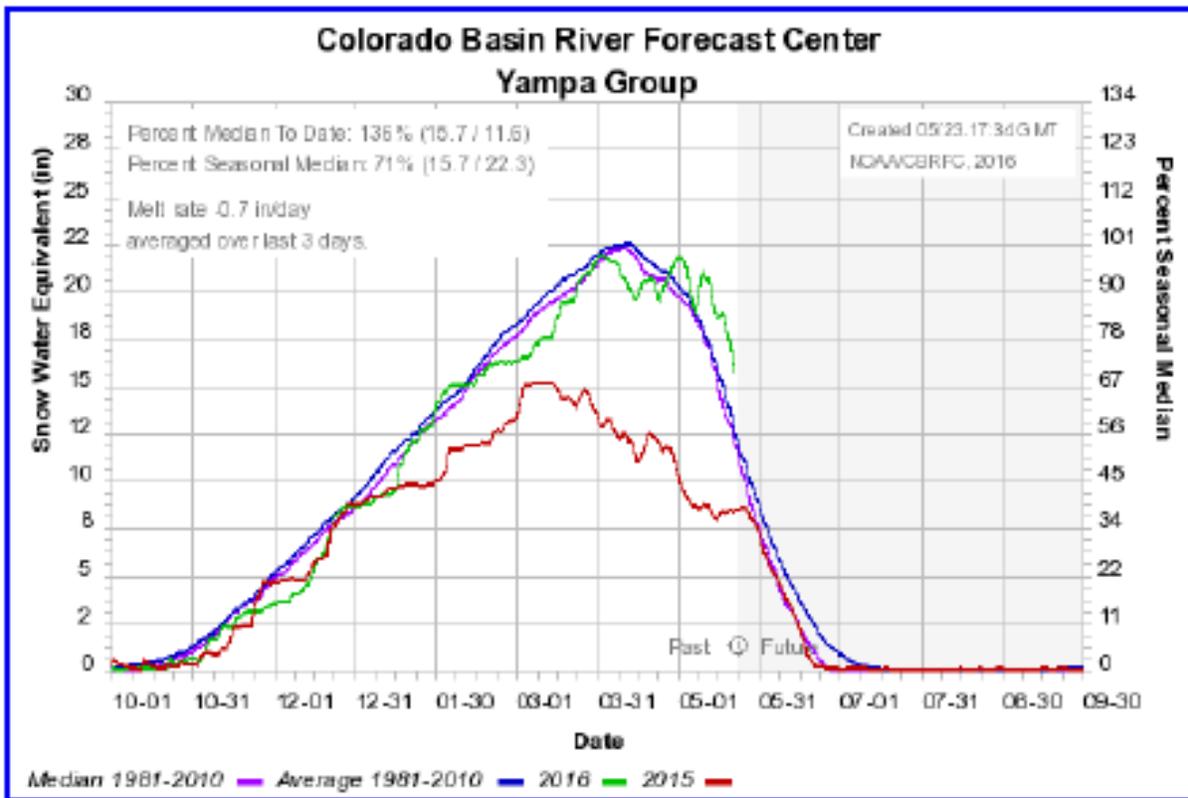
Attachment 2: Current Hydrologic Conditions

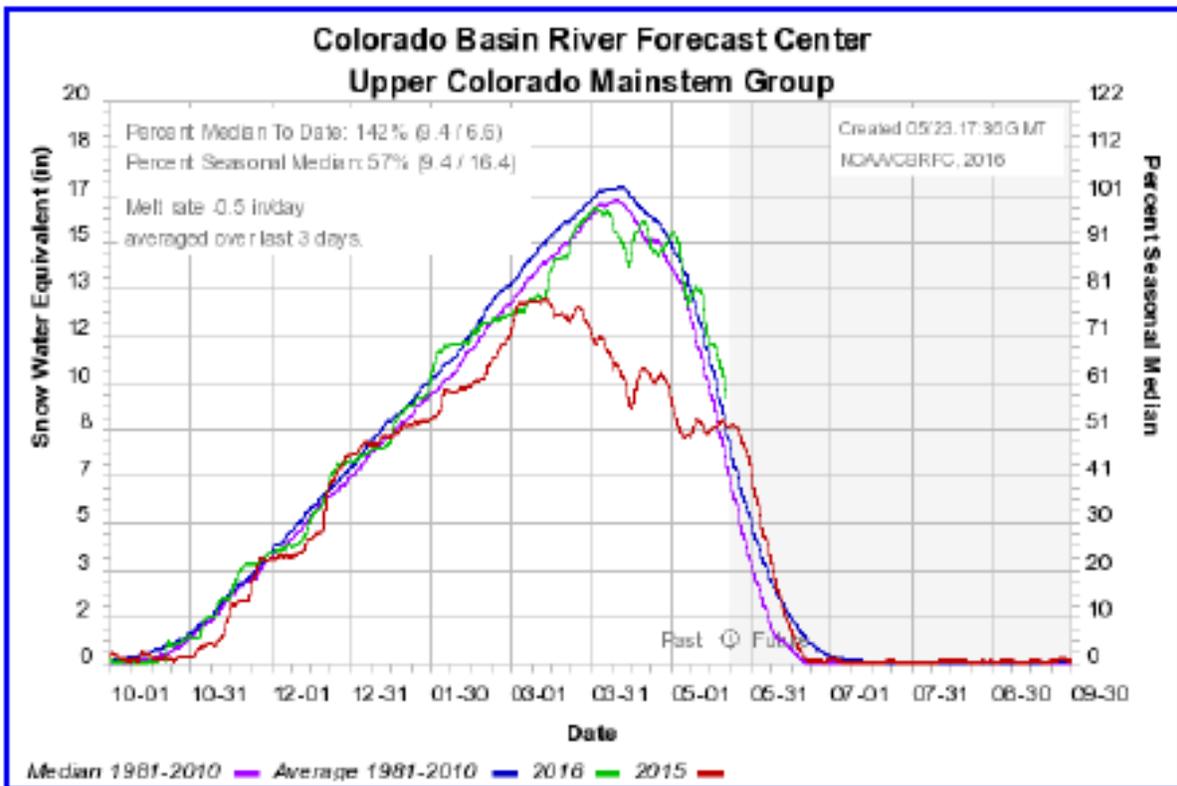
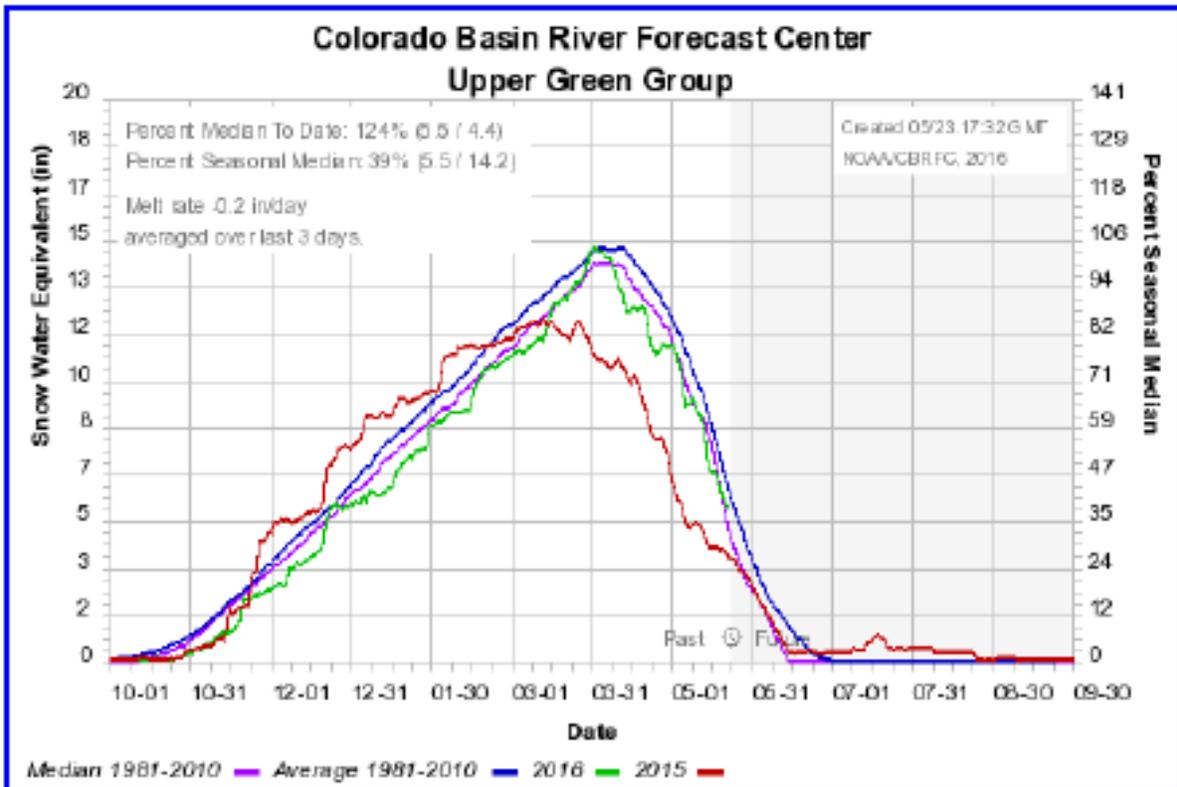
Percent of Normal Precipitation (%)
10/1/2015 – 6/5/2016

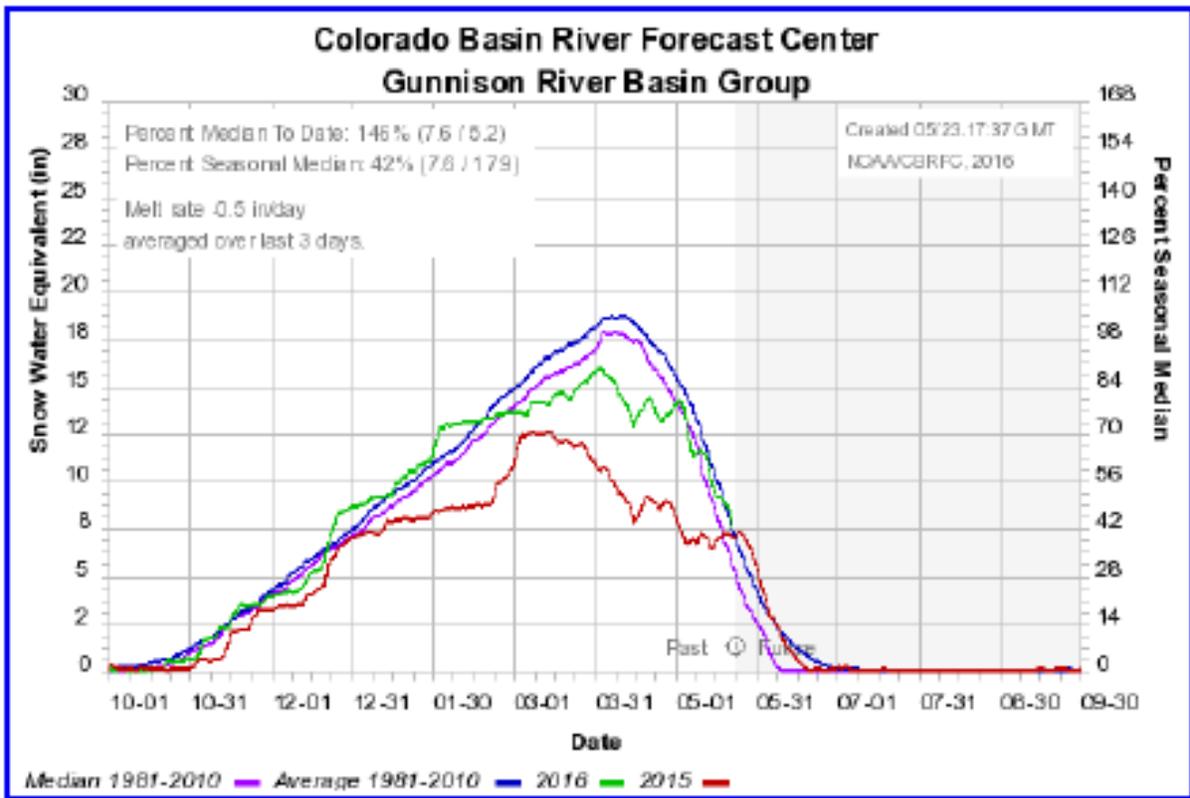
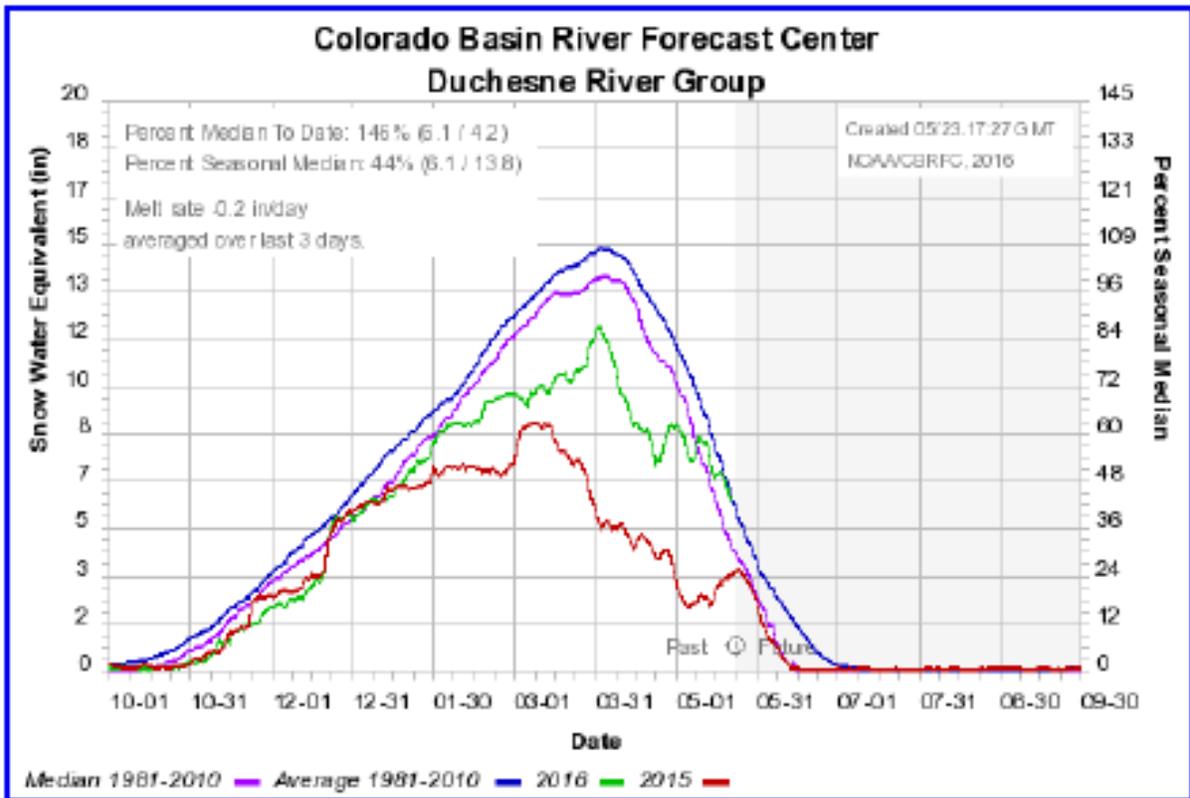


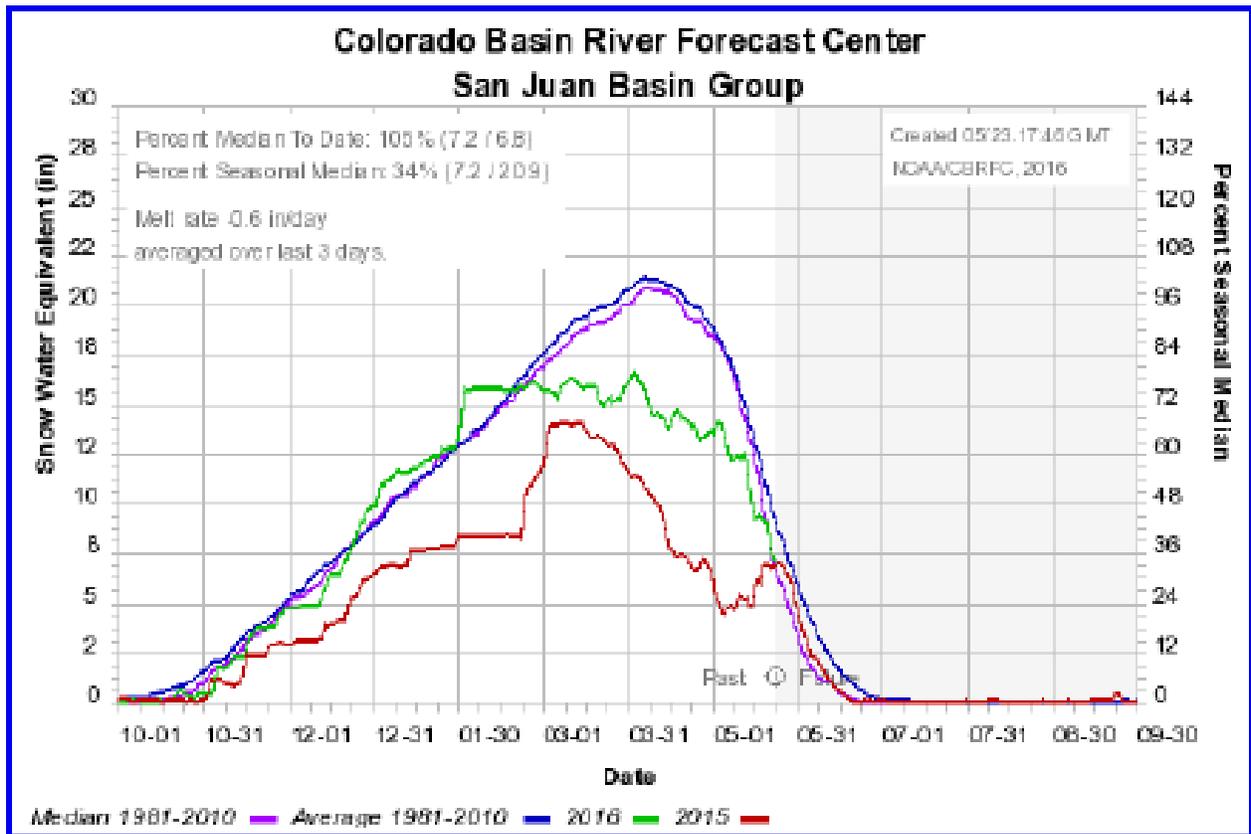
Snowpack + peak flow summary:

Location		Peak CFS	Date	Aproximate Exceedance probability
Green	Jensen	24,500	9-Jun	5%
Little Snake	Lily	4,300	8-Jun	15%
Yampa	Deerlodge Park	18,000	8-Jun	15%
San Juan	Bluff	9,400	8-Jun	15%
Green	Green River	28,000	9-Jun	20%
Duchesne	Randlette	2,700	5-Jun	24%
White	Watson	2,800	8-Jun	25%
Colorado	Palisade	18,500	8-Jun	30%
Gunnison	Grand Junction	10,000	23-May	30%
Yampa	Maybell	11,500	9-Jun	35%
Colorado	Cisco	25,000	8-Jun	40%

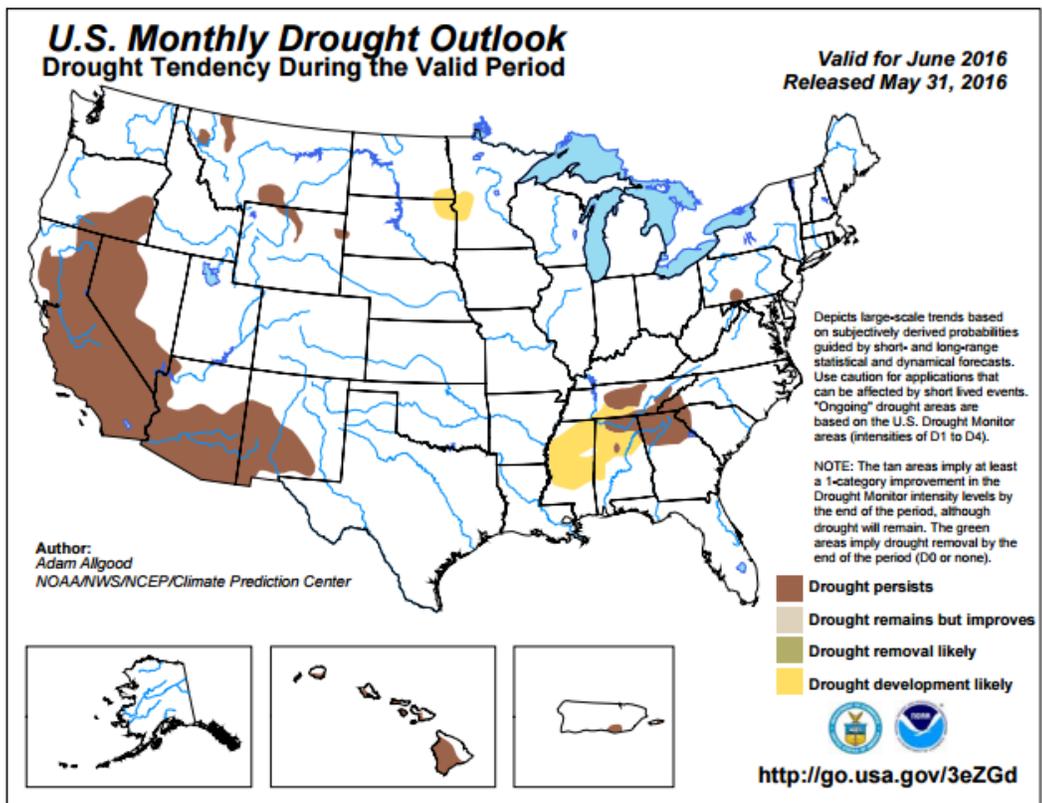


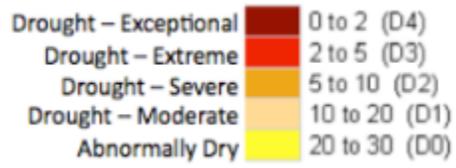




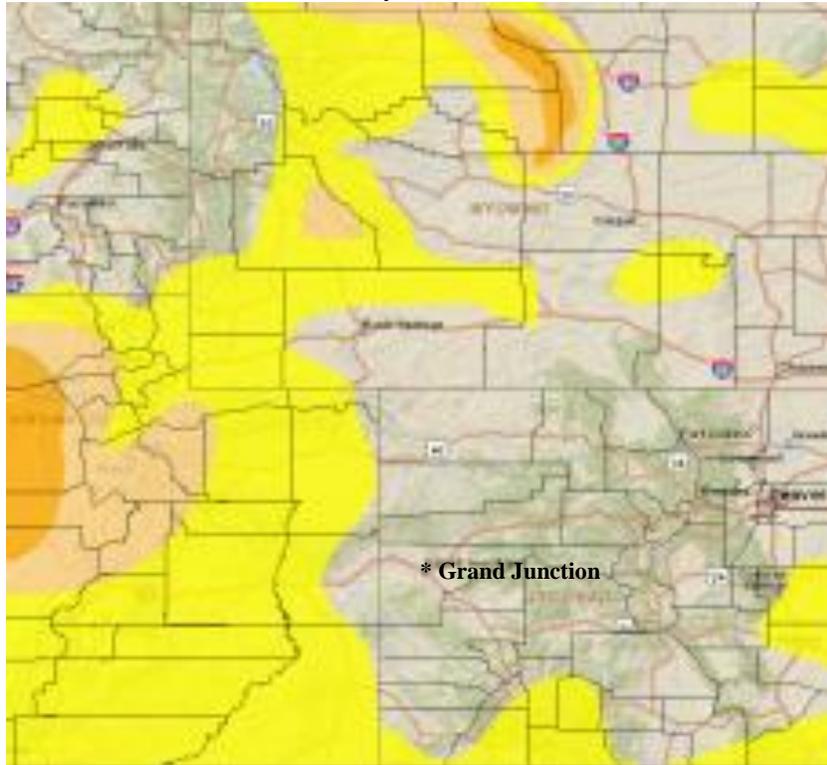


http://climate.colostate.edu/~drought/weeklyphics/current_assessment.pdf





May 4, 2016



June 2, 2016

