

Biology Committee Summary, July 16 & 17, 2018

Monday, July 16, 2018

In attendance:

Melissa Trammell (chair), Paul Badame, Dave Speas, Harry Crockett, Pete Cavalli, Dale Ryden, Jerry Wilhite; Via phone: Tom Pitts; *Absent: Environmental Representative*

Interested Parties: Tom Chart, Kevin McAbee, Julie Stahli, Mike Mills, Tildon Jones, Darek Elverud, Travis Francis, Jim White, Don Anderson, Ed Warner, Amanda Ewing, Ryan Christianson

Via Phone: Matt Breen, Mike Partlow, Kevin Bestgen, Koreen Zelasko, Chris Michaud, Kevin Thompson

Comments submitted by Dave Speas

CONVENED 1:00 p.m.

1. Introductions and review/modify agenda (Trammell, 10 min)
2. Special Focus: Dolores River
 - Jim White, CPW aquatic biologist and Dolores River biology committee chair, presented an overview of fish sampling, 2017 flow releases, and instream flow rights in the Dolores River (see attached presentation). McPhee Reservoir is the upstream controlling reservoir. Water is released through the dam via the lowermost selective withdrawal gate to limit non native fish escapement, and spillway use is avoided. The Dolores River biology committee's goal is to obtain 36,500 AF for a fish pool. They have almost met this goal but are still 4700 AF short. Fish pool management is accomplished by the Dolores River biology committee. [The Dolores River Native Fishery Recommendation Report](#) (Bestgen, Budy, and Miller 2011) recommended the fish pool process and identified 9 primary fisheries and flow management opportunities. Multiple management actions were implemented in 2017 in response to the high availability of water. Disappointment Creek is the primary tributary to the Dolores River and imparts a number of physical impacts to it, including substantial sediment inputs and flow spikes from localized storms. The native fish community is largely intact in Slickrock Canyon, with black bullhead (~5%) as the only nonnative species occurring in meaningful numbers. In 2017, CPW collected one white sucker and no smallmouth bass in Slickrock Canyon. Nonnative removal efforts in 2017 focused upstream of Disappointment Creek (Pyramid Mountain reach) and ~65% of their catch was smallmouth bass. All 'three species' (flannelmouth and bluehead sucker, roundtail chub) were present in this reach, but at much lower densities than in Slickrock Canyon (only 14% of catch was native). Length frequency of smallmouth bass in this reach demonstrates a maturing and establishing population over the last decade. CPW monitors native fish reproduction at established sampling locations, which demonstrate that the 'three species' populations are stable with high rates of native fish some parts of the Dolores River. A PIT tag antenna just upstream of Disappointment Creek confluence documents use of Dolores River by

three species. Coldwater fish biomass immediately downstream of McPhee Reservoir is driven by water availability, with reductions in biomass when flows are reduced. Warmwater native surveys (32 year record) is dominated by roundtail chub; total catch of roundtail chub has increased in the last decade.

- Take home messages:
 - i. Slickrock Canyon is a stronghold for native species;
 - ii. Smallmouth bass persist in the Pyramid Mountain reach;
 - iii. Roundtail chub reproduction evident, but few young suckers;
 - iv. Rise in catfish, red shiner, and sand shiner since 2014;
 - v. Increase in trout biomass with increased flows;
 - vi. Dolores River upstream of San Miguel confluence is important for flannelmouth sucker and roundtail chub, and also used by bluehead sucker.

- Dave Speas presented the Dolores River PIT antenna summary (see attached presentation). The San Miguel River provides >60% of flows to the lower Dolores River. Endangered fish monitoring in the lower Dolores River has been lacking, but installation of a PIA in the Utah portion in December 2014 (Rio Mesa PIA) provides important information. More than 1,000 were fish detected from 12/2014 to 10/2017. Bonytail have been opportunistically stocked in Dolores downstream of the PIA and dominate the number of detections recorded to date. Razorback sucker and Colorado pikeminnow have also been detected, along with other natives. Individual Colorado pikeminnow detected in the Dolores have also been detected as far away as the Yampa and Gunnison rivers, although most were also detected in the mainstem Colorado River. Razorback sucker detected in the Dolores River are mostly fish stocked in the Colorado River. Bonytail stocked in the Dolores have survived 1+ year (3 fish survived 2 years and 2 survived 3 years). Colorado pikeminnow occurred consistently in the Dolores River during the summer months of 2015 through 2017 whereas razorback sucker tended to appear in the spring. Final report “Flow Management and Endangered Fish in the Dolores River, 2012-2017” available. This was created in response to a conservation measure from the 2009 Aspinall Unit Biological Opinion. Dave Speas emailed the report to the listserv on July 19.

Discussion:

- Salinity in the Paradox Valley can become quite elevated and restrict fish movement. Otherwise, there are no true barriers to fish movement in the lower 100+ miles of the Dolores River.
- “Spill flows” from McPhee Reservoir are controlled, increased releases from the dam penstocks or outlet works and are not to be confused with releases from the dam spillway, which hasn’t occurred since 1993.
- Young-of-year smallmouth bass collected in 2017 may be smaller when spill flows occurred (in comparison to smallmouth bass collected in other years) and specimens have been sent to CSU for aging. After the increased flow of 450 cfs for 3 days in mid July 2017, young of year were still present, but smaller in comparison with bass collected in years without spill flows. The increased flows were primarily to allow boats to conduct removal efforts, not designed as a spike flow like described by Bestgen and Hill (2016). Only two controlled spills have been conducted to date, one in late May/early June of 2016 and a larger release in April and May of 2017. These flows can depress water temperatures after spawning and swim-up occurs, potentially negatively affecting bass along with direct effects from large releases themselves.

- Jim does not believe that significant escapement is happening from McPhee Reservoir because of the low elevation releases. One kokanee has been captured over the past decade, but no walleye. Smallmouth bass were introduced to the Dolores River as a result of a 1993 surface spill at McPhee Reservoir.
- Smallmouth bass have not established below Disappointment Creek despite over 20 years of occurrence. This is likely related to large and frequent inputs of sediment to the Dolores River. Paul Badame compared this situation to Evacuation Creek on the White River after the 2012 fire. Tildon Jones indicated that this is a basin-wide phenomenon - bass densities generally decline as tributary inputs (turbidity) contribute to mainstem habitats.
- In 2017, adult smallmouth bass increased in the Colorado River downstream from Westwater canyon to the confluence with the Dolores, which is contrary to many of other sites where catch rates decreased in 2017. This could be related to pulses of smallmouth bass leaving the Dolores and entering the Colorado River.
- Jim reminded everyone that the [Bestgen et al. 2011 report](#) is the primary scientific guidance document for the Dolores River.
- >Kevin Bestgen will present results of the young-of-year smallmouth bass sizes to the BC when complete.
- >Travis Francis will bring information on walleye natal origins from Lake Powell, Colorado River, and McPhee Reservoir back to the BC when available.

3. PDO updates (Chart, 30 min)

- Staffing – The PDO’s administrative support position has been open for more than 1.5 years. We have utilized some temporary staffing solutions. This position may be filled this fall, but would likely be shared with another office. The Science Coordinator (Vice-Czapla) position is currently open and posted on USAJobs, closing tomorrow. It will be stationed either in Grand Junction or Vernal to meet Departmental priorities of putting positions near the resources they manage. The PDO is seeking to fill the other coordinator position as well, but is unlikely to be filled in 2018. An FWS intern, Cheyenne Owens, will start in the PDO in October. She will work on a variety of Program projects. Eliza Gilbert from the San Juan Program is currently serving in a detail position to complete the Colorado pikeminnow SSA.
- Recovery Programs post-2023 – The PDO worked with a sub-group of the Management Committee and San Juan Program Coordination Committee over the past 6 months to meet the commitment of creating a long-term plan and report as outlined in the funding legislation currently moving through Congress. Before 2023, we need to outline future actions that need to be sustained over time to achieve recovery and costs associated with those actions. To date, we have been looking at this from a recovery planning perspective, with recognition that this will be led by FWS. Requirements of revised recovery plans will influence what the programs will look like. Our next step will be to go back to the RIPRAP and review our initial assessment of actions required after 2023. We will focus on determining what is necessary to continue on the road to recovery, which may not be significantly lower than what we have been doing in recent years. The PDO will be calling on the BC to help us determine and rank activities.
- Office of Management and Budget funding passback issue – In FY19, OMB directed WAPA to direct the \$23M that funds environmental programs (GCD AMP, San Juan RIP, us, and a few others) to the Treasury instead of USBR. WAPA appealed to reverse this request and was denied. This would eliminate ~80% of our Program’s annual base funds for FY19. Non-federal partners have been working with the federal delegations, executive branch offices, and House

Natural Resource Committee about changing this directive and restoring funding. The Seven Basin States of the Colorado River Basin drafted letters requesting retaining these funds for environmental programs. These letters were signed and sent last week. Other non-federal stakeholders are working on similar letters (TNC, etc). Senator Hatch (UT) has submitted an amendment to Senate Water Resources Development Act (WRDA) legislation to allow these funds to be used by environmental programs. Tom Pitts said that we likely will be going to federal appropriations from 2020 to 2023.

- USBR is hosting a Green River Stakeholders meeting in Vernal this Friday to discuss Flaming Gorge operations impacts on downstream constituents (landowners, anglers, rafters, etc). They are concerned about spring operations related to Larval Trigger Study Plan and other endangered fish flows. Concern increased after high flows in 2011 and 2017. A group of representatives from USBR, States, and the Recovery Program will be attending with a meeting format patterned similarly to the Aspinall Unit group, encouraging stakeholders to present opinions around specific topics and provide recommendations from their perspectives. Some stakeholders have offered floodplain habitats for use by the Recovery Program and have offered to support hatchery efforts. Friday's meeting is not likely to result in decisions but is designed to open up lines of communication and create a dialogue.

4. Discuss continued use of cheeseblock PIT tag readers (Breen, 20 min)

- Matt Breen asks if, based on the most recent safety issue (possible battery explosion as emailed to listserv by Kevin McAbee) along with limited data applicability, cheeseblock PIT tag readers should be abandoned. Is detecting 400kHz tags common enough to warrant the extra time, space, and safety issues associated with keeping cheeseblocks as a required component of field work? New technology provides more efficiency on the river for detecting and logging tags, whereas using cheeseblocks is repetitive and time consuming with relatively little success.
- We switched to new tags in 2004, but one hatchery still used 400Khz tags for a little longer.
- Pete Cavalli asked how we are currently keeping these units operational. Travis Francis indicated that Batteries Plus in Grand Junction can rebuild the batteries, but eventually they will stop working.
- Dale noted that cheeseblock units can be taken out of the hatcheries and brought into the field to provide replacement units.
- Can we use STReaMS to determine how often a 400Khz tag is detected without a new tag implanted?
 - Tildon said his office had no interactions with a 400Khz in 2018 during Colorado pikeminnow population estimation work. Out of hundreds of razorback sucker, only 4 fish had only older tags.
 - UDWR Moab did not detect any 400 KHz tag in any CPM or RZB, despite scanning all fish >450mm.
- Travis Francis, Dale Ryden, and Kevin Bestgen recommended retaining the cheeseblocks for now because the data tracks older, adult fish and contributes important knowledge on demographic / behavioral metrics.
- Kevin Bestgen recommended investigating the frequency of interacting with 400 KHz tags and the contribution of the 400Khz tag data to Colorado pikeminnow abundance estimate report to more fully explain the value of the data.

- >Julie Stahli will pull data out of STReaMS to see how frequently connections to old tags are made (by river reach and individual fish length). The BC will use that to decide whether field crews should continue use until the formal analysis comes out of CSU.
- Recommended protocols: Field crews typically don't scan for old tags once a new tag is found, but should be scanning all adult razorbacks for 400 kHz if no newer tags are found. CPM estimate procedures recommend scanning any large fish (>450 mm) for old tags whether they are tagged with new tags or not. Batteries should be replaced annually coupled with an examination of the unit.

5. Sucker hybridization

- Travis Francis presented photos of pure sucker individuals of various species and then examples of hybrids, especially razorback sucker hybrids (see attached presentation).
- Two fish collected in the Colorado River were putatively determined to be bluehead x razorback hybrids (identified as hybrids because they had both a scraper and a keel).
- Dave Speas asked if there was any evidence of white sucker in the area where the hybrids were captured as they might be increasing the potential for hybridization. Travis notes some are present in that reach, but many are present upstream. Literature documented a white x flannelmouth hybrid could breed successfully with a bluehead.
- Kevin Bestgen said we know white sucker are not required for hybridization of other suckers to occur, because flannelmouth x bluehead are rare but occur naturally and flannelmouth x razorback hybrids have been documented throughout fisheries history. White sucker can probably facilitate crosses because they spawn similarly timed to razorback sucker. Kevin said the photographs might be good enough to conduct scale counts, Travis will send them to Kevin. Kevin Bestgen encouraged photos of the lateral line as well the mouth. He also noted that hybridization is expanding and should be monitored closely.
- Tildon Jones said they tag flannelmouth x razorback sucker hybrids and release them; they then detect these hybrids on the spawning bar, providing evidence that the hybrids are trying to participate in spawning.
- White sucker hybrids should not be returned to the river. The committee agreed that we should return native hybrids to the river. All putative razorback sucker hybrids should be tagged and photo documented.

6. Field updates

Moab UDWR

Project 128 (Green River Pikeminnow Estimates)

Totals: 170 Pikeminnow – 33 adults, 10 recruits, 127 juveniles

- Adult Pikeminnow catch rates very low during first pass – likely related to low flows.
- Many of the juvenile fish are closing in on recruit size (300 – 400 mm)

	Pass 1	Pass 2	Pass 3	Totals
Juvenile <400 mm	33	63	31	127

Recruit 400 – 450 mm	3	2	5	10
Adult >450 mm	4	17	12	33
Totals	40	82	48	170

Grass carp: 5 total – all between RM 101 and 110 –very close to town of Green River

Walleye: 161 removed in 2018, up from 101 in 2017, CPUE also increased

- During project 128: 149 total, 0.56 fish/hour
- During project 123d: 12 total, 1.66 fish/hour
- Catch rates 3 times higher in RM 100-128 than elsewhere
- 5% adult (300-375 mm), 95% piscivores (>375 mm)

Project 123a (Smallmouth Bass Removal)

- Echo-Split Passes 1 and 2
 - Total bass removed: 252
 - Smallmouth Bass Totals: **81** <100mm, **94** 100-199mm, **67** 200-325mm, **10** >325mm
- Deso/Gray
 - Total bass removed: **124**
 - Smallmouth Bass Totals: **1** <100mm, **47** 100-199mm, **67** 200-325mm, **9** >325mm
 - Notes: Much higher catch rates than 2017 (36 total bass in 2017); lower flows (as compared to 2017) may have better facilitated capture of bass

Project 160: Lower Green (seining) and Colorado River Light Trapping

- Larval light trap samples were collected at sites between 119.6 (Saleratus Canyon) to 21.7 (Spring Canyon). A total of 113 samples were collected along the Lower Green River, 106 will be sent to CSU larval fish lab for identification. Three sampling events occurred between 5/5/2018-6/13/2018.
- Crews were only able to conduct two trips down the Colorado River due to low water. The two sampling efforts occurred between 5/14/2018-6/3/2018. Larval light trap samples were collected at sites between 63.8(Courthouse wash) to 21.2. 50 samples were collected and of those, 47 will be sent to CSU larval fish lab.
- Crews conducted larval seining and light trapping the inflow area of Lake Powell around North Wash and found potential habitat for razorback sucker. 24 samples were taken (11 larval light trap, 13 seine hauls) and of those, 22 will be sent to CSU larval fish lab for identification.
- Seining efforts started this week on the Colorado river. 10 young of year razorback suckers (40-55 mm TL) have been documented from mile 54 (Goldbar canyon) to mile 32 (Muscleman canyon).

Matheson Wetland:

- Sampling schedule mirrored Project 160 larval sampling with 3 sampling events in May & June:
- 16 May 2018
 - one day after Co. River peaked at ~8800 cfs. (Potash gage).

- Water was barely backing up into the channel connecting river to the Central Pond. Too shallow for light traps.
- A few larvae collected via seine, preserved for ID.
- Note: at this flow, depth at proposed control structure (~ 350 feet inland measured along channel) would be ~ 2 feet (per Keller-Bliesner stage/flow models & engineering plan elevations). The proposed augmentations do not provide a manageable habitat in a water-year like this and was not planned to.

Other UDWR updates: **Wahweap hatchery** rock wall rebuild is under contract.

Vernal UDWR

Project 128 (Colorado pikeminnow population estimates, middle Green River):

- Crews completed 3 passes from 4/16/2018 to 5/29/2018; 5 CPM were captured on pass 1 from 4/16-4/30, 12 CPM were captured on pass 2 from 5/03-5/12, and 12 CPM were captured on pass 2 from 5/16-5/29.
- 21 of 29 CPM captured during 2018 abundance estimates were recaptures.
- During this same project, 24 northern pike and 47 walleye were removed.
- Crews unable to sample Island Park on pass 3 due to low water; Jon boat operation not possible.

Project 123b (Nonnative fish removal in the middle Green River):

- Spring fyke netting in backwaters and tributaries produced low numbers of northern pike (n=16) and no walleye. Five adult CPM were captured during this project from 3/13/2018-5/09/2018.
- Tributary electrofishing (03/19/2018-05/07/2018); 8 northern pike & no walleye were removed.
- Note: available habitat for sampling in backwaters and flooded tributary mouths was reduced this spring due to hydrology, potentially resulting in fewer captures.
- Crews completed 8 days of targeted walleye removal; 4 walleye were removed. This effort occurred just before CPM abundance estimates, where WE captures were more abundant.
- Vernal UDWR was unable to contribute to the collaborative “surge” effort in Island Park due to flows receding to an impassable level for Jon boat operations.
- SMB removal began on 06/18/2018 and will continue through October.
- Crews completed 1 of 2 full passes from Split Mtn.–Tabyago Riffle; larger concentrations of bass below the confluences with the Duchesne and White rivers, consistent with previous seasons.
- One triploid grass carp captured on the Duchesne

Project 172 (Remote monitoring of endangered fishes in the middle Green River):

- Submersible antennas deployed at 7 sites from 4/3/18–7/10/18; 3 in the main stem near Escalante Bar, 4 in tributary mouths (Brush & Ashley creeks, 2 in the Stewart lake outlet).
- 10,992 total detections from 2,674 unique individuals (duplicates likely upon further analysis).
- Spawning CPM observed on 7/9/18 at RM 315.8 (lower end of DINO); pod of 10-15 individuals when electrofishing was ceased (2 ripe males collected).
 - One antenna deployed from 7/10/18–7/13/18.
 - 39 detections from 27 unique fish; 21 were CPM in STReAMS.

Project 165 (Stewart Lake):

- Cattails were successfully burned via prescribed fire on 4/11/18.
- First larval RZ detected by GRBFWCO on 5/17/18 in the Stewart Outlet canal; Crews began filling on 5/24/18 when larvae were detected next to the outlet gate.

- RZ larvae detected in the Stewart Lake wetland at the farthest light trap and in good densities.
- We filled the wetland to 4.78 ft; gates closed on 6/4/18 after 24 hr bypass (6,600 cfs) from Flaming Gorge Dam.
- DO meters set within the wetland on 6/6/18 to monitor water quality.
- RODEO herbicide- approved for aquatic use, applied on 6/8/2018 to help knock back the growing cattails; awaiting details regarding acreage.
- Mid-summer wetland sampling scheduled for July and August to follow 2018 cohort.
- Supplemental water flowing at ~3 cfs; this will take us to fall draining (estimated first week of October) if water quality hangs on.

Project 167 (White River bass removal, state line to Enron takeout):

- Removal began 2 days after GRBFWCO crews passed through for CPM estimates; 9 of 12 scheduled days of effort completed from 6/1/18–6/15/18.
- Only 1 day trip completed from state line to Bonanza bridge due to low-flow logistics.
- 2 full passes completed from the state line to Enron (more bang for our buck with receding water); rode it down to 300 cfs, challenging.
- 1,487 SMB removed (mainly age-1 fish; CPUE=17.08 fish/hr) in 2018 with 87.04 hrs of effort vs. 1,510 SMB in 2017 with 108.3 hrs of effort (CPUE=13.94 fish/hr).
 - SMB continue to have successful cohorts each year in the White River, regardless of environmental conditions.

Colorado State University

- Pike removal in upper Yampa is complete (Project 98c)
- Adult bass numbers appear to be down in Yampa; Conversely small smallmouth bass are numerous and growing well (Project 125)
- Upper Green collections of pike were quite low, not matching predictions from the substantial production in 2017 (Project 115)
- Vermillion Creek sampled via antenna, no data yet (Project 115)
- Light trapping research completed by grad student in floodplain wetlands
- CPM larval drift monitoring ongoing. First larval fish detected in June 21st. (Project 22f)

USFWS Grand Junction FWCO:

Nonnative fish removal:

- 1) SMB Removal: Crews are just about to begin SMB removal passes for FY-2018. Low water is going to be a problem in several river reaches. Crews will be doing more passes in the reaches we can sample to make up for those passes lost in reaches we can't get boats into. Based on the little data so far from the first pass of sampling, it appears that young SMB produced in 2017 survived the winter well, as large numbers of them are being collected by sampling crews.
- 2) Walleye Removal (downstream of Westwater Canyon): Numbers of walleye collected so far this year are very similar to previous years. A relatively high percentage of the walleye collected so far have been smaller (~300-400 mm TL) fish. Crews collected some striped bass as well, but numbers again are very close to what they've seen in previous years.
- 3) On May 24th at RM 104.9 (just downstream of Fish Ford), crews collected a 495 mm TL bonytail, which had been stocked into the river 10½ years earlier at Cisco (RM 100.2) as a 169 mm TL fish. It had grown 326 mm TL in the intervening time. Crews also collected a 115 mm TL (age-1) razorback sucker at RM 111.0, right at Cisco boat launch on April 19th during walleye removal sampling. It was implanted with a PIT tag and released alive.

- 4) Yampa River SMB Removal: Sent crews up to assist John Hawkins & CSU crew with SMB removal for two weeks (June 18-22, June 25-29).
- 5) Nonnative fish removal in ponds continues. In Butch Craig Pond, crews are capturing razorback sucker stocked near Delta. Beswicks pond has young razorbacks who are surviving now that centrarchids have been removed.

Fish passage Structures:

- 1) Price-Stubb: From October 1st, 2017 through July 17th, 2018 the following individual PIT tags were detected (many have been detected multiple times during the period) at the Price Stubb antenna array: 69 bluehead sucker; 71 bonytail; 9 Colorado pikeminnow; 71 flannelmouth sucker; 28 roundtail chub; 68 razorback sucker; 277 unknowns (47% of all detections)
- 2) GVWU fish passage: Opened on May 1st. Had biggest 1st day catch ever at 2673 fish. Had to shut down the GVWU fish passage on June 28th, due to falling river levels (cannot run below 2350-2400 CFS). Had 5 RBS (367-44 mm TL; one @ 419 mm was not a recap) and 2 HBC (184, 196 mm TL) collected in the two months it was open. Hoping to open up again if/when monsoonal flows raise river levels.
- 3) Redlands fish passage: Opened on April 18th. Still running as of today, but with attraction flow mostly closed, so we are only passing about 30-25 CFS through the ladder (usually runs at 75 CFS). Lower Gunnison River is VERY low. Despite the low water, 17 Colorado pikeminnow (~400-650 mm TL) used the ladder in the last two weeks. All Colorado pikeminnow were translocated upstream to Escalante (~39 miles upstream). The movement of CPM through the ladder this year is a couple of weeks earlier than normal (due to low water and high temperatures?). 4 bonytail (288 & 297 mm TL) also used the ladder. A blue heron was sitting on top of the V-trap and pecking fish early in the season but that problem has been fixed. Anticipate running this ladder for the remainder of the field season.

Hatchery:

- 1) Bonytail were stocked out for this year and razorback sucker stocking is scheduled for September. Several of the low velocity habitats considered for stocking (Island Backwater and Walter Walker SWA) were high and dry and fish could not be stocked into these locations. Stocked bonytail as far upstream as Rifle this year (with CPW's concurrence).

Gunnison River fish community monitoring

- 1) Larval sampling: Crews are on pass 9 of 10, so will complete larval sampling for this year in a week or so. Number of samples is about the same as previous years, even with low water.
- 2) Crews will do adult fish community monitoring in August and October and juvenile/small-bodied fish monitoring in September

Other:

- 1) Participated in OMB/WAPA/BoR tour on June 26th of the GVWU fish screens, GVWU dam, GVWU fish passage (on one of the last days it was in operation), Orchard Mesa Irrigation District Power Plant, and 24-Road hatchery building.
- 2) Continue to do lots of outreach, including fish ladder tours, hatchery tours, making presentations to groups such as the Grand Valley Audubon Society and Hutchins Water Center at CMU, provide panelists for the Mesa County State of the River symposium, provide staff and fish for the Children's Water Festival and Mesa County Home and Garden Show. Upcoming, we will provide fish for Melanie for the Palisade Peach Festival (August), provide a speaker for the Float the River trip by River's Edge West (August), and give a fish ladder tour to the Colorado Open Space Alliance (September).

USFWS Green River Basin FWCO:

- Pikeminnow pop estimates passes completed in Desolation Canyon and the White River
 - Desolation Canyon- Pikeminnow: 34 adult, 2 recaps; 45 subadults (300-450)
 - 702 razorback sucker
 - 2 Grass carp below Tusher (matches UDWR catches);
 - 50 walleye (35 below diversion); Walleye had a 300mm CPM in its gut and another had a BT tag; Fish seemed stacked below the diversion and fish passage clogged;
 - 209 smallmouth bass in spring in colder waters, 72 were >325 mm, potentially showing downstream expansion
 - White River - 48 pikeminnow
 - 106 razorback sucker;
 - 82 bonytail (stocking event at the Enron boat ramp, but saw them upstream too)
- Larval trigger and light trapping - used new LED light traps from CSU, which were very bright with consistent output. New lights seemed to attract higher volumes of larvae, but also attract cyprinids that also consume larvae. Johnson Bottom was dry before LTSP and did not connect at 12,600 cfs, Sheppard Bottom also remains dry.
- Submersible PIT antennas - Razorback bar - 1500 unique tags, 1226 razorbacks
 - Echo park -150 unique tags, 1 razorback, 73 unique pikeminnow (left them fishing longer than normal)
 - Yampa canyon - 56 unique tags, 39 pikeminnow
- Yampa Bass Removal - 20 pikeminnow during bass removal, lots of age 1 & 2 chub, and lots of age-1 smallmouth bass from last year's spawn
- CSU were seining in backwaters and picked up smallmouth bass from both this year and last year. Removed bass off the nest as possible (both adult and larvae)
- Drift netting for Project 158 - to assess flow recommendations from Bestgen and Hill for pikeminnow larvae. Pikeminnow showed up much early than models predicted, but drift netting has been occurring weekly since larvae were detected, pulses of fish have been seen coupled with monsoonal rains
- Larval sampling in backwaters will start next week to confirm larvae moving into nursery habitat
- Project 167 - Sampled White from Big Trujillo boat ramp to the CO/UT state line to target smallmouth bass. Data are forthcoming.
- Hatchery - 4500 bonytail stocked this spring at Enron boat ramp on the lower White, in Leota 10 at the Refuge, which is being maintained by screened Pelican Lake water. Should they not be able to maintain water, FWCO will sample upon release to determine survival.

Colorado Parks and Wildlife

Yampa backwater netting – occurred from March 27 – April 27 (some nets set earlier in March but water too low and/or variable to navigate the river safely). Data are not all entered yet but ~ 200 pike (compared to 377 last year) were captured. Tory thinks essentially all of them were pre-spawn fish. Almost all the females were green, with some becoming ripe by the end of the netting period; very few if any spent females. Most of the males were ripe.

Yampa NNF electrofishing – occurred from May 1st through June 8th, four days a week. CPW captured 68 pike (compared to 116 last year). CPUE isn't calculated yet but effort was about the same as last year, so CPUE will be lower again this year. Contingent on what CSU and USFWS report, it initially appears that the raw catch and CPUE may be both substantially lower for the third year in a row; it seems plausible that these measures indicate a genuine population decline.

Smallmouth bass: 3,280 were captured during electrofishing, compared to 1392 last year. Tory thinks some of the increase is due to completing more passes in South Beach and Upper Maybell this year versus 2017, but overall there were just more SMB encountered everywhere. CPUE not calculated yet.

Yampa bonytail stocking: CPW stocked 2592 Bonytail at Deerlodge on June 19. CPW expressed thanks to NPS for providing the necessary permissions / permits. The bonytail averaged 328mm; the Integrated Stocking Plan calls for an average stock size of at least 250mm. The fish appeared to go out in excellent condition. CPW will stock another 2500-3000 in the Colorado River this fall.

Elkhead Reservoir tournament ran from June 23rd to July 1st. 269 registered anglers removed 540 smallmouth bass and 319 pike. Last year, 332 anglers removed 963 SMB and 395 pike. CPW thanked CWCB for organizing a post-tournament BBQ.

Ridgway Reservoir tournament is still underway. However, because of pre-tournament marking CPW reported that a good percentage of the adult population is being caught, and catch per effort is down. Although very preliminary, it looks like anglers may have substantially reduced the size of the adult population. The young angler to the right has been very successful in both the 2017 and 2018 tournaments.



White River NNF electrofishing wrapped up on June 13 due to low water conditions. Completed 7 days which yielded 1,765 smallmouth bass, of which 401 were 200 mm or larger. CPUE not calculated yet. During early passes bass were concentrated near Taylor Draw Dam, but seemed to disperse downstream in later passes. Overall, a lot more SMB were caught in lower reaches than in previous years. A good percentage of the adults captured were pre-spawn. However, larval bass were observed in the channels directly below the dam on June 6th. If logistics permit, CPW and/or CSU will target these with electric seine and/or barge shocker. CPW will monitor flows and expend more electrofishing effort if the opportunity arises.



The Rio Blanco Water Conservancy District plans a brief flushing flow on July 19 to control algae blooms in the river in and below Rangely. This could conceivably yield some suppression of larval / YOY bass, but will not affect the channels immediately below the dam.

CPW will sample Kenney Reservoir and upstream river reaches later this year.

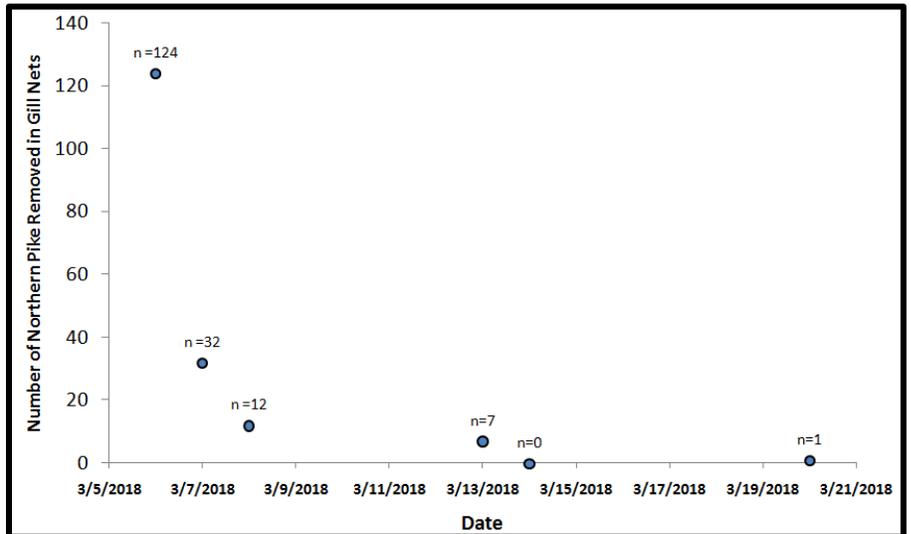
The angler above caught and released the large pikeminnow from the White River in late June 2018.

Colorado River NNF removal: three days were completed, with another four days anticipated this fall. No pike have been caught, and numbers of other non-natives were unremarkable.

On April 24, CPW biologists caught 31 razorback suckers in a single backwater near Rifle!

Mamm Creek Pit netting:

Removed 176 pike from Pit #1, down from 306 in 2017. Excellent depletion curve (see Figure at right). Additionally, the pike were in poor body condition and there were few or none of smaller size; we think they consumed all the available prey and engaged in cannibalism. The Merwyn trap, which is used to screen the notch, wasn't deployed this year because the river never got high enough to connect.



Gillnets were also set in pits 2 and 3, but no pike were collected in either pond.

Rifle Gap Reservoir walleye netting

Gravid female walleye are being removed from Rifle Gap as part of a research project being done in collaboration with Colorado State University. This spring 57 fish were removed (down from 88 in 2017) over 9 days of effort using 1,800 feet of gill nets along the dam. Next year will be the final year of this netting because the oldest stocked triploids will be adult sized and indistinguishable from diploids.

Stagecoach and Catamount Reservoir NNF removal

Non-native removal efforts in Catamount Reservoir began April 17 and are continuing; 748 pike removed so far, primarily by netting. In Stagecoach Reservoir 55 walleye and 12 pike were removed during standard spring sampling and targeted walleye netting during the spawn.

ADJOURNED: 5:20 p.m.

Tuesday, July 17, 2018

In attendance: Melissa Trammell (chair), Paul Badame, Dave Speas, Harry Crockett, Pete Cavalli, Jerry Wilhite, Travis Francis for Dale Ryden; *Absent: Water Users, Environmental Representative*

Interested Parties: Tom Chart, Kevin McAbee, Julie Stahli, Don Anderson, Mike Mills, Darek Elverud, Tildon Jones, Ryan Christianson

Via Phone: Eliza Gilbert, Katie Creighton, Koreen Zelasko, Cameron Walford

CONVENED 8:30 AM

7. Field updates (continued, see above for summary information)
8. Colorado pikeminnow SSA update - Eliza Gilbert presented the draft condition category definition table, which includes demographic and habitat factors that are important to Colorado pikeminnow viability (See below). Each factor will be scored as extirpated (zero), low, moderate, or high, based on specific measurable criteria for each factor. Where possible, most criteria are divided into a top third (high) value, middle third (moderate), and lower third (low) for scoring. She presented draft criteria for each factor, but the criteria are not yet completed or vetted by species experts, so the committee should not consider them finalized yet. The SSA will be presented as a draft in the fall.

Condition Category	Demographic Factors					Stocking dependence
	Adult abundance ¹	Reproduction ²	Age 0 abundance ³	Juvenile/ sub-adult abundance ⁴	Adult recruit abundance ⁵	

Criteria among Colorado pikeminnow populations.

Habitat Factors					
Nursery habitat availability ⁶	Nursery habitat production ⁷	Nursery habitat stability ¹⁰	Spawning – age 0 water temperature ⁸	Available river length ⁹	Predatory nonnative fish impact

Current scoring criteria are summarized as follows: Adult abundance is assessed as a per river mile density (including both stocked and wild fish) over 7 years; Eliza is also considering a longer time frame to be more conservative (10 years). Reproduction is represented by presence of larvae or age-0 fish in a percentage of years. Abundance of age-0 fish is a second indicator of reproductive health in a given year. A method to evaluate how juvenile/sub-adult abundance is evaluated is still being determined, complicated by the differences in sampling across programs. Adult recruit abundance is measured as a proportion of adult estimated abundance, related to offsetting adult mortality. Stocking dependence is a qualitative category based on how frequently stocking occurs.

Six habitat factors are proposed. Nursery habitat availability has been measured differently across the programs, but may be determined by river length with a gradient of 0.3 per meter/kilometer. If measured using that gradient, determining medium and low conditions remains a concern as data are only partially available. Eliza is also considering using a percent of the amount of river classified as alluvial. Nursery habitat production and stability represent the peak flows and stable

summer flows. Categorical definitions are based on whether or not flow recommendations are achieved. Age-0 water temperatures are measured to describe the amount of suitable connected habitat. Available river length is measured as the amount of habitat available, with the highest being the Green River at 900 rkm. A predatory nonnative fish impact will be identified as a stressor, but it is so pervasive, it is difficult not to consider within the species needs. The habitat categories are currently qualitative and need to be defined. Eliza expects to have a complete draft to the PDO in mid-late August, with scheduled distribution to the committees in the Fall.

9. CPM broodstock enhancement discussion - Katie Creighton described that Southwest Native ARC has requested 1000 age-0 pikeminnow to support its aging broodstock. UDWR Moab supported this effort recently, with 160 Colorado pikeminnow collected over 2 days in 2016. However, some years there may not be any age-0 available, so reaching the target of 1000 (split evenly between the middle Green, lower Green, and Colorado rivers' nursery habitats) will be a multi-year effort. UDWR-Moab needs more clarity from the BC about triggers for this effort and how it will rank out in priorities in relation to other projects. They will likely also need support in the form of gear and/or personnel to achieve the work because of timing (September is a very busy month for their office). Chris Michaud provided details of the ongoing effort. The lower Colorado effort in 2016 had simple logistics as collections can occur in a day trip and the hatchery truck can drive to multiple access points. However, this is not the case for work in the lower Green, where access is limited. Colorado pikeminnow harvest is unlikely to occur annually, but would be important when fish are available.

- Timing issues – Pikeminnow harvest could not occur during ISMP efforts, and Chris is seeking guidance as to how late it can occur. From a labor availability standpoint, early October would be ideal. Chris noted that declining temperatures may encourage young-of-year to leave backwaters, decreasing effectiveness of the effort at that time.
- Indicator levels – Based on the past 10 years of sampling on the Green River: if a criterion was 100 age-0 captured during ISMP, harvest would have taken 5 years; if established as 200 age-0 captured, harvest would have occurred in 4 years. On the lower Colorado, if a criterion of 100 fish was used, harvest would have occurred in 3 of 10 years, if the criterion was 200, harvest would have occurred in 2 of 10 years. Project 160 summer seining trips could provide preliminary information to support decision making for this effort.
- Resources that may be available last minute - 2 days of sampling could occur annually, but if more sampling is required, boats and drivers would likely be needed from other organizations. Should high numbers be captured during ISMP, 4 days of sampling might be required to harvest enough fish.
Best strategy with budgets moving forward - more funding would not be needed if 2 days of sampling occurs annually. Should more effort be needed, additional funds would be required.

Wade Wilson would prefer collections as soon as possible, but collections are limited by year class strength. Paul Badame noted that high flows last year followed by low flows has been a pattern that has produced a good year class in the past. Melissa Trammell said removing fish at younger life stages has less impact on the population as a whole because fish are removed before high natural mortality occurs. Chris Michaud said to ensure high survival rates, the logistics need to be worked out in advance, especially in the Green River. The hatchery truck can only reach the Green at three

locations across ~150 miles of river. Logistics on the Colorado River are much easier, where trucks can reach the river every 5 miles or so. UDWR Moab needs multiple boats (one for seining and one for fish transport to hatchery trucks), approval to harvest outside of the month of September, and a ISMP-catch based criterion that triggers collections. The BC encouraged harvest as time is available (either in August or October), understanding that ISMP sampling may be affected if many fish are removed in August. Katie Creighton suggested that a year like this where age-0 pikeminnow have been detected in July, the Project 160 seining effort could shift toward harvest. Chris Michaud would ideally keep efforts confined to a reach 30 miles upstream and 18 miles downstream from Mineral Bottom, however, if necessary effort can be expanded. Melissa Trammell encouraged a higher frequency of annual efforts in shorter reaches (e.g., Green River, UT to Ruby Ranch), rather than longer trips in fewer years. Chris Michaud noted, however, that the places where larval collections have been best are not convenient to access points along the Green River. Both FWS FWCO offices offered personnel and equipment to support the efforts. Dave Speas recommended planning to sample every year and then cancelling trips when conditions are inappropriate. Chris Michaud agreed and does not anticipate that 100 fish per year are likely. Katie Creighton recommends harvest in August (replacing the Project 160 trip dedicated to razorback sucker larval sampling) if data from next week's Green River seining trip indicates collection would be viable. Melissa Trammell encouraged collection from backwaters that would be considered substandard for ISMP if possible. Dave Speas recommended that UDWR add a task to the Project 138 ISMP budget.

10. Hydrology updates – See attached presentation. Don Anderson explained the upper Colorado was 2-6 degrees F above normal and considerably drier than normal from mid-May to Mid-July. The weather service is predicting a monsoonal season in July-September in the basin, but temperatures will remain hot. Drought is predicted to remain, yet improve in the upper Colorado basin.
 - 15 Mile Reach of Colorado River - The 'April Hole' condition developed around April 24th, for the first time, carryover water (2017) was used from Green Mountain Reservoirs HUP Surplus account to prop up the flows. Additional efforts with water users are occurring in the basin that may make more water available during this time. Flow peaked at 6,000 cfs (goal is 12K cfs) on May 14th. By June 20th, flows began to decline, reaching 800 before the end of June. Fish pool releases began June 29th (which was earlier than all other years other than 2002). Many of the endangered fish pools available in reservoirs last year are again available this year, however overall there is far less fish water to work with. Water is being released more aggressively than in any of the 10 previous years for two reasons: a) spawning and larval presence has been strong, and b) predictions for monsoonal moisture later in the year.
 - Yampa River water lease - the dry year target is 93 cfs. The USGS went out yesterday to calibrate the gauge. In fact, the gauge has been reading 50 cfs above actual flow, so flows are currently down around 150 cfs. 5500 af of water are available from Elkhead Reservoir this year. Don expects releases to begin in in 1-2 weeks to support levels at or above 93 cfs (for comparison, 5500 AF equates to about 50 cfs for 55 days).
 - Flaming Gorge operations – Razorback Sucker larvae were detected in late May. USBR ramped up releases to full powerplant flows (~4600cfs) over the next week – and made a 1-day bypass (~6600cfs) soon after Memorial Day to support larval movement into Stewart Lake. Requests have been made to maintain baseflows at 2100 cfs (measured at the Jensen, UT gauge) throughout the summer.

- Aspinall and Gunnison - no Program peak flow targets are defined for a year as dry as this one. This year's ~2200 cfs on May 15 was the lowest spring peak that has occurred since 2002 (1700 cfs) for the Gunnison River at Grand Junction. BOR is working on a target baseflow of 900 cfs for the rest of the summer.

11. Discussion of razorback sucker SSA

- Julie Stahl said that the review period ended on Friday and many diverse stakeholders submitted comments (federal and state agencies, academic institutions, researchers, peer reviewers, etc.). Julie will work on clarifying key topics in the document for people who have not participated in the process. She believes those that participated are comfortable with much of the content, but those who were not involved wanted more detail on many topics. She will increase communication of the species' reliance on stocking. FWS leadership will begin internal review of the SSA and decision making (5-year review) next week. The expected conclusion is still September 30.
 - i. Dave Speas requested clarification on the relationship between habitat and nonnative fish in the current condition table. Paul Badame described that the nuance is that physical habitats characteristics are often there (such as floodplain habitats) but that nonnative fish preclude optimal use of those habitats. Julie Stahl described that lack of something is not supposed to be in the species needs categories. Nonnative fish would typically be in the stressor section, but since nonnative fish drive so much of habitat use and habitat quality it was linked to habitat in the species needs section. Koreen Zelasko emphasized the important influence that nonnative fish have over habitat quality. Harry Crockett indicated that in some places habitat issues exist, even in the absence of nonnative fish issues.

12. *Postponed until September meeting* - Standardization of Electrofishing Fleet (McAbee, 15 min)

Decision: Do we continue to continue the collect field electrofishing data by Program crews?

- Current Status: In 2018, sufficient insight and available data allowed Larry Kolz and Pat Martinez to issue a revised SOP complete with power tables and graphs for both boats and rafts across water conductivities and three ranges of water temperature encountered by Recovery Program electrofishing crews in the rivers of the UCRB. Analysis of the 2017 field data has resulted in the creation of six tables to assist the equipment operators in their selection of the preferred electrofisher settings based upon the ambient conductivity of the water (i.e. between 50 to 1500 $\mu\text{S}/\text{cm}$) and the range of the water temperature (i.e. three ranges: $< 10^\circ\text{C}$, or 10 to 20°C , or $> 20^\circ\text{C}$). Three of these tables are specific for boat electrofishing and three for raft electrofishing. It is anticipated that these tables, based upon empirical data, will promote the concept that electrofishing temperature effects are a valid concern.
- Future Status: Larry Kolz will be stepping down from this ongoing effort to further refine the SOP based on empirical observations and data from Program electrofishing personnel. Larry's long-term expertise/experience/devotion as an electrical engineer, leading innovator, and contributor to the theory/application of electrofishing is simply unmatched. Pat would gladly continue to advise the Program on electrofishing logistics, but does not feel confident/qualified to perform the analyses that support electrical waveform standardization.
- Do we continue to continue the collect field electrofishing data by Program crews?
 - Benefits to the ongoing collection of this field data in the recommended format include aiding the proper selection of electrofisher settings, trouble-shooting problems/questions, and providing defensible criteria for the intensive use of electrofishing in critical habitat.
- >Harry recommends we also discuss research from the San Juan basin on electrofishing handling stress on young pikeminnow. *Melissa Trammell emailed the published research article to the BC on July 17 and Dale Ryden provided a reply.*

13. Review previous meeting assignments. *>The Committee suggested a more thorough review in September, and having this item earlier in the meeting.*
14. Review reports due list. (All, 5 min) – an updated list was sent to the Biology Committee with this agenda. The Project 158 final report will be issued to the BC and peer reviewers soon and should be on the September agenda for final approval.
15. Schedule next meeting/webinar
 - Monday, September 17, 9-4, webinar only
 - i. Requested agenda items:
 1. Potential for Colorado pikeminnow avoidance\effects of electrofishing efforts.
 2. Utah State research into use of antenna data for pikeminnow monitoring
 3. Sept meeting will start with reviewing meeting assignments coupled with a format review for 15 min.
 4. Razorback SSA update
 - Date/location of Researchers Meeting - Moab, UT on January 15 and 16, with a BC meeting on the 17th.
16. *Consent item: Review and approve April 2-3, 2018 Biology Committee webinar summary – A revised summary was sent with this agenda. The committee will review in two weeks. Silence indicates approval.*

ADJOURNED 12:45pm

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)
 - 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.
 - Program needs to continue to evaluate fish for Yampa Canyon replacement
2. The Committee endorsed an experiment to tag smaller hatchery razorback and bonytail (for fish coming out of floodplains) & *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.*
3. 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.
 - c. Matheson wetland consideration
4. The committee believes we should prioritize future funding efforts to support and monitor wild produced razorback sucker rather than improved stocking techniques and survival. The **PDO** will incorporate this concept into the future planning decisions. >The PDO will add this topic to the September agenda.
5. **UDWR-Vernal** will explore options to protect juvenile razorback suckers in the channels just outside of Stewart Lake. Fish coming out of the wetland seem to have high site fidelity which may make them vulnerable to predation in the channel.
6. **PDO** will add discussions about northern pike population estimates in the Yampa to future agendas as appropriate.
7. 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.

8. BLM concerns regarding ownership of Stirrup wetland. **Paul Badame** will bring this information to Todd Adams (Utah rep on MC) to discuss in water resources at the UDNR level. 4/3/18: Jerrad Goodell will investigate and provide an answer in April. 7/17/18 – Paul Badame provided an email from Jerrad Goodell to the BC, indicating that the issue is a BLM manager and Utah FFSL need to agree on the location of the high water mark.
9. SOW Updates: > *PDO will check on this*
 - Update Stewart Lake management SOW. **Matt Breen** will revise the SOW for FY19 and beyond.
 - John Caldwell - will fix the map on Project 129.
10. The hatcheries need new guidance from the PDO which will incorporate HCP protocols. **Julie Stahli** 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. Geomorphology/CPM nursery habitat symposium - **Jerry Wilhite** and **Melissa Trammell** will explore starting a symposium at either the Researcher's Meeting or Utah AFS.
12. **Dave Speas** will send out design/cost information on the Stirrup wetland once attained.
13. PDO will figure out how best to distribute information for how our crews should report environmental contaminant spills (potentially providing the contact information on the website).