

**Biology Committee Meeting Summary, July 8-10, 2019  
313 E 200 S, Vernal, UT 84078, USA**

**Amended with the supplemental discussion about budget cuts on August 13, 2019**

**In attendance:** Harry Crockett (chair), Paul Badame, Dave Speas, Melissa Trammell, Pete Cavalli, Dale Ryden, Derek Fryer. **Absent:** Environmental Representative. **By phone:** Tom Pitts,

**Interested Parties:** Tom Chart, Kevin McAbee, Julie Stahli, Cheyenne Owens, Tildon Jones, Melanie Fischer, Jojo La, Kevin Bestgen, Mike Partlow, Matt Breen, Katie Creighton, Mike Mills, Jerrad Goodell. **By phone:** Don Anderson, Zach Ahrens, John Hawkins, Steve Mussman, Tracy Diver, Wade Wilson, Chris Michaud.

**Comments submitted by: Pete Cavalli and Dave Speas**

**Monday, July 8th**

**CONVENED: 1:07 p.m.**

1. Review/modify agenda - The agenda was modified to read as follows. *Note: the summary has been amended to place all the field updates together and all of the work plan information together, but both were discussed on both days.*
2. Harry welcomed Derek to the BC as the new representative from WAPA. Derek said he has been working for the Army Corps of Engineers in Walla Walla, Washington. He has worked extensively researching and monitoring salmon and steelhead. He is a fishery biologist by training who studied movement of fish through systems. Derek said he is excited to work in a new ecosystem and with new species. Melissa asked if Derek has experience documenting fish condition after fish have moved through structures. Derek said he has extensive experience in that area; the BC expressed interest in Derek's skills to evaluate fish condition in passages and screens in the basin.
3. Field updates -
  - a. CSU - John Hawkins said upper Yampa northern pike work is complete, with two marking passes for abundance estimation and four removal passes. Catch rates were down and the team gathered knowledge about spawning areas and habitat.
    - Smallmouth bass sampling has been occurring since mid-April. Catch rates for bass have been down as well, but temperatures just reached 16 degrees this week, which could trigger spawning. CSU, CPW, and the two FWCO crews are beginning to implement the "surge" to remove bass from nests. The late spawn should reduce over-winter success for bass. John asked for assistance with additional people/technicians for that effort.
    - Kevin Bestgen said field crews have been in Brown's Park looking for northern pike and pikeminnow, with limited success for both species. One pikeminnow was captured in Vermillion

Creek. Drift net sampling is currently occurring in the Yampa at 8,000 cfs, which is challenging. Spawning of all species is thought to be delayed because flannelmouth sucker larvae (typically the first native species to spawn in summer) are just now being caught. CSU teams surveyed Lodore through Split-Mountain canyon to document the connection between flow levels and side channel inundation. Flows were difficult to document as flows were descending from the spring peak and were also varying for power generation.

b. CPW

- **Kenney Reservoir:** CPW conducted mechanical removal of illegally introduced pike for 4 weeks post-ice off, until there were several consecutive days with no pike caught. Approx. 31 pike were removed, representing what appears to be 3 size-classes. CPW collaborated with Rio Blanco Water Conservancy District to encourage pike harvest during their June 1-2 fishing tournament, including incentivizing harvest with a \$20 per pike payment. This incentive remains in effect until November 30. The District has very graciously agreed to receive and process pike turn-ins. They store carcasses or heads in a chest freezer provided by CPW, for pick-up as needed by CPW. Two pike were caught during the tournament, and 13 have been brought in subsequently.
- **White River electrofishing:** CPW completed 7 days of electrofishing, with two more in the SOW. CPW coordinated with FWS to schedule passes when flows are more conducive to effective electrofishing. Six days were completed prior to bass spawning. On the 7<sup>th</sup> pass (June 19), females were still mostly ripe but the catch included some spent females. Catch rates have varied but have averaged around 13 fish/hour (for all size classes). The next two days are tentatively scheduled for July 9-10, flows permitting. CPW removed 574 bass (283 > 200 mm, 291 < 200 mm), and also captured 2 pikeminnow (both smaller individuals but already tagged) and 1 razorback (the razorback sucker was part of our display during the Kenney tournament and released below the dam). CPW has not captured any northern pike, although USFWS has collected a few (N=3?)
- **Colorado River:** CPW completed 1 day of block-and-shock, Rifle to Rulison, with no pike or smallmouth bass collected. Waiting for flows to drop before attempting additional passes. As of the last week of June, the inlet at **Mamm Creek Pit #1** still had not connected with the river (except for possible infiltration through the rocks), but appeared close to doing so. The Merwin trap is still set and checked weekly. No pike have been captured.
- **Ridgway Reservoir:** The 2019 tournament is just getting underway, with the fish check stations open Friday, Saturday & Sunday.
- **Elkhead Tournament:** The tournament ended June 30. There were 270 anglers registered (269 in 2017).
- **Yampa boat electrofishing:** CPW spent 21 days electrofishing the Yampa, capturing 139 NPK and 954 SMB; CPUE not calculated yet. Comparing raw numbers, more pike this year (68 NPK in 2018), while fewer smallmouth bass were caught (3,279 SMB in 2018). As reported in May, an additional 210 pike were removed during the backwater netting. CPUE for pike during backwater netting was 0.638 pike per net-night, virtually identical to last year (0.66 in 2018).
- **Catamount Reservoir:** Catamount produced a large cohort of pike last year. 1230 pike were removed primarily by netting, mostly age-1 and age-2. We will continue to run small-mesh gill nets opportunistically throughout the summer to further control small pike.

- **Chapman Reservoir:** The reservoir was sampled this spring to follow-up on last fall's rotenone treatment. Unfortunately several pike were caught, indicating an incomplete kill. CPW is in promising discussions with the water owners about drawing the reservoir down again this fall, for a second attempt.
- **Stagecoach Reservoir:** One smallmouth bass was captured (~345mm), the first occurrence of the species in Stagecoach. Proving for all practical purposes, another illegal introduction in that reservoir. We are working on a response plan to communicate to the public & enlist angler assistance. We will keep the BC well informed of further developments in this new situation. Ample water availability enabled the Upper Yampa Water Conservancy District to avoid filling the upper 1.5 feet of the reservoir for approximately 4.5 weeks post ice-off. This strategy is expected to negatively impact pike spawning success by reducing available spawning habitat. CPW has been running fry traps in the shallows to try to identify concentrated areas of spawning / recruitment, but to date has not captured fry. To date, 85 pike, 35 walleye and one smallmouth bass have been removed.

Derek asked if there was a catch and keep regulation in Colorado as there is in Wyoming and Utah. Harry said those regulations (catch and kill) were proposed but failed in Colorado, the tournaments were a direct result of those efforts. Colorado has liberalized bag and possession regulations for these species on the West Slope. Harry is looking into options for management and/or harvest incentives at Stagecoach. Jojo asked how the recent law increasing fees and fines affected the efforts. Harry explained that the ramifications are serious, but the ability to catch people is limited. The current fishing guide highlights the importance of not moving fish, including a large section on the last page. Paul asked if any of the AIS inspectors had found live wells full of fish. Harry said none have been found. Stagecoach is a great salmonid fishery, which is why it is popular.

- **Bonytail Stocking:** CPW will stock bonytail into the Yampa River at Deerlodge the week of July 15.
- c. UDWR-Vernal - Pike numbers were up in early spring (covered in the last BC update)
- Project 123b: middle Green River smallmouth bass removal: Subadult bass have been captured, but Island Park surge efforts scheduled for July 3, 5, 8, and 9<sup>th</sup>. 1<sup>st</sup> full pass of Green River bass removal starts on July 15<sup>th</sup>
  - Project 165: Stewart Lake: Razorback larvae first detected at Cliff Creek on May 21<sup>st</sup> (FWS); detected at Stewart Lake on May 26<sup>th</sup> (FWS). Filling began through outlet gate on June 4<sup>th</sup>, which is when most larvae were captured in the outlet canal. 1 razorback sucker larvae captured in wetland on June 10<sup>th</sup>; 2 larvae captured in wetland on June 14<sup>th</sup>, which are low numbers in comparison to previous years. Block net over levee road breached for 1-4 hours on June 11<sup>th</sup> which may have allowed adult nonnatives into the wetland. Inlet gate opened on June 17<sup>th</sup>; flows projected to recede. Outlet gate closed on June 19<sup>th</sup> as the river and wetlands levels reached equilibrium. Inlet gate closed on June 26<sup>th</sup>; wetland level equalized with levee breaches. Maximum wetland elevation achieved;

7.5 ft staff gauge height. Adult common carp observed in wetland on June 14<sup>th</sup>; trammel nets deployed to assess. 2 adult carp, 13 bonytail which were stocked in the river after the wetland breach happened, which means they likely jumped over the gate. 2 razorback sucker; classroom fish stocked in wetland on June 17<sup>th</sup> and 21<sup>st</sup>. A single 2016 age class Stewart Lake razorback sucker was detected on submersible antenna on the river side of outlet gate on June 18<sup>th</sup>. This is the **first documented wild recruitment to age 3 in the Upper Basin since our propagation efforts began.**

- Project 167: White River smallmouth bass removal: Landowner no longer willing to work with crews to allow access; new state line launch site used instead, a much longer shuttle (5-7 hrs/trailer x 3 trailers = 2 days). With new complicated logistics, multiple passes in upper section are not feasible; 3 passes from state line to Enron completed on 5/20-23/19, 6/3-6/19 & 6/24-27/19 (98.2 hrs effort). 857 sub-adult bass (CPUE = 8.73 fish/hr); 48 adult bass (CPUE = 0.49 fish/hr), documented all the way down to Enron boat ramp. Northern pike (587 mm) captured near RM 57, another one missed in same area. Abundance of age-1 bass captured suggests another productive year in 2018. Final spring pass (16 total days in spring) will occur July 10-13<sup>th</sup>; log jam will complicate boating. Now must launch at Big Trujillo, then deadhead 15 miles to state line to begin.
  - Project 172: Remote monitoring of endangered fish in the middle Green River: Two antennas deployed 04/05/2019 in the Escalante Ranch area were removed 05/30/2019. One antenna placed on Escalante Bar 04/18/2019 was removed 05/30/2019. One antenna placed in Brush Creek 04/05/2019 was removed 06/28/2019. One antenna placed in Ashley Creek 04/18/2019 was removed 06/28/2019. 9,283 total detections (time needed to analyze data). One antenna was deployed at Placer Point, Dinosaur National Monument 06/28/2019 based on pikeminnow presence in 2018
- d. UDWR-Moab - Zach Ahrens reviewed conditions in Matheson wetland. Construction is ongoing and the gate and fish screen have not been installed yet. Zach et al. were able to fabricate temporary screens to open the wetland in the meantime. Stop logs are being used to keep water in the wetland, but they leak. Light trapping started on the 24th of April, first larvae of any species were detected on May 9th. On May 13th, the first larval razorback sucker was found. They opened the wetland on May 17th to pull in larvae (screened to keep out nonnative adults). On the 10th of June, the Colorado peaked at 40,000 cfs, which eliminated the screen. On June 19th, fish mortality was observed when open water conditions were still common. Possibly from anoxic conditions formed from decomposing organic matter. Larvae are still being detected (as of July 5th). PIT tag antennas have picked up 7 bonytail, 10 razorback and 48? unidentified fish.

Katie Creighton said smallmouth bass removal started in Desolation Canyon (6/20-25 28k-24k cfs (Green River), 12-16 C (at Jensen)) capturing: 38 bass, one large pikeminnow, 14 other pikeminnow and 6 humpback chub. Desolation and Echo passes have been split. Echo work started on July 6th and then will be followed by another Desolation pass later in the summer. Paul asked if walleye were present in Desolation, but Katie had not heard.

- e. FWS-Vernal - Tildon Jones reported for Chris Smith. Floodplain sampling and larval light trapping has been successful to ensure entrainment in most wetland habitats. Chris pulled antennas off of razorback bar on July 8th, the antennas on the pikeminnow spawning bars will remain in the river for a few more weeks. One or two passes have been completed in the White River, but more trips are planned in coming weeks. FWS will also help out with Lodore/Whirlpool study and the Surge. Paul asked if the access issues affect Chris as well. The FWS crews now have to put in at Big Trujillo and takeout at Bonanza Bridge.
- f. FWS-Grand Junction - Dale Ryden reported.
- Colorado pikeminnow population estimate - Project 127 - Field work was completed June 28<sup>th</sup>. Five passes were completed in the upper reach, and four passes were completed in the lower reach. A total of 327 pikeminnow captures occurred during sampling in 2019. The adult Colorado pikeminnow capture total was 135, which is similar to the total number of adult captures during each of the previous 3-year sampling rotation of 2013-2015. There is a large number of age-1 CPM in the lower reach right now. The age-4 cohort (2015 year class) from the record YOY catch in 2015 has also resulted in a large number of juvenile and sub-adult CPM (400-450). Seven remote (wagon wheel) PIT tag antennas were deployed throughout the river to assess their potential usefulness for monitoring Colorado pikeminnow in the Colorado River. Five age-1 and one suspected age-2 wild razorback sucker were also captured downstream of Moab during pikeminnow sampling. Unfortunately, large numbers of walleye were also caught this year.
  - Aspinall - Project 163 – Field work on the larval sampling portion of project 163 is progressing. Thus far, catch of larval fishes has been low due to cold water temperatures persisting due to high flows occurring later in the year.
  - High water levels and copious amounts of debris made catch rates at both fish passage facilities inconsistent and lower than normal for this time of year. Catch rates for all species have been relatively low, but should start to increase markedly as river flows adjacent to the fish passage facilities begin to decline. Sediment removal at GVWU fish passage will occur this week.
  - The first week of smallmouth bass surge on the Yampa will begin for our office next week. This is two weeks later than normal. Smallmouth bass removal efforts in the Colorado and from streamside ponds are also delayed, but both will start over the next two weeks.
  - Harvest and stocking of bonytail from the grow-out ponds at the Horsethief Canyon Native Fish Facility is beginning today (Monday, 7/8/2019). As per conversations that occurred this winter, we are stocking fish < 250 mm TL, as our previous stocking of fish only > 250 mm TL were highly selective for stocking female fish only. Our Health Condition Profile (HCP) work for bonytail was done this last week and confirmed that all bonytail in our ponds > 250 mm TL were indeed female fish. Our HCP work confirmed high body fat contents once again in our hatchery bonytail. We are in the process of collecting 15 wild roundtail chub from 250-350 mm TL from the fish passages, for necropsy, to compare their body fat content with our hatchery-reared bonytail.
4. Stewart Lake Management - Mike Partlow said cattails continue to be a problem at Stewart Lake. In 2016, Stewart Lake was filled to capacity and over 2000 wild-spawned razorback sucker were produced. In 2017, the wetland was filled 2 ft less than in 2016 because the inlet was not as operational as was

needed because of cattails. In 2018, a burn was conducted to depress cattails, but the cattails grew back quickly. Only 10 YOY razorback were released. The burn did not accomplish the desired effect because the roots were not covered with water and the stalks re-emerged in similar densities. The condition of the cattails showed smaller stalks, which is a sign of lower carbohydrate levels. Another burn was desired in 2019, but snowpack presence and precipitation did not provide appropriate burn conditions before runoff began. The most promising method of controlling cattails is to remove stalks in late winter and then flood out the roots right after the treatment - all taking place before razorback entrainment. If burning and flooding occur immediately prior to razorback larval presence, the wetland could be half full when larvae become present in the river. Another option may be to use heavy equipment to roll over the cattail stalks and push them into the mud. The machine is called a [marsh-master](#) Mike would like to get a contractor out to roll over the cattails over the winter which could be followed by flooding as soon as it is possible.

- a. Option 1: Roll entire area where cattails exist (~400 acres) at \$120/acre = \$48,000 + \$2,000 to pay ditch rider to allow early delivery of supplemental water. Total = \$50,000.
- b. Option 2: Roll important fish habitat near center of wetland (~200 acres) at \$100/acre = \$20,000 + \$2,000 to pay ditch rider to allow early delivery of supplemental water. Total = \$22,000.
- c. Option 3: Wait until next spring and attempt to burn again. May not require Recovery Program funds, but if burn is not possible, cattails may rebound and progress made could be lost. Uncertain timing could make flooding prior to LTSP operations difficult.



Photo: Stewart Lake in 2016 before cattails became an issue.

Mike argued that cattail management needs to be a component of the Stewart Lake Management Plan, which is currently under revision. If another dry summer occurs, keeping the wetland dry for a year may be effective. His goal is to push back the cattails sufficiently to re-enter maintenance mode. Paul asked if the marsh-master pushes the cattails down this fall, if a burn would occur again in the Spring (if timing would work). Matt Breen and Mike said the burn serves multiple purposes, including providing training opportunities for fire field crews and removing standing fuel. Derek asked Mike to review the purpose of cattail management. Mike said what used to be open water in Stewart Lake is now primarily two channels in a monocrop of cattails covering the wetland. Tildon asked how much it might cost to buy the machine for use in all wetlands. Kevin McAbee asked if the marsh-master treatment could work at any time or if it is a seasonal opportunity. Mike said it's not really possible to have an effect on the cattails if there is more than an inch or two of water. Mike said it is likely to be most effective when the cattails are dormant. Pete asked if the squished cattails could create anoxic conditions similar to Matheson. Mike said it is a possibility, but the dead stocks are there regardless of the treatment. Mike Mills said two of these machines were just purchased for Utah Lake for \$150,000 apiece. They are owned by Utah County.

Tildon asked if putting cattail management in the Stewart Lake Management Plan would push some of the responsibility onto the Habitat Section of UDWR. Paul said efforts would likely remain a dual effort between Habitat and Fisheries. Mike said this is a one time request for treatment after which the effects will be assessed. Harry said there are also cattail issues in Colorado.

Harry asked if this conversation is appropriate in the context of the annual work plan. Tom said because this would be a one time contracted out fee, it may be more appropriate for Section 7 funds than for annual funding. Kevin McAbee said he thinks we have few unobligated funding requests from that account. There have recently been two large deposits into that account, the balance is currently sitting at approximately \$1 M. Kevin clarified that the Program office working with NRWF would implement the contract after a Project Proposal comes from UDWR-Vernal to the Management Committee for approval.

Pete would like to see post-implementation monitoring of both habitat conditions and dissolved oxygen data. Matt Breen said there are water quality monitors out there currently for DO and aerial photography may be possible to document success. Melissa asked if there are any anticipated problems with early water delivery. Matt said their relationship with the water delivery company is strong and it is unlikely to be a problem. Kevin asked if this decision would change the anticipated scope in 2020 or 2021. Matt said changes are unlikely, but he needs to see what the effects of the treatment are to determine the effects in future years. Tom Chart said that USBR used to manage the wetlands as a fill and drain system and asked if our management exacerbated the cattail conditions. Matt said the wetland is still managed as three months of wet and nine months of dry conditions, so there should be little difference between management for selenium and endangered fish. Tom asked if we could think about long-term options, including letting fish go earlier in the season, or drying for a whole year to prevent establishment of a new crop of cattails. Matt said all options are being considered to return to more of a maintenance mode.

Harry recommended the 400 acre treatment. Melissa agreed. The BC recommended the 400 acre treatment be brought to the MC for approval from Section 7 / NFWF funds. >The Program Office will seek MC approval via email once UDWR-Vernal sends a proposal (*done: Tildon sent an email requesting approval on 7/17/19*). Melissa asked the PDO and PIs to consider if there are any other places we should treat while the contractor is out. Tildon brainstormed Sheppard Bottom. This would require ONWR sign off. >Tildon will follow up.

5. Hydrology Update & LTSP - Don Anderson said it has been an exceptionally good year for runoff this year. After 2018 and low reservoir levels, the high flow levels are a relief to water managers. A solid snowpack and late cool weather have supported flows. In April-July conditions, conditions range from 111% in the White to 185% in the Duchesne. Lake Powell inflow is currently estimated at 144% of average. The Program has worked with partners to support sustained high flows for channel maintenance. In the Green River, Flaming Gorge released to match the larval trigger in early June sustained >18,000 cfs for 10 days or more. On the mainstem Colorado, CROS releases sustained high flows over 18,000 cfs with peaks of over 22,000 cfs at the Cameo gage. Thanks to CWCB, Denver Water, Northern Water Conservancy District, Colorado Springs Utilities, and others for their efforts. BOR managed the Aspinall unit to reach flow targets and produce the highest flows since 1995. High flows are persisting across the basin. In the 15-MR, flows remain at ~14,000. In comparison, at this time last year, Don was calling for water to keep flows above 400 cfs. Coordination calls for the Yampa and the Colorado will likely continue through August. Base flows are likely to be sufficient in both rivers through the irrigation

season. On the Green River, Flaming Gorge is beginning to operate for base flow conditions. The Program Office is continuing to conduct outreach within the water management community to develop partnerships to increase endangered fish flows. The Colorado Water Trust/Walton Family Foundation financially support moving water through the BOR system to support flows in the 15-MR in years with low water conditions, which is a new tool in the toolbox. The Watershed Council and the Yampa Basin roundtable have been working on integrated planning efforts to explore potential opportunities for cooperation around flow protection. Thanks to The Nature Conservancy and the Colorado Water Trust who are working to develop a Yampa River fund, which may be available to fund environmentally beneficial activities in the Yampa basin, potentially including the purchase of water out of Elkhead Reservoir to support base flows during the summer.

Tildon said larvae were detected in May in the Green River, but incoming storms and cooler temperatures delayed the majority of spawning activity. Larval triggered flow releases were delayed by about a week, which also supported meeting flow targets of 18,600 cfs when combined with the Yampa. Flows ranged from 18,600 to over 21,000 cfs. Four managed wetlands (Stewart, Old Charley, Sheppard Bottom and Johnson Bottom) and four unmanaged wetlands (Above Brennan, Bonanza Bridge, Stirrup, Leota) connected; none connected to the river before larval trigger and many were dry before connection. All wetlands were confirmed to contain larvae, except for Leota and Sheppard Bottom (which may just be because the sampling was difficult). The next priority is larval pikeminnow. Flaming Gorge has been dropped to 1500 cfs to wait for pikeminnow presence, which is difficult to predict because of the highly variable Yampa River hydrology. Melissa asked if Kevin Bestgen had an estimate of larval razorback densities. Kevin Bestgen said concentrations have been about average. Melissa asked if this year represents optimal conditions for razorback sucker development. Kevin Bestgen said the sustained flows in the Yampa were important. Tom Chart said the hard reset conditions from last year offer a lot of opportunities. Melissa reiterated the importance of success in a year with all these strong signals.

6. Begin review of draft FY 20-21 work plan – Draft scopes of work are found at <http://www.coloradoriverrecovery.org/documents-publications/work-plan-documents/project-scopes-of-work.html>

Tom Chart thanked all Program partners for their diligence in putting together scopes of work this spring. He notes that we are approximately \$800K over budget in FY2020 and over \$1.4 million over budget in FY2021. With the change in funding to appropriations through the Bureau of Reclamation, flat budgets are the new normal. Some funds from Fish and Wildlife Service (agreements between Bureau of Reclamation and FWS) are available to cover some of those costs, but budget reductions are needed. Tom's guidance to the Committee is to reduce the overage by \$200K to \$250K. Tom recommended noting areas of potential reductions throughout our discussions and providing the Program Office with guidance to help reduce costs. The Program Office in the past has been focused on funding the work, without regard to the effects on any given office. Tom recommends a blended option moving forward, spreading the pain across all offices to ensure that the existing staffing commitments are fulfilled. He does not anticipate this being an easy discussion as there are not obvious areas for reduction. Tom said the coordinators were looking at a finite budget this year, in addition to examining consistency both within and across scopes. Tom opened the floor and asked how the BC felt about the verbal review provided by the Coordinators during the scope of work process. Paul said it was obvious that things were different this year as coordinators were looking at scopes with extra scrutiny because of looming budget shortages, and

it was unfortunate that both the scrutiny and the new budget spreadsheets occurred in the same year. Answering in depth questions got very detailed, but he understood the constraints on the system. Tom noted the BC has been in this situation before and is used to these tough conversations, but he supported the level of SOW review the PDO coordinators provided this year and in the future.

Tom said Don and the Water Acquisition Committee will review scopes in the Instream flow element. Melanie will review the I&E scope with the I&E committee. The BC is welcome to comment on those scopes as well and those comments will be brought back to those committees for consideration.

Kevin McAbee described the funding contributions / requirements at the bottom of the Work Plan and the origins of those costs.

a. Instream Flow SOW

- Pr. 8: Melissa asked what the value was of the Ouray gauge in addition to the Jensen gauge. Don said the Program is not paying for flow monitoring at the Jensen gauge, but does contribute to Ouray as part of the agreement that funds both. Don said the additional information from Ouray provides understanding about how flows translate through Reach 2. Tom Chart said the Ouray commitment supports the Program's involvement in sediment monitoring in the Middle Green River. Dave appreciated the time that Don put into describing the gauges in this scope.
- NEW - Channel Monitoring for NPS - Dave Speas said Reclamation will partially fund this NPS effort for the first two years (FY19 and FY20) using BOR funds without impacting the Program budget. The scope has two parts: USGS remote sensing and NPS habitat surveys. The Bureau funding would pay for the park survey effort. The Program request would be only for the USGS part. Dave said there are three program documents that identify channel narrowing as a potential unintended consequence of endangered fish flows and it is important to ensure that river channel characteristics are monitored through time. . >Melissa will double check values in FY2020 based on Reclamation's contribution.
- Elkhead lease: Don reviewed that we have 2,000 af available to lease on top of endangered fish flows to prop up flows in especially dry years. Statistically we need to use that water in about 1 out of every 4 years, which is why the \$100,000 cost was divided over four years. Don said there may also be a Yampa River Fund, managed by a local non-profit, that could be used to fund these additional purchases on the Yampa, among other things. NFWF funds would also be available to pay for additional water. Kevin McAbee recommended removing the placeholder in this table, recognizing that the costs will not go away but there are other opportunities to fund this over the next few years. >Don will take this back to the WAC to approve removal. Melissa asked what projects paid into NFWF funds. Kevin said Northern Water paid in a substantial amount (~\$430K) for Windy Gap and Denver Water put in ~\$300K in 2017.

b. Habitat Restoration SOW

- C-28: Tildon said we are missing O&M costs for the Green River Canal. The red numbers in guidance are a guess. The Bureau of Reclamation is working on that SOW now.
- C-Umbrella: The new umbrella scope covers O&M across the Grand Valley for screens and passages. Don worked with Ryan Christianson at Reclamation to develop this scope. When aggregated, the costs were always over-estimated as operators were trying to budget in for

emergencies. By combining the scopes, the overage is combined to provide for any costs that overrun the average. Ryan looked at the last 5 years of costs, accounted for inflation and added 10% contingency in aggregate.

- Stirrup: Dave asked if a pump was needed and whether the screen cost was incorporated. FWS has a pump. >Tildon will look into the cost of the screen. >Julie and Tildon will check budget numbers to ensure consistency between the written SOW and the table. Construction is still planned for next spring (2020).
- FR-164: Dave asked what the \$84K was for vs ~\$65K in other years. The change incorporates the management of Old Charley. Also, \$84K represents the real long-term costs; the reduction to ~\$65K only occurs in years when Colorado pikeminnow population estimation is happening.
- Easement: Pete asked what weed management was expected. Tildon said the easement management is primarily russian olive and tamarisk management on the easements. The Refuge does weed management now, and may have an opportunity to do more now that more staff are available.
- C-29a: Melissa asked if CPW should take responsibility for salvaging the canal as few endangered fish are captured in the Government Highline Canal and Grand Valley Irrigation Company canals, and the native species captured are state-managed species. Dale said the success in this effort is varied, with very low values to over 60,000 fish/year. Flannelmouth sucker, bluehead sucker, and roundtail chub are the most commonly collected species. Dale said this scope has been to mitigate for the time when the screens are pulled, but the success rate is variable with no way to predict it. When high numbers of fish are captured, commonly all four endangered species are present. >The PDO will investigate if this action is required as part of the 15-MR PBO. Dale said he believes the water users see this effort as part of their ESA compliance (>ask Tom Pitts). >Harry will check to see if CPW could pick up that effort.
- Matheson: Dave said he was excited about getting Matheson on-line and managed in a way similar to Green River floodplain wetlands. Tildon said the SOW includes light trapping at the mouth and opening of the gates to fill it, and drain it in the fall. The BC was supportive of this new SOW.

c. Nonnative Fish SOW

- Tildon reviewed changes. On the Yampa, pikeminnow estimates used to be incorporated into nonnative fish work. Now, 98a and 125 funds go down in 2021-23 as passes are allocated to Colorado pikeminnow estimates. Kevin McAbee said the main reason was to document the importance of those passes for pikeminnow estimates regardless of whether nonnative fish work occurs. Total cost stays the same, the number of passes stay the same, but the cost moves between 128 and the nonnative fish scopes depending on work. Proj 167b adds work for pike removal at Kenney Reservoir (~\$40K per year). The Proj 158 report was finalized during this last year; that effort is proposed to come back online using the information provided in that report. Proj 167 White River smallmouth bass work has increased effort to address the growing problem. Some of those changes involve the logistical requirements referenced earlier.
- 158: Dave noted the questioning about the applicability of this project on a reach wide scale. Dave offered the suggestion to move this effort into out years. Tildon outlined the tasks within that scope of work. Matt Breen said there was interest when the report was approved in completing this effort again, focusing on the most effective mesh size. Matt said data was needed to determine what the reach wide effects could be, and have implications for base flow

monitoring. Pete agreed with Dave that Task 5 could be delayed. \*BC indicated reductions or delays should be considered as a potential cost savings (see notes below about pikeminnow broodstock collections)

- 140: Dave noted we could skip a year of 140 implementation, or potentially shaving a pass off of each effort. We could also potentially delay some monitoring efforts. Kevin McAbee said the nonnative fish work is a substantial portion of the budget. Kevin said that the group could consider reducing the least effective nonnative fish removal work. Kevin and Tildon could prepare a list of items that may be less effective than others. \*BC indicated reductions or delays in this project should be considered for potential cost savings.

Kevin said rotenone projects have been previously funded through NFWF and Kenney Reservoir may provide an opportunity for those funds. Harry said one main concern was the ability to manipulate the reservoir level to support a treatment, but acknowledged that there are also public concerns around that fishery. CPW encouraged the public at the tournament to catch pike and turn them in for a harvest incentive. Two were turned in during the tournament, 13 were turned in after the tournament was over. Harry said continuing a high level of removal effort may not be recommended moving forward.

Kevin McAbee said these nonnative fish concerns are reflective of the conversations around Post-2023. The current efforts around nonnative fish were level 1/2. Level 3 identified new tools to contain the effort on a large scale. The total combined costs of NNF control always go up because we are reluctant to remove effort without a permanent solution and new populations keep emerging. Harry said it may be instructive to think back to Elkhead, where a serious conversation was held about rotenoning that reservoir. The effort collapsed when local elements and the conservancy district realized that we might not get every fish and that someone could ruin it again with a new introduction. Tom Chart noted that those rotenone discussions were prioritized when a screen was not an option. The opportunity for the screen changed the conversation. The difference for Kevin is that CPW was managing the populations of smallmouth bass in Elkhead, whereas the Kenney Reservoir was a recent illegal stocking event. Melanie noted the large pikeminnow capture by Janay occurred in the White River downstream of Kenney. Melanie offered the opportunity to message to the community around the value of native fish.

Tom Chart said flow experiments on the Green River may have other needs. The Larval Trigger Study Plan, channel monitoring and the flow-spike study plans are incorporated. Revised base flows still need a study plan, partly covered by 22f and 158, ISMP in the fall. Tom asked if we are overlooking additional and new monitoring to support the revised base flow experiment. Kevin Bestgen said it is all experimental, but there are likely additional needs, especially in relation to flow-spikes and base flows, but they are likely minimal. The subject warrants additional thought. Jojo asked if the impacts considered by the MC have been considered in these scopes. Tom Chart said those questions can only be answered by Bureau of Reclamation and WAPA. Tom Chart hopes that there are people in those agencies working on what those impacts look like. Jojo agreed, but thought that more information may be needed for them to be able to complete those analyses. >Tom committed to discussing those efforts with those agencies, but acknowledges that the main commitment from the PDO is to have study plans in place for all elements. Pete asked if those problems would be resolved if we leased water for flow-spikes or

base flows. Dave said it is more of an issue of inter-basin flows and is not primarily a funding concern. Kevin Bestgen noted that the GREAT team modeled flow-spikes for the Bureau and they were tough to discern in the analysis because their impacts were relatively minor in relation to storage. He recognized that the revised base flows did require substantially more water from storage.

- 123d: Walleye removal in Green - the scope has consistent days in all years. Harry wondered if we needed to spend more money on walleye removal given the state of pikeminnow. Dave asked Dale if they could redesign effort to target walleye over bass in this high water year. Dale said it may be better to remove effort from off channel ponds to focus on walleye removal (~\$19K in the 126a SOW). Dale will work with Travis to prioritize walleye sampling in FY19.

Kevin McAbee and Tildon have been talking about the CSU reports that describe the most effective and efficient removal methods and locations and they ensure those tasks are robust. They think there could be some savings in the less effective activities. \*BC recommended consideration of reductions or delays in the following scopes.

- Kevin recommended removing the Rifle to Rullison stretch and moving effort to the White and/or Kenney. Kevin thinks the nonnative population in Rifle to Rullison is fairly controlled already (126b). Kevin thinks the Mamm Creek pits are more of an area of concern and that those efforts should remain.
- Tildon recommends removing passes from Steamboat to Hayden pike work or searching for young fish to discern spawning locations. There seems to have been difficulty in sampling that area anyway and a lower return on investment.
- Kevin said one of the most important efforts is controlling nonnatives in the White River. Passes now include removal from the dam all the way to Enron. Could FWS work the stream from the dam to Bonanza and then UDWR sample from Bonanza to Enron, prioritizing more effort closer to the dam where spawning occurs and eliminating the need for either crew to deadhead. The change in handoff point would prevent deadheading by both agencies and make the passes more efficient. Matt suggested 3 days of effort, 3 passes in spring and one in fall. Kevin said we might be able to move it down to 2 passes in spring and one in fall. Paul said Vernal UDWR should take bass work through Dinosaur back to save travel costs.
- Smallmouth bass in Deso: Two passes are scheduled in Deso in 20-21, which could go down to one pass in pikeminnow years, or one pass in general.

#### d. Propagation and Genetics

- 29a - Dale removed electricity charges from the scope of work. For many years, the BOR paid utilities because the buildings are on their land. Electrical, water, phone, security etc costs are currently between \$60K-\$80K and are paid out of the annual funds. These costs need to be added back to the work planning table, but vary on an annual basis.

Melissa asked if we cut out stocking bonytail for a while, until we figure out the bonytail feed study. Dale said he could look at how much savings could be made, but it is difficult to determine as staff still has to be paid and electricity and water are still needed. There would also be a delay since some bonytail on station would not be stocked until out years

e. Research and Monitoring

- Proj 163 (Gunnison & Colorado River fish community monitoring): Harry asked if the monitoring was required as part of the PBO. Dale said he is not sure about what and how frequently those monitoring costs are needed.
- PIT: Dave is working with BOR to move those costs down for 2021. Tildon said there are a lot of PIT tags in the Vernal office that could be available for production. The hatcheries like pre-loaded trays, but we could potentially reload needles. >Julie will ask all offices how many PIT tags are still in offices to be used to decrease 2021 budgets.
- Proj 128 (CPM monitoring in the Green River): Estimates could be delayed or funding rerouted to broodstock collection efforts.

Kevin McAbee argued this conversation would be a lot easier if we funded offices instead of projects and allowed planning to occur on an annual basis that was adaptive to the conditions on the ground. Tom Chart agreed, but suggested the real opportunity for this type of shift in program management would likely align with Post-2023 program planning. Melissa asked how that would affect seasonal hiring. The BC thought we could move seasonal hiring around based on needs and become more flexible.

The BC requested an overall reduction from all discretionary SOWs. >The PDO will send out guidance as to how big the cuts need to be to BC members and PIs (attached).

**ADJOURNED: 5:00 p.m.**

**Tuesday, July 9**

**CONVENED: 8:31 a.m.**

7. Report review “Genetic Evaluation of Upper Colorado River Basin *G. cypha*” - Steve Mussmann from SNARRC reviewed the study about humpback chub genetics in the upper basin. There is limited diversity within the Gila complex but 6 genetic management units have been identified: Gila elegans (bonytail), Grand Canyon *G. cypha* (humpback chub), Desolation Canyon *G. cypha*, other upper basin *G. cypha*, Yampa Canyon *G. robusta* (roundtail chub) and other *G. robusta*. The Yampa Canyon “humpback chub” collected and brought into Ouray NFH were determined to be *G. robusta*.

The goals of the research were to assess broodstock needs and effective population size. *G. cypha* diversity in the upper basin is greater than or equal to diversity in the lower basin and low but significant differentiation exists between all sites (except between Black Rocks and Westwater Canyon). Diversity has similar patterns in *G. robusta*. There is no indication of diversity loss between the 2007 study and the 2019 study. Greater diversity is seen as distance from Black Rocks/Westwater increases. Hybridization rates were evaluated, with the lowest rates of hybridization occurring in Desolation Canyon. Fish collected as *G. cypha* were mostly genetically *G. cypha*, and fish collected as *G. robusta* were mostly genetically *G. robusta* which indicates that field identification is reliable. Effective population sizes were determined and range from ~500 to ~1500 fish depending on management unit. Most *G. cypha* and *G. robusta* share the same haplotype (mitochondrial DNA). Recommended management units (and

broodstocks) for *G. cypha* include: lower basin, Black Rocks/Westwater (BR/WW), and Desolation Canyon. Cataract Canyon fish could be placed in either group, but Steve recommends inclusion in the Black Rocks/Westwater group. Steve does not recommend supplementing upper basin stock with lower basin diversity. Private alleles that occur at high frequencies should be considered as it is possible to do so, targeting both spatial and temporal (different years) diversity in broodstock development.

Melissa asked about the new recommendation for separate broodstocks between BR/WW and Desolation Canyon. Steve said the hybridization analysis had not been run when the first draft of the report was released. The Desolation Canyon population has a low level of hybridization making them a more “pure” *G. cypha* that should be preserved, whereas the BR/WW has a higher level of hybridization supporting differentiation. “Purity” of upper basin genetics are anchored on genetics from the Little Colorado River. Desolation *G. cypha* are more genetically similar to Grand Canyon *G. cypha* than the BR/WW group. The peer review suggested the additional analysis that supported differentiation.

Melissa asked if the conclusions around effective population size were conclusive. Steve said the estimates still hold a lot of variation and recommends larval sampling to determine how much spawning is occurring in any given year. Many samples from Westwater were hybrids from multiple generations, which may be because more samples from fish identified as intermediates were sent to SNARRC for analysis. Tildon asked what the implications were of not having any Desolation *G. robusta*. Steve said it would be interesting to see if there is a similar pattern for *G. robusta* in that populations in Desolation Canyon were more pure. Tildon and Paul reported that finding *G. robusta* in Desolation is increasingly rare. Paul asked if Steve was aware of the work from Tyler Chafin in the San Rafael that indicate that there may also be genetic *G. cypha* present that look more like *G. robusta*. Kevin Bestgen asked about the absence of F1 hybrids. Steve does not have a good answer to that question. Kevin Bestgen asked if identification to the species level would be necessary to assess larvae for effective population size. Steve acknowledged that identification would be required, but suggested that juvenile fish could be used as long as we knew they were likely spawned in the same year. Pete asked who submitted the samples from Muddy Creek. Steve added acknowledgements to the submitter of the Muddy Creek samples to the final report.

Dale asked how these determinations affect the conclusions in the SSA. Steve said one of the biggest questions is whether the hybridization is a natural occurrence or not, which is unable to be determined by current data. If it is a non-natural event, then it could raise questions about the strength of the populations in Black Rocks and Westwater. If it is a natural occurrence, then all populations still contribute to the strength of humpback chub in the upper basin. Dale asked if SNARRC had genetic analysis on the fish that are at the Ouray Grand Valley Hatchery to determine which fish were more pure than others. Steve said they do have that information that can be tracked back to individual fish through PIT tags. If relocation is prioritized for Yampa Canyon, the fish should come from Desolation canyon. Melissa asked if Dale collected genetic information from humpback chub that move through the fish ladders. Dale said they don't, but they could.

The BC approved the report as written. >Julie will post to the website.

Cheyenne asked if the level of hybridization in Black Rocks/Westwater prevented its use as a functional broodstock. Steve said if a broodstock was developed, it should be genetically monitored to not increase

the percentage of hybridization from roundtail or the fish could be genetically tested initially to ensure the fish used are more pure to begin with. Cheyenne asked if it would be better to develop a more pure broodstock with fewer individuals or more individuals with more hybridization. Steve said that would likely depend on the number of pure fish that were able to be collected. We would likely need to set a level of acceptable hybridization that could be included. Dave asked if Douglas et al were able to assess whether hybridization was recent or natural. Steve said some of that information is possible to glean, but many questions remain. >The PDO will add a discussion topic for the management implications of this report at the next meeting. Potential topics could include whether we are interested in developing refuge populations, developing a broodstock or developing stock sufficient to repopulate Yampa Canyon. Cheyenne said the first option would be to assess the fish we have at the hatcheries now. She also highlighted that there is a SOW that has been developed, but it is on the contingency list. Kevin McAbee said this report makes Desolation Canyon more important as there is no longer redundancy for the genetics in that population. That might make reestablishment in Yampa Canyon more important. Kevin said the biggest piece moving forward is the continuation of the Program and how that will affect the populations.

Jojo asked about the public comment period for the Proposed Rule. Kevin clarified that during the Proposed Rule process, anyone (including Program Partners) can submit comments and make recommendations. Jojo asked if reopening the SSA could delay the rule-making process. Kevin said we can consider new information at each step of the process, so this information could be considered as part of the Final Rule. Kevin doesn't recommend opening the SSA before that process is complete, but revising the SSA may be appropriate once we have more information about the Post-2023 process and other recovery planning data.

8. New I&E requirements in SOW - Melanie shared a couple versions of the Swimming Upstream publication, old and new. Melanie reviewed that the PDO requested additional items from the biologists in the field during this round of scopes of work. Melanie noted that in the last year, we have had 12 published articles or news stories in local/state/national media, in addition to the publications she creates. Swimming Upstream has been very successful; we print 4500 that are easily distributed every year. She praised field crews for all of the outreach they do and the information they bring back to the PDO. She highlighted the need for support from them to help tell their stories and the stories of these fish. Melanie thanked Matt Breen, Zane Olsen, Mike Gross and all the other biologists who support I&E efforts across the basin. Melanie said we have the following social media accounts: facebook, Instagram, Flickr, Medium, YouTube. To keep the facebook page, we need to post more often than we are posting now. The twitter account has been reabsorbed by the Fish and Wildlife Service. Instagram is run by the FWS. Melanie is seeking to create a Flickr account that has a library of photos without copyright permissions needed to help people interact with our photos more effectively. Melanie said that photos get old over time and that a constant stream of new photos really helps to tell the story of active management. Melanie said she asked Coordinators to include photography in scopes of work to help funnel photos back to her as efficiently as possible. Photos can be emailed/texted from cell phones directly to Melanie and she can coordinate uploads. In addition, she added a process to submit articles so that last minute requests don't come from the PDO. She considered where requests are going to ensure we are not requesting multiple articles from a particular office in a given year. Tom Chart asked how many scopes had article requirements. Tildon said 6 articles were specifically identified in each year for 2020 and 2021. Many other scopes included photo requirements. Tom Pitts asked Melanie to describe the fish hatchery in

Palisade. Melanie described the work Mike has done working with Palisade High School to establish a hatchery facility that provides students with real life experiences while allowing them to interact with native species. Tom Pitts said there has been quite a turn around in regards to the attitudes that people have about the Recovery Program because of the I&E efforts. Melissa supported the effort and thanked Melanie. Kevin Bestgen said this is a minimal ask that can really help spread the word. Melanie thanked everyone for the photos they provide and encouraged everyone to make sure to copy Melanie on photos that are sent to Tom Chart or others in the PDO about important or interesting developments. Jojo said that Twitter is important as a tool for sharing.

9. Update on bonytail feed studies - Cheyenne said there are six diets being tested at Bozeman Fish tech center, replicated at Ouray GVVU and Ouray Randlett in Oct-April. Two levels of protein and three levels of lipid. Grand Valley will use young-of-year and Randlett will use age-2 fish. Bozeman got eggs from SNARRC that they are currently growing to test in the feeding trial. The State hatcheries are working on case studies with diets much lower in both protein and lipid content). Wahweap has started their study. Mumma will begin the study soon based on when other fish are stocked. HCPs are anticipated in July for all Gila species at Mumma. Wahweap is comparing ponds on zooplankton and bug lights to a catfish diet. On July 1, 20 fish per pond were sampled and frozen. Derek asked what the purpose of the feed trials are. Cheyenne reviewed that bonytail have shown high fat content and fatty livers in HCP analyses in the past. Cheyenne expects results in Spring. Tom Chart and Kevin McAbee praised Cheyenne for her diligence in this effort.
10. Pikeminnow stocking - Tildon reviewed the population estimates for the Green River, which have declined significantly over time. The actual population estimates in the Green River project appear to be declining more rapidly than predicted by the dual phase model presented in the PVA, indicating that we may have less time to resolve the issue than previously thought. In the Colorado River, the estimates match the projected model. During the webinar in May, Tildon showed the genetics work on Colorado pikeminnow from Tracy Diver at SNARRC. Many of the broodstock fish are not representative of the fish we collect in the wild, at least for the Green River. The F1(81) year class are the progeny of fish collected in the wild, but the original fish have expired. The F1(91) year class are wild fish that were collected in 1991 and are actively used for production. The other groups are not being used as broodstock, but have been held as a backup. The genetic report uses colors to define groups that are genetically similar. The Green River is shown by a strong dominance of the “yellow” cluster, which is not represented in hatcheries. The Colorado basin wild fish may have more “orange” characteristics, so the F1(81) year class may not be misrepresentative of the Colorado. The current hatchery fish used for stocking the San Juan are showing up in a completely different color.

We have been working on pulling more pikeminnow into the hatchery (Project 138). Tildon recommends prioritizing this work with additional funding or effort as needed. Tildon has explored options with SNARRC for collection. Collecting adults to bring into the hatchery is a challenge and does not typically result in success. Young-of-year collections are ideal. Tracy recommends a solid three year effort across the basin (Colorado, Yampa, and Green spawning sites) before adult abundance falls, with a goal of collecting a minimum of 250 each from the Middle Green River (Yampa spawning stock), Lower Green River (Gray Canyon spawning) and Colorado River; 750 individuals each year over a three year period. Tildon asked if the BC thought stocking pikeminnow was necessary. Melissa supported improving the broodstock regardless of whether we actually choose to stock. Pete asked if we needed to make space

before we add in more fish. Cheyenne thought that there was not sufficient space at SNARRC to develop another broodstock, and it would likely have to occur at one of our hatcheries. Tracy said the SNARRC population has been driven based on San Juan needs. Tracy recommended developing a single broodstock that could meet the stocking requirements for both the upper basin and San Juan stocking efforts and then in 3-5 years we could develop an active broodstock specifically developed for production at an upper basin hatchery. Fish are kept separate by PIT tag, but have to be kept apart by size class because they are cannibalistic. Tracy said SNARRC is committed to developing broodstocks over the next few years for both Programs, including supporting development of a secondary broodstock. The Upper Basin would need to be ready to provide hatchery space in the 3-5 year timeframe. Dale said another conversation would need to be had about at what size we should stock out. Dale said Darek reported high levels of age-1 fish in the Colorado. Harry said taking young-of-year may have less of a population effect, because of the relatively high natural mortality rate. Pete asked if we could add pikeminnow without removing another species from our current hatcheries. Dale said he could add a broodstock at his facility, but moving into production would require reductions in other species. Tracy said collections of young-of-year sequenced over a few years can take advantage of propagation techniques to help mix the age classes together and become more effective. Taking fish too far apart means they have to be kept separately because of size disparities and cannibalism. Dale reiterated that we have been able to force grow both razorback sucker and bonytail over the winter, which is likely possible for pikeminnow as well. Tracy said space is anticipated to be available for 3-5 years at SNARRC to support development. The BC acknowledged that going down this road would commit the Program to finding production space at some point in the future. Kevin McAbee asked what the disadvantage was to decreasing production of razorback sucker or bonytail to make room for the species that is declining. Dale said the razorback broodstock at GUVU could be kept in good condition and could easily ramp down and ramp up production if needed. Dale said we are really good at growing razorback sucker, less good at growing bonytail, and we likely have a steep learning curve ahead of us for pikeminnow.

The BC agreed that prioritization of collection efforts was imperative. Chris Michaud tempered expectations, indicating that the number of pikeminnow available for collection may vary; massive amounts of resources may not produce the fish that we are looking for. Cheyenne said we may be able to set up temporary facilities at one of our hatcheries to improve survival. Katie said we may be limited by cohort strength. Tracy understood the limitations and is open to whatever works, potentially including taking all the larvae out of appropriate backwaters and raising up everything to see if pikeminnow are present.

Kevin Bestgen said capturing larvae in drift nets will probably not work as most of the larvae are killed in the process. He said light trapping in low velocity habitat may work, but would likely require raising 1000's of other fish (mostly nonnative cyprinids) to get very few pikeminnow. Summer seining works because pikeminnow can be identified, but they are constrained by handling stress and high water temperatures. In the fall, the fish are larger, but there are fewer of them. Streamside spawning may also be a possibility, but it will not likely move us quickly towards the diversity goal. Dave asked about better conditions, potentially sampling at night or during cooler water. Kevin said a dedicated effort under the right environmental conditions on top of a strong year class is necessary to make this effort successful. Summer populations are larger, or individuals are at least easier to find. Chris Michaud said 2018 was an extreme year because water temperatures were so high. Most of the broodstock work was done early in the morning in shaded habitats and survival was not high. In a year like 2019, the effort may be easier just

because of lower water temperatures. Katie said Project 138 includes effort for pikeminnow collections for this year and in future scopes, though the budget may need to be larger if collection proves difficult. Katie currently has the last week in September and the first week in October dedicated to this effort. Tom Chart said the PDO needs the BC to support this as priority 1 over the next few years, up to the point where we may choose to move funds from population estimates to collection efforts. The BC recognized that this is a big issue and a top priority and encouraged the PDO to determine options to get more fish into the hatcheries as soon as possible. Tildon suggested changing the 158 priority to collecting fish from the Middle Green instead of promoting survival. There are current funds in FY19 and could adapt to that effort fairly quickly, which will also explore the possibility that fish collected in the Middle Green stay at the Randlett hatchery to recover from stress before they are moved to SNARRC. >Tildon will check with the GRB-FWCO, UDWR-Moab and NPS to establish capacity for this year's implementation.

11. Webinar scheduled for October 24th 8:30 to 4pm MT
12. The committee reviewed the reports due list and updated it as appropriate.
13. Tildon reviewed the plan for tomorrow's field trip. The group will visit Old Charley first, followed by Wyasket and Stirrup. A state legislator will be joining the tour as well. The group will meet at the conference center parking lot at 8 am.
14. Consent item: Review and approve May 10, 2019, Biology Committee webinar summary. The Committee approved the summary as amended. Julie will post to the website (*done*).

**ADJOURNED: 5:00 p.m.**

**August 13, 2019 – Webinar follow-up on budget cuts.**

BC: Harry Crockett, Melissa Trammell, Derek Fryer, Pete Cavalli, Dave Speas, Paul Badame, Dale Ryden, Tom Pitts

Interested Parties: Darek Elverud, Travis Francis, Chris Smith, Kevin Bestgen, Kevin McAbee, Matt Breen, John Hawkins, Don Anderson, Cheyenne Owens, Tom Chart, Julie Stahli, Tildon Jones

**CONVENED: 1:03 p.m.**

Tom Chart reviewed the guidance that he sent out to the BC and Project Leaders in mid-July. We have received reductions from FWS-GJ, Utah and we have revised the Program Director's Office scope (Project #3). Tom said that the reductions will likely need to continue into FY2022-23 but we will reconsider those in the next time frame.

Melissa said there were some budget calculations that will cover the NPS reductions. Harry said he and Lori have been working on it and they have a strategy for reducing NNF fish. Kevin Bestgen said he will essentially split the cuts between 140 and John Hawkins Yampa work. Kevin Bestgen said he wasn't sure why 140 was highlighted for reductions. He will prioritize maintaining the monitoring scopes as fully as

possible. Tom noted that both Dale and John are pulling back on 125 and wondered if discussions were happening around how to prioritize that. Kevin Bestgen said they were absolutely not cutting the surge efforts. John is interested in talking to Dale to discuss the surge because they see increases in catch rates when the FWS-GJ office comes up to help. Dave submitted a scope for PIT O&M and materials; Dave said BOR will cover the entire PIT scope of work in FY2020 and about ½ of the FY2021 budget. Chris Smith noted that the FWS-Vernal office has a vacant Project Leader position that will not be filled until at least March of 2020 which may create some cost savings. In addition, he will seek to eliminate passes on 98b pike removal and a few passes from Yampa Canyon. Travis updated the group about the 125 surge work. Dale, Travis and Darek think the surge is very important, but it was the best place to pick up a significant chunk of funds after eliminating canal salvage. They prioritized work on the Colorado and Gunnison because they are the only field office covering those areas. Tom Chart asked if Harry knew if CPW could pick up canal salvage. Harry has sent information to Lori, but has not yet heard back.

Tom asked if the BC was interested in reexamining FWS-GJ's participation in the surge based on Dave's contribution from USBR. John Hawkins said that the surge effort was important. Dale agreed that the surge effort is extremely effective and the decisions were tough to make. The BC supported keeping the surge funding in place based on the contributions of BOR for the PIT O&M scope of work.

Budgetary update: CSU just received FY19 dollars last week. Utah also received funds last Friday. Both are working through the budgetary circles needed to spend those funds.

**ADJOURNED: 1:37 p.m.**



## 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.  
7/17/19: Cheyenne has developed a scope of work for this effort that does not request funds in 2019 and a final report from Dexter has provided guidance on HBC genetics in the basin. 7/16/19: *This assignment will be added to the next agenda and deleted from the assignments list after this meeting summary.*
2. The Committee endorsed an experiment to tag smaller hatchery razorback and bonytail (for fish coming out of floodplains). Tom Czaplá will investigate which hatchery could do this. Tom Czaplá 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 Czaplá 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 Czaplá. 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 Czaplá will compile information he's received and provide it to the Committee in advance of the May webinar. 5/23: Tom Czaplá will request write-up from Matt Fry. 7/14/17: In progress; 10/12/17; Tom Czaplá 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. 11/8/18: 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 Jahrsdoerfer, 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 though the BLM - Pariette and Escalante Ranch. Pending.

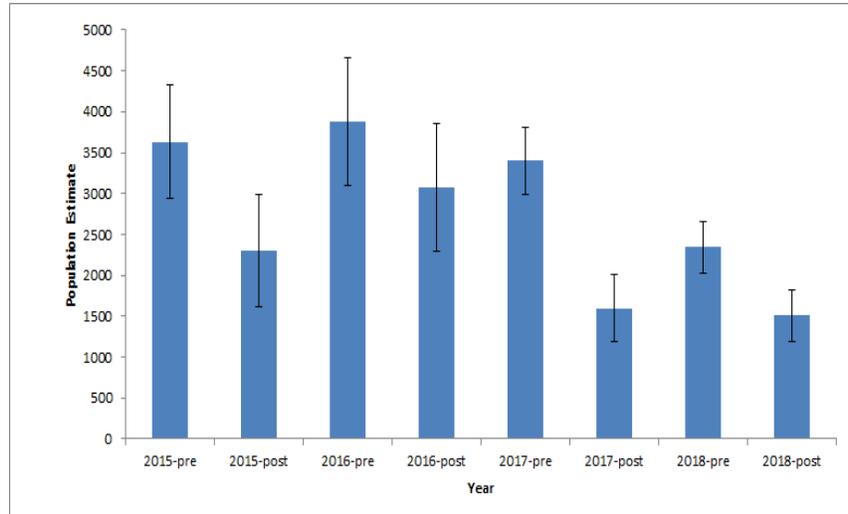
- b. PDO will develop a prioritization strategy for both the Colorado and the Green by the end of August and will schedule a call (Sept-Oct) to continue discussion.  
*10/27/17 - Draft discussed by Committee; comments due within two weeks to the Program office. Tom Chart will then take it back to Brent 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. 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. *7/16/19: This SOW has been submitted and this item will be deleted after this summary..*
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. Tracy is in active conversations about how best to collect pikeminnow. *This action item will be deleted after this summary.*

## Appendix 2: Population estimates from CPW Tournaments

### Ridgway

- The pre- and post-tournament smallmouth bass population estimates for 2015 (first year of tournament) through 2018:

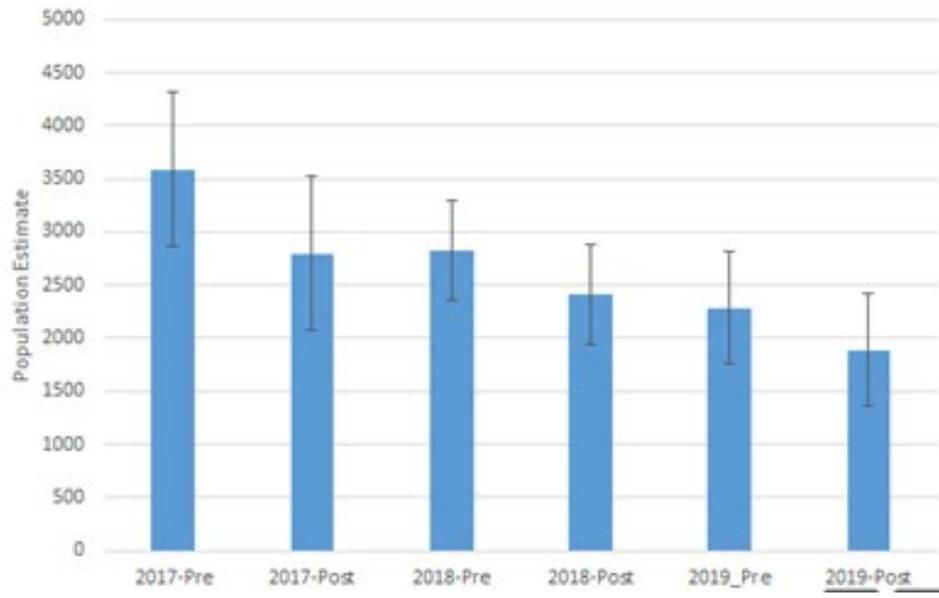


### Elkhead Tournament

Here are the numbers of pike and smallmouth bass harvested in 2019 vs previous years:

	2019	2018	2017	2016
<b>Total both species</b>	911	859	1358	582
<b>NPK</b>	419	319	395	53
<b>SMB</b>	492	540	963	529

Smallmouth bass population estimates, pre- and post-tournament, are shown below:



The estimate for northern pike > 300 mm is 3,419+/- 1,132 (@95%CI).