

Biology Committee Webinar Summary, May 10th, 2019

Participants: Melissa Trammell, Pete Cavalli, Craig Ellsworth, Dale Ryden, Dave Speas, Paul Badame, Harry Crockett, Tom Pitts, Don Anderson, Chris Michaud, Kevin McAbee, Julie Stahl, Tom Chart, Matt Breen, Tildon Jones, Kevin Bestgen, Jojo La, Cheyenne Owens, Tracy Diver

Comments submitted by: Kevin Bestgen, Melissa Trammell

Convened: 8:30 am

1. Election of Vice-Chair - Dave Speas offered to serve as vice-chair. The Committee appreciated Dave's offer and confirmed him as vice-chair.
2. Flow - Don reviewed snow-water equivalents for April of this year. He noted snowpacks this year are significantly higher than last year. Although not all snowpack turns into runoff, all basins are looking substantially above normal. The only part of the basin that is lower than it was last year is the Green River above Flaming Gorge, which is still slightly above average. The PDO has talked with Reclamation about releasing flows for larval trigger and Reclamation is prepared to do so if feasible. The Yampa is expected to crest at 14,000 cfs at Deerlodge (classified as Average-Above Median) although much uncertainty remains. Green River for Flaming Gorge was classified as Average (slightly below median), and flows will be released accordingly. Don will try to maintain Yampa River flows above 134 cfs at Maybell throughout the summer. In 2018, the Program leased and released 2,000 af of additional water from Elkhead Reservoir to augment Yampa flows. This year, no additional water beyond the annual 5,000 af pool is expected to be needed. On the mainstem Colorado, coordinating calls have begun to implement CROS to increase peak flows. Michelle Garrison is advocating to keep flows below 22,000-23,000 at the Cameo gauge as flows above that tend to cause flooding. Don identified 1630 cfs as the recommended base flow target throughout the summer for this projected wetter-than-average runoff year; Don anticipates he will seek to keep flows at least above a 1240 cfs floor (the 'Average-Dry' year recommendation) based on current water conditions and available augmentation water. In the Gunnison, runoff conditions are quite good (Moderately Wet classification). Reclamation has indicated they will try to match their Aspinall Unit releases with the North Fork Gunnison runoff to attempt to reach a peak of ~13,600 cfs at the White Water gage. The target is 14,300 cfs, but Blue Mesa is still very low from last year and thus the spillway is unavailable this year. A shoulder flow will be attempted for 10-20 days at about 12,000 cfs. The summer base flow target will be ~1500 cfs. Don praised all of our partners for their continued efforts

to meet target flows, especially when conditions are challenging. The Colorado Water Trust is going to lease water this year to help support the Program, which is really exciting. The lease would be very specific: providing water to the Grand Valley Power Plant and subsequently the 15-Mile Reach when ‘excess capacity’ in the Reclamation delivery system is available. OMID, GVVUA and FWS are signatory parties on the “excess capacity” contract with BOR. Tom Pitts asked Don to send a copy of the contract to him (*done*). Thanks also to the CWCB and Ute Water for their efforts to lease water from Ruedi Reservoir to support flows in the 15-Mile Reach again this year.

The Middle Colorado River Watershed Council is interested in developing an Integrated Watershed Management Plan (IWMP) for that reach. An IWMP is a new process supported by CWCB to support basinwide scale planning to manage flows. Tom Pitts asked Don if a list of participants was available for that partnership. Don’s contacts are Laurie Rink and Jim Pokrandt. The advisory committee includes representatives from community development, NGOs, recreational interests, agriculture, water users and resource managers. Tom Chart and Don have been invited to speak about the Program and how alignments can occur between the two efforts. They will be presenting later in May. An IWMP is also ongoing in the Yampa basin; the Program is staying engaged with the Roundtable on that effort. TNC is seeking additional funds for improvements at the Maybell diversion on the Yampa. The improvements would seek to make the diversion more efficient and support passage of both fish and boats in the river at that location. Don praised the Colorado State Engineer’s office for, this winter, re-evaluating the transit losses assessed on reservoir releases for the Yampa River, triggered in part by observations during last year’s low flows. Their draft report is currently in internal review. Jojo said the local partners along the Yampa are developing a water fund (managed by TNC but directed by local partners). That fund has identified Elkhead Reservoir and fish releases as its top priority for implementation. The fund will act like an endowment, providing funds for the Elkhead Reservoir leases. CWCB, in collaboration with The Colorado Water Trust, secured \$30,000 from severance tax to help fund releases in the Yampa basin. The funds are available to be used in any upcoming year from either Elkhead or Stagecoach reservoir. Don thanked Jojo, CWCB and TNC for all of these great efforts. Tom Pitts said that the Recovery Program provided \$200,000 to increase efficiencies in the Maybell Canal, which resolved many of the water rights issues associated with the canal. The company is planning on self-funding some additional check structures in the canal to support flows in the lower Yampa. The funding provided by the Recovery Program changed the relationship and developed significant support from the water users. CWCB recommended grant funding of \$73,000 to modernize the check-gate and provide other improvements from Colorado funds. Utah DNR and TNC successfully secured funding in 2018 to complete water management feasibility studies to secure water to support base flows in the lower Price by releasing flows late in their irrigation season.

3. Floodplain wetlands - Tildon said that based on the hydrologic classification the flow target is 18,600 cfs at Jensen. Reclamation will try to hold releases until larvae are found in the river and will release to meet the target 18,600 cfs. The target is difficult to reach if the Yampa peaks early. If the target is met, Stewart, Old Charley, Johnson Bottom and Sheppard Bottom should connect (all managed wetlands); Above Brennan, Stirrup, Leota 7 and Escalante Ranch are also likely (unmanaged wetlands). All of the wetlands are currently dry except for Escalante Ranch, which means they have been reset from a nonnative fish perspective. Razorback sucker recruitment could occur at any or all of these locations. All four managed sites are online and ready to go. Old Charley has been screened and some interior dredging has occurred to support inundation. Johnson has been screened across the breach to prevent nonnative fish from reaching the wetland before the larval trigger. Sheppard has an interior screen that will be operated. Tildon is optimistic about conditions this year. Jerrad Goodell at BLM has submitted a scope of work to manage operations Stirrup. This summer, the construction plans put together by USBR and scheduled for funding in the capital budget will be evaluated through NEPA by BLM. Reclamation's Force Account anticipates a spring 2020 construction date. Tildon reminded the BC that a field trip through the wetlands will occur in conjunction with the BC meeting in Vernal in July. Tildon plans to focus on the Stirrup and Old Charley, but encouraged suggestions from the BC as to others that should be visited.

Tom Chart said the Green River Evaluation and Assessment Team (GREAT) has a draft report ready to go that will be sent to the Technical Committees next week and will be open for review for 60 days. The report is extensive, prompting the extension in review time.

4. Bonytail feed study update - Cheyenne thanked all the Program hatcheries for their hard work and dedication in support of the bonytail diet studies, nothing would be possible without the hatcheries' willingness to add studies on top of their normal responsibilities. Cheyenne said that seemingly high mesentery fat has been seen in bonytail prompting these studies. Fatty livers are typically white and milky instead of being red or brown. The problem had been noted for a few years, but new histology data (5 bonytail livers from each hatchery) shows high fat levels in livers. The two state hatcheries (pond culture) had fat percentages of about 20%, the two federal hatcheries had fat percentages of almost 40% which might have to do with being raised in recirculating systems. Ouray NFH stocked some fish to an unmanaged clarifying pond that were left to feed on natural food. These "wild" fish showed lower percentages, which indicates that the fat levels may be reversible. Cheyenne requested livers be sent to Bozeman from Ouray NFH-Grand Valley Unit's annual fish health inspection this spring; high levels of fat were seen in the histology. Cheyenne has been working with all hatcheries to develop studies exploring the effects of alternative diets. The two state hatcheries (Mumma-NASRF and Wahweap) will be doing direct comparisons with the Skretting Pond LE diet. The studies will last for 12 weeks. Wahweap will be testing fry,

Mumma will test the 2018 year class, weighing and measuring will occur at the beginning and end of each study. Wahweap will compare to zooplankton. Mumma will compare to razorback sucker or trout diet. In addition, funding became available to develop a bonytail specific diet at the Bozeman Fish Technology Center. The Tech Center will produce 6 diets that will be used in the federal hatchery studies over the winter. Ouray NFH - Grand Valley Unit will be testing fry, Ouray NFH-Randlett Unit will be testing the 2017 year class. The state studies will begin in the next month and the information from these studies will feed into diet development. The Bozeman Tech Center just received bonytail eggs from SNARRC. They will be raised in Bozeman's circular tanks to do internal studies. In discussion with personnel at the Bozeman Fish Tech and Health Centers, there is the possibility that fatty livers in bonytail are a normal condition. Since wild bonytail are not available to make comparisons, the Program will examine conditions in roundtail chubs. CPW has kindly issued a collection permit to Ouray NFH - Grand Valley Unit to collect 15 roundtail >250mm from the fish ladders. Both liver and whole body proximate composition will occur on those fish to support diet development. This should clarify whether high levels of fat are natural or are a function of improper diets. Melissa praised the effort in exploring options, but questioned whether roundtail were a good surrogate for bonytail in this case. Cheyenne said both roundtail and humpback chub were considered because of their close relationship in the Gila complex: because historic hybridization occurred, they may be as close as we can get. Often surrogate species used in these types of studies are not as closely related as roundtail chub and bonytail and can have very different life history traits. Wahweap has Virgin River chub and Mumma has roundtail chub and Rio Grande chub. Mumma has not previously done HCP analysis on those two species, but we are hoping that when HCPs occur at the beginning of this study, they can also occur on either roundtail and Rio Grande chub to provide multiple perspectives. Wahweap currently performs HCP on Virgin River chub, which show similar levels of fat in the fish. We hope that the HCPs from Mumma, where roundtail are on a combo trout and shrimp diet may show another pattern.

5. Reservoir screening updates - Kevin McAbee updated the Committee on the status of nonnative fish escapement prevention projects.
 - The Red Fleet Reservoir screen is currently at 100% design. This project is a coanda screen downstream of the outlet works which would work year-round, but does not screen the spillway. All environmental compliance and O&M contracts are on schedule. When 100% design occurred, the price came in at ~\$665,000, which is about \$250K more than anticipated. The Management Committee agreed that the Program will fund the additional costs and UDWR will continue with their original commitment of \$150,000. The majority of the cost increase came from the price of the metal screens. The USBR Force Account crew will be available in spring 2020 to build this project (not fall 2019 as hoped). Red Fleet rarely spills, so construction during the spring is not an issue. The outlet works will remained unscreened for an additional 6 months. UDWR is

currently stocking sterile walleye at that facility; the project is still very important to complete as soon as possible. The increase in cost at Red Fleet has the potential to affect screening at Starvation Reservoir. Ryan is currently assessing our current priorities with capital dollars.

- The Starvation screen has been moved outside the primary jurisdiction zone and Utah is still screening the spillway channel with a temporary screen. We expect to construct a permanent solution at this location in the next year or two.
- A solution is needed at Ridgway Reservoir to prevent escapement of illegally introduced smallmouth bass. After a stakeholder engagement/value engineering process, Ridgway Reservoir has a preferred alternative which is a rigid screen that will be placed on the apron around the glory hole spillway. The screen is much smaller, easier to maintain and has a longer lifespan than a net. Fish will also only interact with the screen for a few months each year because when the reservoir is lower than the elevation of the apron, the screen will be dry. The design will screen up to 850 cfs which is larger than any spill in Ridgway history and is considered a conservative option. Colorado has advocated for an increased size in recent weeks, but they understand that there are cost limitations resulting in the 850 cfs design. MC approval was provided last month. Reclamation's Technical Service Center in Denver is building a model to examine dam safety. The goal is to construct the spillway screen in fall of 2020 or spring of 2021 based on what comes out of the dam safety examination. The project is the most expensive project the Program has funded for nonnative fish. CWCB will provide \$1 million, the Program will provide the remainder, which is estimated to be \$2.8 million. Melissa asked if CPW is planning to continue monitoring at the outlet. Harry said there is no plan to do so, but ongoing sampling occurs in the Uncompahgre River downstream from that point. Harry said at full pool the outlet works are 139 ft below reservoir surface, meaning smallmouth bass passage through the outlet works is unlikely. Dave asked if there was a deciding factor for the rigid screen over others. Kevin said all of the options were very expensive and that this preferred alternative was the best combination of cost and effectiveness. In other locations, the downstream screens have been much less expensive, but there isn't really an option to do that at Ridgway because of the volume of the reservoir releases. Therefore, the downstream options were more than twice as expensive as the rigid screen. A net in the reservoir was slightly cheaper, but would have to be maintained all year long. A lake management plan is currently in draft form at CPW. Dale asked how woody debris would affect the screen. Kevin noted that a debris boom is also included to prevent woody debris from interacting with the screen. The screen is built to sustain some damage and individual panels can be replaced. The only time the screen would be overtopped would be in a catastrophic flood. Jojo asked if the design had been used before or if we were the first ones to try it. Kevin said using this specific style to screen reservoirs is new, but the metal screens are commonly used to screen water in other situations.

6. Green River Canal construction update - Dave summarized recent construction of the screen in the Green River Canal. The canal company gets 80 cfs, and an additional 20 cfs is used to help operate the screen. Four gates control the structure and six antennas document conditions at the screen. We believe there is no way fish can get into the canal. Dave reviewed schematics and showed photos of construction. There is a location where fish have to make a sharp left turn to get back to the river. That location is fairly deep, which may allow the fish to move through it effectively, but we may want to investigate conditions of the fish that move through the channel. O&M is easy and is working effectively. Water does move through the facility very quickly. Dave noted we don't have any data on fish condition once they move through any of our screened facilities. Tildon said he will receive the O&M contract scope for the fish passage on Tusher Dam and the canal screens. The canal company needs to clean the screen regularly to get their irrigation water. Algae is one of the largest unknowns at this point. Craig asked if anyone had an update on the upstream fish passage on the dam. Dave said he did not have new information, but the antennas downstream do not have a lot of fish showing up on them. Tildon said attempts have been made to clear out the debris pile, but he is unsure about how successful those efforts have been. There are two antennas, one on the downstream side and one on the upstream side, few detections have been seen on the upstream side. Pete asked if the canal barrier was originally designed without a screen. Dave confirmed that originally there was no screen, then the decision was made to add screens mounted to the weir wall to prevent entrainment. The weir wall at Hogback is a lot longer, this area is only about 30 yards which is far easier to screen.

7. Green River preliminary Colorado pikeminnow population estimates - Kevin Bestgen said pikeminnow abundance estimates have occurred since 2000. Captures of adults has declined over time from over 1000 in 2000 to about 200 in 2017. Abundance estimates show a similar decline, over 4000 fish in the Green River basin (including the White and Yampa) in 2000, declining to an estimate of about 1000 now. Age-0 pikeminnow catch has been very low since the late 1990's. The lower Green is where most of the recruitment occurs in the basin, and Kevin Bestgen reiterated the importance of clearing the debris out of the Tusher diversion as passage of those fish is essential. Walleye are currently infesting that area. 2009 and 2010 showed an increase in production in age-0 individuals, but those fish are not showing up in population estimates. Increased predation, low abundance of age-0 fish and low subsequent recruitment, and reduced survival of adults in drought years is what is driving the decline in adult abundance. Kevin Bestgen examined abundance of recruit sized fish and juvenile fish, the news is grim in all categories. Only about 100 recruits are estimated. Juvenile fish show a slightly better trend, currently estimated around 1400 individuals. In previous years, juveniles have not survived to show up in adult estimates. Dave asked at what point we should start talking about stocking. Kevin Bestgen said that is a big decision. Tom Chart said the conversation around stocking is needed soon. Tom said

these data underscore the need for implementation of the recommendations for revised summer base flows in the GREAT report for Reach 2 and reiterated that screening of the Green River Canal was significant. Dale said that even if stocking is not planned right away, we need a few years to ramp up efforts to make that possible (e.g. 5-10 years). Tom Chart recognized that the Program will likely need to convene special technical sessions (calls or meetings) to discuss potential new stocking efforts (e.g. Colorado pikeminnow in the Green River and/or humpback chub augmentation in Dinosaur National Monument). Input from hatchery personnel will be critical in those discussions.

8. Colorado pikeminnow genetics - Tracy Diver presented information from SNARRCs recent genetic evaluation of the broodstock providing fish for San Juan River stockings. Tracy reviewed the history of all pikeminnow broodstock across two facilities (SNARRC and Willow Beach NFH). Current broodstock is comprised of F1 and F2 populations from fish collected in the 1980s and 1990s. Additional collections occurred in Green in 2007 and 2008, the Colorado in 2014-16 and again in the Green River in 2017-18. The most fish were successfully collected from the Colorado. One of the most important factors in genetics is the effective number of breeders, which can dramatically affect the genetic makeup of offspring. Wild fish from the Green and Yampa rivers show a distinct genetic makeup. New genetic clusters are being seen in F1 broodstocks, deviating from wild fish and potentially indicating a genetic bottleneck. Wild broodstock collections have produced better genetic makeups and a larger number of effective breeders. SNARRC seeks to continue to improve the genetic broodstocks and supports additional collections on an annual basis. Tracy thanked all who helped collect fish. Last year, August seining produced a few fish, but the collection suffered from high mortality - probably due to high temperatures and stress. SNARRC is working on methods to reduce stress in the collection process. Pete asked if bringing in frozen milt might be better than small fish. Milt does not transmit mitochondrial DNA, so that representation would be lost if only milt is collected. Tracy seeks to repeat the successes from 2016 by altering timing of collection. >Tracy promised to explore cryo-preservation options and will bring results back to the Committee. Chris Michaud is regular contact with Wade to schedule capture efforts based on conditions on the ground. He reiterated that last year was very low and very hot and is hopeful that collection in other years can be successful. Moab has a week planned in late September to continue the effort this year. Harry acknowledged that this is a larger conversation and would like to move this conversation to a new date. PDO will schedule discussion(s) about the current broodstock, collection efforts and whether/when stocking should be considered for the Green.

9. Spring sampling updates

- **CPW**

- **Kenney Reservoir:**

- Following the discovery of illegally introduced pike last fall, CPW began mechanical removal with gill nets, trap nets and electrofishing April 11, as soon as the lake was ice-free. Removal efforts were

discontinued at the end of last week after several days with no pike caught. Approx. 31 pike were removed, representing what appears to be 3 size-classes. Most fish were caught in the first 4 days, very few caught in recent weeks.

Short-term, Rio Blanco Water Conservancy District conducts a popular fishing tournament June 1-2, and we are in productive discussion with the District to add awards for pike, and surround that with a lot of publicity encouraging pike harvest and condemning illegal stocking. Details need to be finalized but the District has been very cooperative and helpful; every reason to believe we'll be able to do this.

Longer-term, CPW is discussing a whole suite of additional options with the District.

Yampa backwater netting:

210 northern pike captured in gill nets, through May 3. Of those, 15 were tagged by FWS and one was a purple tag from CSU. 67 were mature females (some are not identifiable due to consumption by scavengers). Of the females, 41 were green, 21 were ripe, and 5 were spent. Overall, CPW caught more ripe females this year compared to last year (21 vs 10), essentially the same number of spent females (5 vs 4 in 2018) and green females (41 vs 44 in 2018).

The 210 total pike is essentially equal to last year's catch (203). Preliminarily, catch-per-effort declined very slightly.

Yampa boat electrofishing:

CPW started on May 9; nothing to report yet.

Elkhead net:

No fish were caught in gill nets set between the Elkhead net and the spillway.

Catamount & Stagecoach:

Netting began at ice-out on April 17 and continues. Removed roughly 1100 pike so far, mostly age-1. Large cohort produced last year (removed roughly 3000 age-0 last fall). Standard sampling hasn't started yet in Stagecoach.

Mamm Creek Pit:

No pike caught. Given their past susceptibility, we have good reason to believe there are none left.

- **UDWR - Vernal** - Matt Breen said pike sampling in the Middle Green has shown a doubling of catch, mostly smaller individuals. Walleye patterns have been the opposite, with few captures after a lot of effort. Effort has been shifted to help the Moab office. Submersible antennas have been deployed since early April. One burbot was collected near Chew Bridge. Pete asked if the burbot was in good condition if it had anything in its stomach. Matt said the fish was doing well, but it was not dissected. Matt agreed that checking stomach content should be standard procedure on all future burbot collections.

123b Pike removal

- 32 overnight fyke net sets--31 Northern Pike.
- 4.27 hrs of tributary electrofishing—8 Northern Pike, 1 Smallmouth Bass.

123b Walleye Removal

- 79 total electrofishing hours. 65 hrs in Middle Green River and 14 hrs effort reallocated to help UDWR Moab below Tusher Diversion.
- Low Walleye numbers in Middle Green River (n=7, 0.1 fish/hr). Higher numbers in area below Tusher diversion (n=45, 3.21 fish/hr).
- 38 Smallmouth Bass, 13 Northern Pike, 1 burbot captured.
- Candidate for largest pike in 2019 (1,150 mm, 9,133g) captured near Split Mountain.

172 Remote Monitoring of Endangered fish in the Middle Green River

- Three antennas deployed on 4/5/19. Escalante Ranch area and Brush Creek.
- Two more deployed on 4/18/19. Escalante Bar and Ashley Creek.
- 4,926 total detections (many duplicates).

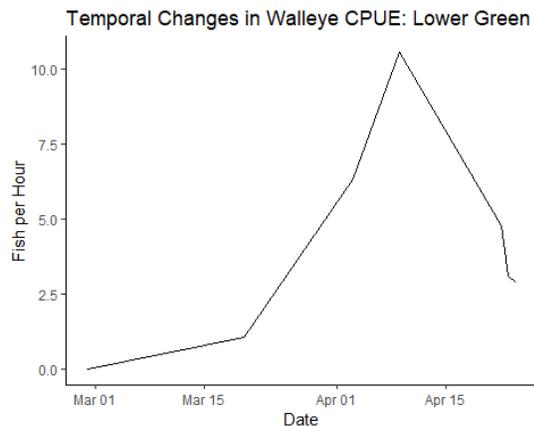
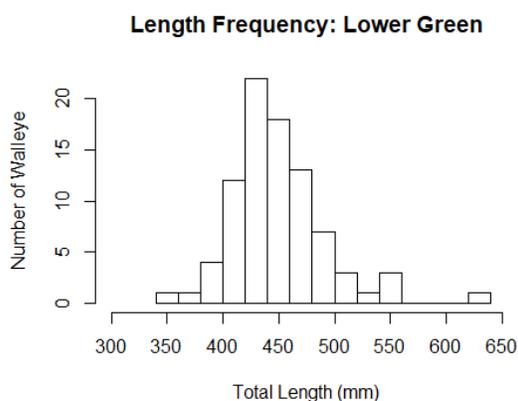
165 Stewart Lake

- Prescribed burn unlikely this spring due to weather conditions and firefighting resources.
- Awaiting larval presence in river. Screen in place and ready to fill.
- Repairs made to fish trap.
- Antenna deployed on 5/1/19 near outlet gate.

○ UDWR - Moab

123d

- UDWR Moab initiated walleye removal (123d) on 27 February 2019 and plans to continue opportunistic sampling through the end of May. Early season catch rates were low, however, began picking up in late March.
- The Moab office was plagued with continuous outboard issues in Spring 2019, they borrowed a boat from UDWR Vernal, and the Vernal office participated in lower Green River walleye removal over three days in mid April (Thanks Mike, Matt and crew!). Presently, they have one fully functional Electrofishing boat and will have a second back from the shop on the 10th of May. Ethanol may be making plastic more brittle causing air to be sucked into the motor. All new running tanks and all new fuel lines have been purchased and installed. Pete asked if non-ethanol fuel was available in Utah. Chris confirmed that it is and they will be using that exclusively in Moab. Dale said they treat their fuel with additives to prevent those issues.



- Note we have not seen walleye catch rates this high since 2014 within the lower Green River. UDWR Vernal assisted in lower Green River removal: 45 walleye, 13.9 hours of effort = 3.2 fish per hour. Total catch = 131 walleye, Total effort = 35.3 hours, Total CPUE = 3.7 fish per hour

- Moab completed one exploratory pass on 10 miles of the lower Dolores. We encountered lots of native fish and NO walleye! Catch included four bonytail and four roundtail. Pete asked about the history of the bonytail. The Dolores fish were probably recently stocked. One of the bonytail in the Colorado was found in lower Westwater.

Matheson Preserve Larval Entrainment- Zach Ahrens

Wetland Augmentation Status:

- Excavation of inlet channel (between river and control structure) and “linear” pond which runs between control structure and existing Central Pond area is complete (Photo 1).
- Construction of concrete structure to house fish screens and gate is complete.
- Fabrication of gate and fish screens – which are built to order – is underway.
- UDWR is planning for gate/screen installation subsequent to Spring peak flows & prior to end of FY19.

Wetland O&M Status:

- Stop-logs are currently in place in lieu of gate (Photo 2).
- With stop logs in place, groundwater seepage is filling inland portion of wetland. With recent decline of river discharge & elevation (Figure 1), wetland & river elevation are roughly at equilibrium as of 7 May.
- Larval sampling began 24 April; no fish larvae of any taxon detected as of 7 May.



Photo 1. Newly excavated Central Pond inlet channel and concrete control structure; view toward Colorado River, facing slightly downstream.



Photo 2. Concrete control structure with stop logs, and newly-excavated “linear pond” where river water & larval suckers will be entrained; view looking inland.

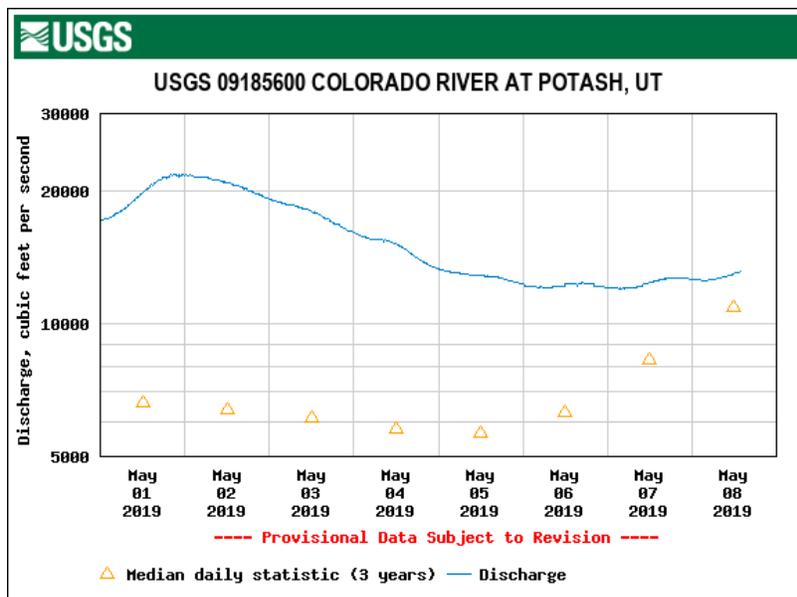


Figure 1. US Geological Survey discharge data, Colorado River at Potash, UT.

○ FWS-Vernal

- Bonytail stockings have been occurring this spring
- Excess RZB larvae may be available if someone has a use for them

FR 164: The crew built a wall at the breach to keep undesirables out of Johnson Bottom.

Dave and Robert cleared a lot of sediment out of the river and canal side of the kettle at Old Charley.

Dan Schaad has been helping us out with ideas and he's been supporting us with the "reawakening".

169: Razorback Bar

- Over 5,000 detections total
- STReAMS returned: 1,978 RZ, 14 CS, 6 BT, 9 three species, 69 UI

These numbers haven't fully been scrutinized but they should be close. Last year we detected 1,257 RZ total at the bar, so we've already detected almost 400 more only a month into it. Detections appear similar to past years where activity/detections seem to increase with water temperature and drop with temp. 3 antennas set at Echo Park on May 8th.

98b:

- 84 NP tagged during marking pass
- 246 NP caught passes since then, of which 10 were recaps (2 CSU tags from Hawkins' reach)
- Pass 5 completed, planning on Pass 6 & 7 after peak
- This week will be the final week of netting. Tory has been able to net an additional 200 pike, recapturing an additional 15 FWS tags and 1 CSU tags. More ripe females were captured than last year. Cam also saw high pike numbers. Upper Yampa - John Hawkins tagged 56 pike, 12 recaptured out of 30 in subsequent passes.

167:

Matt Breen and Chris investigated a public access route to the CO-UT stateline access point (Gilsonite Draw) on the White. They found some promising options and received landowner permission to use the road to this launch.

They sampled below Taylor Draw Dam on May 9:

56 SMB, mostly adults

10 fish/h in reach 2+ miles downstream of dam (higher than 2018 rates)

1 NPK –632 mm, ripe male

○ **FWS-GJ**

Colorado pikeminnow population estimate sampling: By May 10th, FWS-GJ will have completed two full passes on the entire river. As of 2 May 2019, they captured a total of 117 Colorado pikeminnow of all sizes, ranging from 73 mm to 885 mm TL. They are capturing age-1 Colorado pikeminnow from last year's spawn and also suspected age-4 Colorado pikeminnow from the large 2015 cohort. A total of 46 adult-sized Colorado pikeminnow have been captured.

In addition, 6 age-1 razorback sucker have also been captured. Unfortunately, they have also captured 54 walleye in the lower river and 1 walleye in the upper river. Several of these have been spent female fish. They have also collected 2 grass carp to date in the lower river.

Fish passage facilities: The Grand Valley Water Users (aka Grand Valley Project) fish passage is open. River flows went from too low to this fish passage (I.e., passage can't be run at flows < 2350 CFS) to over 5,000+ CFS in just a few days, so we are now dealing with a lot of sediment and debris, which has caused fish catch rates to be generally lower than last year (when there was no high water). However, on May 7th and 8th alone, approximately 1,500 fish (about 10% of what we get in a "normal" year of operation) were handled at this fish passage. The catch so far this year has been

dominated by large flannelmouth sucker and numerous size-classes of roundtail chub. One razorback sucker has also been handled at this fish passage so far.

The Redlands fish passage was off-line for several days, as Gunnison River flows increased to above 10,000 CFS on 30 April 2019 and flooded out the facility (which happens at about 8,000 CFS). The access road to the fish passage was underwater as was the electrical connection for the water pumps. Luckily, flows dropped quickly and we were able to resume normal operations at this fish passage facility starting on 6 May 2019. Given future predicted river flows (using the <https://www.cbrfc.noaa.gov/> website), as the current high snowpack in the Gunnison River basin melts and enters the river channel this spring, this fish ladder could potentially have more periods where high water will preclude us being able to run it, due to flooding.

Price Stubb PIT tag antenna results thus far:

PIT tag antenna hits from 1 October 2018 through 7 May 2019 - 267 flannelmouth sucker, 147 razorback sucker, 95 bluehead sucker, 39 bonytail, 11 roundtail chub, 1 Colorado pikeminnow, 1 flannelmouth sucker X bluehead sucker hybrid, plus 172 tags that are not Recovery Program issued PIT tags - this is even after the addition of CPW's 2018 data (are these PIT tags from "3 species" fish, maybe from previous years?)

- Interesting information from the San Juan program: In late summer/fall 2018, over 50 age-0 razorback sucker were collected in the San Juan River, with most (about 85%) being collected via raft electrofishing and the rest via seining. A sampling trip was conducted from 24 March to 12 April 2019 to see if any of these young razorback sucker had survived overwinter. A total of 45 untagged age-1 razorback sucker were collected on that trip from Four Corners bridge (RM 119.2) downstream to RM 17 (around Slickhorn Canyon).
 - Thoughts about our search image and trying to document rare fish species: The first age-1 razorback sucker handled on the spring 2019 trip was collected at approx. RM 119, even though sampling had begun at Shiprock, NM (approx. 29 miles upstream). Young flannelmouth sucker are very abundant in that 29-mile section of river and after working up the age-1 razorback sucker and comparing it to a young flannelmouth sucker collected in that same sample, the researchers came to the conclusion that may have been missing young razorback sucker, because they hadn't been netting every small sucker they'd been seeing up to that point. However, once they collected the first age-1 razorback sucker, they started netting every small sucker they could and managed to collect 44 additional age-1 razorback sucker in the next 102 river miles (that's 1 age-1 razorback sucker every 2.32 river miles). So, Dale cautioned that age-0/age-1 razorback sucker could very well be hiding in plain sight amongst other more common, species.
10. Staff responsibilities update - Tom Chart reviewed history of filling positions in the PDO. After two retirements in 2017, one position was filled in fall 2018 with Tildon. Our ARD supported filling the Deputy Director position in Lakewood. That position has been opened on USAJobs, it will be open until May 21st. Tom thanked all of Kevin's work as he has been acting in the Deputy Director role for the last year and a half. Kevin is currently serving in a

detail role in the Regional Office, so the Deputy Director responsibilities will shift to Julie. In early 2017, we also lost our admin support. A few new administrative positions have come online in the Regional Office, which will result in some administrative assistance at the PDO.

11. Post-2023 Update - Julie gave an update on the Post-2023 process. Everyone should have received the full suite of tables from all of the program element groups. We are requesting your reviews by May 24. Harry asked about the possibility of stocking Colorado pikeminnow being included in this. Julie answered that unforeseen developments are likely in the future and the real question is whether we envision hatchery efforts and costs decreasing or being held at status quo or increased in the future given possible challenges to come. She also summarized the intent of this process, which is capture the scope and likely costs of a future program, and not the specific actions that might be conducted in the future (such as a RIPRAP type document).
12. Consent agenda: Approval of meeting summaries from February and March. The Committee approved the two meeting summaries attached to the meeting agenda. Julie will finalize and post (*done*).

ADJOURNED: 12:45 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 (refugia/broodstock development / genetics)
 - a. The Program will develop an action plan for establishing refugia for humpback chub (avoiding getting bogged down in genetic analysis) and continue to add new wild fish to hatcheries. 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. *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 Czaplá sent to BC 1/21/15); Melissa Trammell will find and send the plan development proposal document to Tom Czaplá by January 21 and Tom will send it to Wade with a courtesy copy to the Biology Committee and Kevin Bestgen. (Done). Wade will revise the scope of work (done). Additional work pending results from Wade. 5/23/17: Wade says Sandra, who did the testing, has left the office so the Westwater samples will not be analyzed for another year. Tom Czaplá asked if the Committee would like the report now without Westwater samples, or in a year to include the Westwater samples. Dale is concerned that the Westwater data will get lost if we do not wait to include it in the final report. The Committee agreed we want the Westwater data included in the analysis; meanwhile, Tom will distribute the working report (if Wade agrees) to the BC to provide an update. Tom Czaplá said we will wait to figure out what to do with the fish at FWS_RH until we get the white paper on Yampa River transfer. • Tom Czaplá will follow up with Wade Wilson and get recommendations on securing additional fish for broodstock (e.g. from Deso/Gray). Wade recommends more broodstock (minimum of 50) from Deso to support the stock at Randlett of 10-13 fish. Pete asked what we would do with these fish. The committee isn’t sure, but it will be affected by the white paper and results of the final report. Sandra had recommended a single broodstock from the Upper Basin. 9/17/18: Dale has not collected wild fish this year, they were waiting for temperatures to cool off, but with funding concerns, Dale thinks collection this fall is unlikely. Dale asked if HBC are downlisted, do we need to retain refuge populations? Tom Chart said downlisting would not negate the need to keep hatchery stock. Tom said we still*

need to figure out what fish are appropriate for Yampa Canyon, which will affect broodstock decisions. Melissa said the fish originally available from the Grand Canyon are no longer available; they were stocked into Bright Angel Creek in the Grand Canyon. The group will reconvene. Kevin McAbee reiterated the importance of these actions for HBC which will gain important side-boards during the recovery planning process.

- b. Program needs to continue to evaluate fish for Yampa Canyon replacement.
3/12/19: A draft HBC genetics report was distributed to the BC by Tildon on 3/6/19. Cheyenne Owens will help these discussions move forward in 2019.
2. 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. Tom Czapla will make sure this has been written up. Melissa Trammell said Dave Ward has done a great deal of work on this and will send references to Tom Czapla. Dale Ryden and others emphasized that experienced hatchery personnel likely will always be able to tag smaller fish than seasonal technicians in the field. Tom Czapla will compile information he's received and provide it to the Committee in advance of the May webinar. 5/23: Tom Czapla will request write-up from Matt Fry. 7/14/17: In progress; 10/12/17; Tom Czapla sent draft to the Committee for review on September 29; to be discussed in January 2018. So far we received comments from Pete Cavalli and Dale Ryden, are any other BC members planning on sending comments? 1/25/17: Discussed at the January meeting; Tildon Jones will assist Matt Fry in completing the report. Any additional comments should be submitted by Feb. 15. 11/8/19: Cheyenne will assist Matt in the development of this document as Tildon assumes other responsibilities.*
3. Biology Committee members can share any thoughts/comments on proposed graduate research projects back to the Committee and the Committee will track as a future agenda item to determine any next steps or specific projects we want to focus on. *3/7/17: Although FY18 budgets appear constrained, we can always put these on a contingency list and keep our eyes out for other funding sources.*
4. Floodplain follow-up assignments:
 - a. The Program Director's Office will discuss terms of the Escalante wetland and Lamb property leases with Ouray NWR (Dan Schaad, Sonja Jahrdoerfer, and Andrew Pettibone) to ensure the Program really benefits from them. Tildon noted that the easements may be protecting these floodplains from other development.

Tildon said there are two easements being proposed to be open to oil and gas leasing through the BLM - Pariette and Escalante Ranch. Pending.

- b. PDO will develop a prioritization strategy for both the Colorado and the Green by the end of August and will schedule a call (Sept-Oct) to continue discussion.
10/27/17 - Draft discussed by Committee; comments due within two weeks to the Program office. Tom Chart will then take it back to Brent and Ryan and see about next steps. 1/25/18: Prioritization now dependent on elevation surveys and larval information. 9/17/18: Tom expressed support for moving forward with the Stirrup on the Green River and noted the Matheson may be the best option on the Colorado River. The PDO expects to make progress on this issue as soon as we get additional staff online.
5. Exploration of using alternative methods of nonnative fish control in systems where traditional mechanical control is ineffective/infeasible. Kevin/Tom/Don will start the discussion with relevant parties and bring agenda items back to the BC as necessary for both the White and the Duchesne. Kevin will talk to Jenn, Chris Smith and Matt Breen to get more information around the White and Kenney Reservoir. 9/17/18: Don and Tom discussed releasing water in the White for algae control, which might also have benefits of removing nonnative fish. Tom said they released water in early July to control cladophora. CSU field crews were on site and the PDO will check back to determine the effects on the fish population. Kevin Bestgen confirmed sampling occurred pre- and post-flow. The data has not been worked up yet, but will be in the off season. Kevin Bestgen thinks the event occurred pretty late in the spawning season and may not have had a large effect. Tom noted that Alden said it may need to occur on an on-going basis for algae control.
6. The hatcheries need new guidance from the PDO which will incorporate HCP protocols. Julie Stahl will provide as time allows. Guidance will include collection and reporting of environmental data. Stocking discussions will happen earlier in the year and be more comprehensive. *11/8/18: Julie and Cheyenne will convene a group of BC members and hatchery managers to develop a plan forward for bonytail. 3/12/19: The bonytail group met on 3/7/19 to discuss options for a food study. Future meetings will be scheduled to support the propagation element as needed.*
7. Geomorphology/CPM nursery habitat symposium - Jerry Wilhite and Melissa Trammell will explore starting a symposium at either the Researchers Meeting or Utah AFS.
Pending.
8. 10. PDO will figure out how best to distribute spill contact information (potentially on the website). *Pending.*

9. Kevin McAbee will hold a nonnative fish workshop sometime in the Winter-Spring of 2019-2020.
10. PDO will start conversations around a razorback sucker monitoring plan, including revisiting the 2012 report for recommendations.
11. Melissa will develop a SOW for monitoring of vegetation and channel narrowing as part of the FY20-21 SOW process.
12. Tildon, Julie and Kevin Bestgen will use STReAMS data to explore signs of pikeminnow avoidance to electrofishing.
13. Julie will distribute RefWorks information.
14. Tracy Diver will explore alternative options for pikeminnow collection, including cryo-preservation options.