

**Biology Committee Summary
December 10, 2021**

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

Interested Parties: Travis Francis, Katie Creighton, Matt Breen, Kevin McAbee, Tildon Jones, Darek Elverud, Julie Stahli, Kevin Bestgen, Ryan Christianson, John Caldwell, Ashley Jackson-Baillie, Brian Hines, Zach Ahrens, Ben Schleicher, David Graf, Russ Franklin, Andrew Schultz, Joseph Trungale, Mike Robertson, Melanie Fischer, Chris Smith

CONVENED: 8:30 a.m.

1. Review/modify agenda – Derek welcomed the committee and adjusted the agenda as reads below.
2. 2022 Flow Request Letter –Tildon said the Program prioritizes experiments for Flaming Gorge operations each year through a Flow Request Letter. This year, the PDO is looking to the BC to provide more input into that discussion based on Management Committee direction. Tildon reviewed the process that the Flow Request Letter goes through each year. The letter is drafted by the Recovery Program and approved by the MC, and submitted to BOR. The recommendations are discussed at the Flaming Gorge Technical Working Group (FGTWG) to determine a proposal for dam operations. That plan is then presented at the Flaming Gorge Working Group (FGWG) for public input.

We don't yet have a whole lot of information about what flow conditions will look like in 2022. Default flows under the ROD include a spring peak timed to match the Yampa and base flows scaled to hydrologic conditions. The GREAT report suggests refinements and includes proposed experiments including LTSP, pikeminnow base flows and a smallmouth bass flow-spike. Monitoring plans for each experiment have been drafted and approved, which needed to be in place to request experiments. Tildon reviewed details for each of the experiments and proposed that we should determine experiment priority based on fish needs and on prior years' information for potential hydrologic conditions. Tildon reiterated that the actual decisions are adaptive within the FGTWG and occur as biological triggers develop. He noted that Drought Operations (DRO) are also a possibility and assumed that DRO might allow us to move further through the ranked experiments.

Dave Speas thanked Tildon for getting this decision in front of the Committee early. Under the most probable forecast, Reclamation is not projecting that DRO would be needed. If we approach the minimum probable, drought operations will become more likely. DRO are likely in 2023. If conditions continue to dry out, DRO becomes more likely. Dave advocated for LTSP as

a priority. Pete asked if we had any restrictions based on monitoring possibilities. Tildon said monitoring is ready for all the proposed experiments and should not affect prioritization. The committee asked about the effects of the flow spike in relation to fishing or effectiveness. Tildon said the creel study suggested fishing guides did better during the flow spike than immediately preceding or following the experiment. The raft guides also enjoyed the flow spike. Dave noted that the Drought Operations Agreement (DROA) should be finalized about April. Melissa has a list of priorities from NPS, first of which is to protect the peak flow, maybe through longer durations. Her second priority is the flow spike, followed by base flows. Melissa confirmed that NPS is ready to monitor their pieces.

Kevin McAbee said that interesting information came out of the flow spike and nonnative fish annual reports. He noted that we are seeing astronomical amounts of smallmouth bass in the river from 2020 reproduction. Kevin said the flow-spike is an important part of our nonnative fish management in all years that are not moderately wet or wet. Derek asked if there was biological benefit to conducting a flow spike 2 years in a row. AJ reiterated the importance of managing smallmouth bass and recommended the flow spike continue to be an important part. Kevin Bestgen said there is certainly no disadvantage to conducting the flow spike 2 years in a row. In 2021, the early spawn in smallmouth bass would have created a second horrible year; the flow spike turned a horrible year into a below average year for smallmouth bass production. He has good evidence that habitat inundation occurred on a broad scale, including downstream from Jensen to Ouray. Kevin Bestgen said 2021 bass production was lower than the average between 2005 and 2020. Based on an analysis of flow and temperature, he saw 2-3 times fewer bass than comparable years. Electrofishing results from other offices support those results. Age-1 bass collections next year will also be an important indicator. Kevin Bestgen thinks the flow-spike in 2021 hit the bass really well, as evidenced by the 123(b) report. In 2021, the Yampa was really low (avg flow of 5000 cfs, this year was 600 cfs), which means that the flow spike provided the majority of the flow during that time. Kevin encouraged use of the flow spike in average years as well. The committee thanked him for the information.

Pete asked if the power analysis would be a stumbling block for the flow-spike. Derek said that really depends on where the water comes from. DRO releases late in summer can offset costs of a flow-spike. Derek says there are ways that it can be implemented that are win-win for both fish and hydropower.

Pete asked about wetlands. Tildon said the Stirrup construction is complete and connects at fairly low flows. Old Charley can be used, but it needs some work when we get the opportunity. Tildon is working on a plan for Old Charley to bring back to the Committee. Stewart Lake is ready to go, the seals have been recently replaced. Cattails were removed and a fortuitous fire killed off the rest. The wetlands are all dry, devoid of fish and ready for filling.

The Committee expressed support for flow-spikes as the top priority in dry years and LTSP as a priority in wetter years. AJ asked how many years we are supposed to look at CPM base flows and whether we need to prioritize those efforts. Kevin Bestgen noted we have not fully implemented the revised base flow recommendations yet and that seeing those conditions is important. Dale said that soil moisture content is really important in determining the amount of

runoff vs snowpack. He said because soil moisture is so low, the possibilities of a high-water year are low regardless of snowpack level. Tildon said soil moisture levels are baked into the May 1st forecast.

The BC requested a meeting in early to mid-January to continue the discussion. Derek requested that the PDO provide some options for consideration at the next meeting. Tildon requested feedback from the BC between this meeting and the next one to help support that discussion.

3. Humpback Chub Monitoring in Desolation and Gray Canyons of the Green River, Utah, 2018-2019 (Project 129) - Kevin McAbee reviewed the report's review process to date, including three peer reviewers (Melissa Trammell, Kate Lawry in Vernal, and Mike Pillow in AZ) and BC reviews. John Caldwell worked to include reviews into the document. Kevin thanked John for joining us at this meeting as he has left UDWR for a position at USGS in Oregon.

John reviewed methodologies of the study and the challenges of working with the Deso/Gray population. The team increased sampling types to try to get more information on the populations at each sampling location. Hoop nets were used to target smaller fish, trammel nets were used to target larger fish. Recruitment is assessed looking at the proportion of first year adults to the entire adult population. The abundance estimation was a concern to reviewers, specifically the bias between techniques and variable capture probabilities. John tried to reduce the concerns by running the models both with and without antenna data. In 2018, the data did not support including the antennas. In 2019, the two methods produced very similar results. Abundance over time shows no clear declining patterns, while some values appear to be increasing, there are still overlapping error bars. Major revisions included removing data organization techniques not used in the analysis, reanalyzed capture/recapture data to account for antennas and removed the extrapolation to a reach-wide abundance. John outlined recommendations, including an assessment of which sites are used when, sampling for at least 2 nights at each site, continuing to use trammel nets, baited hoop nets and antennas. He also suggested that population size for Deso/Gray may not be a useful endpoint. John suggests using Chandler, Wild Horse, and Curry to make good long-term sites.

Dave thanked John for the helpful response to comments document and ask whether the revisions changed the conclusions. John said the conclusions did not change. John noted that use of antennas did not significantly change the results of the population estimates, but that they may be helpful in the survival analysis. Dave supported a conversation about useful endpoints and noted a preference for looking at survival. Kevin McAbee said another big question is whether the long-term sites are representative of conditions across the canyon and whether they can be extrapolated. John was hopeful they could be, but also noted the sampling locations were created based on where fish were found. Melissa asked if John mined the STReaMS database at all. He said he did not. Melissa said extrapolation was really not appropriate as she expects these sites have higher densities than other areas of the canyons. Melissa thanked John for the work and revisions. Melissa recommended looking at individual fish to examine how long fish live in the canyon. Kevin McAbee reiterated the decision to abandon reach-wide estimates for the entire population based on the long-term sites estimates until the Program has more data to support

such extrapolations. Kevin is working with PIs on broodstock collection efforts which will begin fall of 2022. He expects those efforts to inform a discussion about habitat heterogeneity and species distribution.

Pete asked about access concerns in 2019 at Log Cabin. John said at that time, the Ute tribe did not want sampling crews on their land. >Pete asked the Program office to try to enhance our relationship with the Ute tribe.

>Delete reference to figure 10.

The committee thanked John for returning to this meeting and congratulated him on his new position. Dave Speas moved to approve the report. Dale seconded. The committee approved the report.

4. 2011-2016 Gunnison River (Project 163) report approval – Tildon reviewed the process the Gunnison River/Aspinall unit project report has taken to date. Darek provided a review of the project which started in response to the reoperation plan at the Aspinall Unit. The flow recommendations went into effect in 2012. Base flows are intended to provide water to Redlands Canal and to operate the fish passage and screen with additional flows during some years to keep the river wet in summer and early fall. Bankfull and half bankfull targets are also included for spring peaks.

The projects goals include initiating long-term monitoring for sub-adult and adult Colorado pikeminnow and stocked razorback sucker. Based on a recommendation from the Program Office, razorback sucker estimates were moved to the Project 127 reporting as collection effort is the same for both Colorado pikeminnow and razorback sucker. The initial plan was to have two reports for the Gunnison monitoring: one for larval fish and another for adults. All data have been incorporated into a single report for ease. Selenium monitoring is reported elsewhere since it is not funded by the Program or analyzed by this project. Darek summarized flow targets and progress toward achieving those. Bankfull (peak flow) targets were called for only in 2014, but not successfully realized. Base flow targets have largely been achieved since the ROD. Ryan Christianson noted that the USGS adjusts their data when finalizing those datasets, which can result in more days under the base flow targets.

Darek then reviewed the listed fish captures in the Gunnison and Colorado below the confluence. Most of the listed fish captures in the Gunnison were adults, with few larvae or age-0 individuals. The project does collect extensive data on non-listed, native fishes (3-Species) and the most common nonnative fishes. There was a general increase in white sucker and hybrids in the Gunnison River. Otherwise, catch effort data for these species was mostly consistent across years. Recommendations included: assessing habitat for Colorado pikeminnow to determine why the species is not re-occupying this reach; to continue stocking razorback sucker into the Gunnison; and consider drift netting for larvae. Matt Breen will send some minor revisions over to Darek for inclusion before approval. Dave noted that one of the goals of this report is to assess Aspinall Unit operations. He asked if 2011 was included in the report, as he was under the impression that Reclamation included the draft flow recommendations in their operations as

much as possible. Dave said two of the three peer-reviewers asked for a major revision; but he was having trouble finding those changes. He asked specifically about the ISMP data. Darek said using ISMP data to look at non-endangered species is concerning because the crew only samples backwater habitat in September. Many of the other species leave backwaters during those times and return to the main channel. Darek said a lack of native species in backwaters should not imply that those species are not in the river as a whole. Darek said the number of razorback sucker and pikeminnow were lower than found during the experimental period, which makes finding larvae difficult.

Dave asked if changes to the SOW were recommended based on the data limitations in the report. >He encouraged the Program to reexamine engagement from the Program in Aspinall operations and make changes based on what is in this report. Specifically, he requested a conversation about how small-bodied fish monitoring should occur if not ISMP. Dave also suggested some of these limitations be included in the report revision. Tildon said there are a number of problems in this system. Most importantly, most of the years since reoperation were very dry where implementation is difficult. In the one year with substantial water, the flow recommendations were not met. One possibility would be to include additional years of data in the report. Another report is due in 2022 for data from 2017-2021. Annual reports for 2020 and 2021 do provide us with preliminary information. Dave requested additional information pertaining specifically regarding the Aspinall unit. >Dave asked FWS to present this information to the Aspinall meetings, the next one will be in January. Ryan and Dale will work together to get information presentations at the January, April, and/or August meetings.

Tom Pitts asked about the recommendation to continue stocking razorback sucker in the Gunnison River and what the specific goal is for the Gunnison. Darek said there was not a specific goal for the Gunnison, but that all fish are part of the Colorado River population. He anticipates adults could spawn in the Gunnison, providing larvae into the system, which we could possibly entrain in a wetland. Spawning habitat is present above Redlands Dam and more larvae have been found since 2016. Specific spawning locations have not yet been located. Numbers of adults have gradually increased over the last five years. Tildon said the Gunnison is valuable because large non-native predators are excluded. Dale reviewed how the SOW was written and the limitations of the study design. He cautioned against expecting too much out of the report and asked for changes to the scope of work to support increased analysis. Dale noted that three species data do also help show the biology of the system. Melissa asked if they were still hand seining for larvae and recommended consideration of drift nets and light traps as have been used in other areas. Darek said light traps are difficult to deploy because of land ownership. >Melissa asked for a conversation in the BC about this SOW to resolve some of these issues. She also noted that the NPS flows in the Gunnison have been met.

Paul motioned to approve the report contingent on incorporation of the changes noted in this meeting. Melissa seconded. Dave asked for one-two sentences to explain why ISMP data was not considered in the report and abstained from the vote. The BC approved the report contingent on revisions.

5. Capital Construction Update

- a. Stirrup - Construction on the Stirrup wetland has been completed. The gate for the Stirrup has been delayed because of the supply chain issues. It has been received in port. Based on local snow conditions, it will likely not be installed until spring, but it should be in place before spring peak flows. Tildon has provided the Force Acct crew with a punch list to finish off the wetland. He is excited about the wetland and noted it is a good opportunity for fish entrainment.
- b. Ridgway - Kevin McAbee showed some photos documenting the progress on the Ridgway screen. Most of the concrete work has been completed and the metal work is on site, expected to be finished up in January. Kevin thanked all of the stakeholders working on this issue, particularly Reclamation and Ryan Christianson for all of their work, Tri-County Water Conservancy District eliminating spills since 2011 and CPW for their tournaments to reduce the population of smallmouth bass in the reservoir. The committee supported a meeting in Ridgway to see the screen.
- c. Replacement net for Highline Lake – CPW has procured a replacement for this net. Thanks to Dave Speas and Lori Martin for their work in ordering the screen. He reiterated the importance of keeping this reservoir screened.
- d. Infrastructure bill – Staff in the Program Office has been working on a list to be constructed within the next 5 years that support the Program. We presented a list of projects to the Management Committee that was then sent to Reclamation. The first ones on the list were included in conversations within Reclamation, including the GVIC fish screen and improvements to the Wahweap and Ouray Randlett fish hatcheries. A second batch of the list needs action by the BC to help define the actions. That second list includes the following:
 - i. Old Charley improvements – Tildon is leading
 - ii. Lake Catamount screen – Kevin is leading
 - iii. Possible Colorado River antenna – Consideration of antennas started as a question from ES as to whether we wanted to build a river across the Colorado River in conjunction with a pipeline rebuild. The BC was interested in an antenna, but the location was not ideal. Chris Michaud will begin discussions around where this might be best suited. In addition, funds have been considered for refurbishing current antennas. Dave noted that antennas that cross the entire river has major drawbacks, especially in how you would fix panels that went down. He recommended consideration of smaller antennas along the margins.
 - iv. Hatchery updates – we will start conversations on this in coming months as we get more information about what funds will be available for us.

Dale asked if the project needed to be completed in 5 years or if funds have to be obligated in 5 years. Kevin was not sure about details but noted the administration's desire to push funds out quickly. Mark McKinstry will be presenting information from the small-scale antennas at the Researcher's meeting. Dave expressed interest in being on that PIT tag group. Melissa requested that improvement to the Audubon site in the Grand Valley be added to the list. Dale has been meeting with Tildon on that effort and will contact the Audubon after the beginning of the year.

AJ asked if a screen on Taylor Draw Dam was being considered. Kevin reviewed CPWs recent sampling, which is indicating that northern pike may have been eradicated because of their quick response. Kevin agreed that there are reservoirs out there that will need to be screened if illegally introduced populations persist.

Melissa asked to see the list of projects. >Kevin will distribute the list (*done*). Kevin noted funding through the infrastructure bill allows more flexibility in our Program capital funds. Ryan agreed and noted these projects would not affect our current capital ceiling. Ryan noted any projects would still have to go through the appropriations process to get built. The list is adaptable over time and Kevin anticipates lots of conversations over time as we keep working on these projects. The Program is unsure about how many of these funds will come to the Upper Colorado Program, but we are working to develop a list of projects ready to go to take advantage of the opportunities presented to us.

6. White River Plan update – David Graf introduced himself to the Committee and provided a little background on his experience. David reviewed why the Program is working on a White River Plan and subsequent PBO to provide certainty to water users across the basin. The Plan will identify management actions in the White to support endangered species, specifically Colorado pikeminnow and razorback sucker. The Plan will inform NEPA compliance on the action, which will provide the basis for the PBO. Implementation will help water users in the basin plan for and develop future water projects in the basin. Discussions about a White River Management Plan have been occurring for decades. The White River was noted as an important tributary in the system. Efforts at the State of Colorado were providing information regarding water needs in the basin. Project 168 has been provided additional information on flows and listed fish species. Kenney Reservoir is an area of concern as well as it is about 2/3 full of sediment, which is preventing water storage. Concerns about that produced the concept of a Wolf Creek Reservoir. Don Anderson took the lead to try to describe all of the activities and possibilities in the basin and a contractor was engaged to write the plan. In summer 2021, a phased approach was developed and accepted by the development team. Phase 1 will last for 10 years; Phase 2 will proceed through 2050. The phased approach delayed the process a bit and required more conversations than initially anticipated. The Management Plan is expected to be complete by March 2022. NEPA compliance and public meetings will follow. Melissa asked where Wolf Creek Reservoir would be located. David said it is currently proposed to be off-channel 6-8 miles upstream of Kenney Reservoir. The need for an upstream reservoir was difficult to quantify based on speculative need.
7. Election of new BC Vice-Chair—Julie thanked Derek for his service as the chair for 2021. She then opened the floor to nominations for the vice-chair, who will become chair in 2023. Pete Cavalli was nominated and accepted. Paul Badame was elected in 2021 to serve as Vice-Chair and will ascend to the Chair position in 2022.

BC Chair Schedule
2012 CPW Harry Crockett
2013 WAPA Jerry Wilhite

2014 BOR Dave Speas
2015 UDWR Krissy Wilson
2016 WYGF Pete Cavalli

2017 FWS Dale Ryden

2020 BOR Dave Speas

2018 NPS Melissa Trammell

2021 WAPA Derek Fryer

2019 CPW Harry Crockett

2022 UDWR Paul Badame

2023 WYGF Pete Cavalli

8. Program Update

- a. Sufficient Progress Update—Julie indicated we are still working through comments. A final draft will be distributed with a response to comments document. It will also go to FWS ES offices for review before it reaches the FWS Regional Director. We are working to determine whether the 15-MR PBO review will be ready to submit in conjunction with the Sufficient Progress memo. We are also working on TNC’s comments.
- b. Post-2023 Efficiencies Recommendations—At the last BC, we received direction to work with major partners who submit SOWs to find efficiencies as we move into a Post 2023 world. Kevin McAbee has begun work to convene that group.
- c. Humpback Chub Downlisting—Humpback chub rule has been published and is officially in effect as of November 17. The species is now listed as threatened.
- d. CPM recovery plan—Julie summarized the progress Kevin and Tildon have led on the recovery plan. Details will be forthcoming in early 2022 at the MC and CC meetings.
- e. Staffing Updates—Julie welcomed David Graf as the new Instream Flow Coordinator. She also introduced Chris Michaud as the new Database Coordinator. Julie then described the pending announcements to replace the Deputy Director, I&E coordinator, and the long vacant Propagation Coordinator. We are also hiring a part-time admin assistant. Julie also mentioned that Matt Fry will be leaving the Ouray NFH as of today. Tom Econopouly, who has provided much instream flow support, is also retiring at the end of this year.

Melanie announced her retirement and thanked the BC members and PIs for all of their help in providing outreach around these fish. She expressed interest in an in-person party when conditions permit. The Committee members showered Melanie with compliments and reinforced how much she has improved information and education for the Program.

- f. Website—Julie has been working with Melanie and Mike Gross to update and migrate the program’s website. There may be some delays in posting annual reports due to this migration, and the PDO will work on an alternative method to distribute these reports in the meantime. Our program’s website will be combined with the San Juan Program with a new public facing site attached.

9. Logistics

- a. Review reports due list—Julie reviewed the reports due and revised based on input from the PIs.
- b. Approval of the BC summary from July. Comments received from Dave Speas. Julie requested approval pending Dave’s revisions. Melissa asked how the committee would like to incorporate discussion from Teams chat into the meeting summaries in the future. AJ thanked Melissa for pointing this out and agreed this would be useful. >The PDO will take note of this suggestion and try to incorporate those comments.
- c. Next meetings –

- i. Flaming Gorge meeting—January 6th 1:30-3:30.
- ii. Next meeting: January 27th 9 am-3 pm.
- iii. Schedule next meeting in March—traditionally this has been an in-person meeting. March 15-16 tentatively in Grand Junction.

ADJOURNED: 2:19

January 6, 2022

BC members: Derek Fryer, AJ Keith, Harry Crockett, Paul Badame, Pete Cavalli, Dale Ryden, Dave Speas, Melissa Trammell,

Interested Parties: Kevin McAbee, Tildon Jones, Julie Stahli, Kevin Bestgen, David Graf, Colleen Cunningham, Chris Michaud, Gene Seagle, Mike Partlow

CONVENED 1:30 pm

Addendum to Flaming Gorge Prioritization Discussion

Tildon reviewed that the goal of this meeting is to define experimental priorities under various hydrologic conditions. The Program sets priorities in a Flow Request Letter, which is drafted by the Program, approved by the Management Committee and sent to Reclamation to kick off the adaptive management process. The BC requested an opportunity to hear about resources expected in the coming year, biological information, and the likelihood of DRO in 2022 before voting occurs. Tildon then presented information from the GREAT report about options that could be included in the Flow Request Letter. Three experiments are being considered: 1. Timing the spring peak to larval razorback sucker emergence, 2. Flow-spike to disadvantage smallmouth bass, only in drier hydrologies, and 3. CPM baseflows which are timed to pick up on pikeminnow drift. Tildon reviewed Figure 5-1 (attached below) from the GREAT which sets forth priorities. Tildon suggested that implementation of DRO would just move us down the list of priorities, not necessarily reset the priorities. A question was asked as to whether DRO could change a hydrologic category. Tildon said the hydrologic classification is influenced by the Yampa as well so a change in would be contingent on conditions in that basin. The committee members asked why the priorities were developed as they were last year, in two hydrologic categories. Tildon reviewed the process taken in the previous year. Committee members asked if flow-spikes should be conducted every year. Kevin Bestgen said flow-spikes should occur in every year where we can pull it off, especially in dry, moderately dry, and average years. Kevin Bestgen said the flow spike hit bass hard and was successful. He recommended keeping it on the top of the priority list. The Committee discussed the pros and cons of prioritizing flow-spikes vs Colorado baseflows. The CPM baseflow experiment has not yet been fully implemented because of a wide variety of factors. The flow-spike has shown to have a substantial effect on smallmouth bass population, which could improve pikeminnow recruitment by decreasing the predators in the system.

The BC used Menti to get initial impressions on priorities. The Committee recommended priorities in the following order for dry to moderately dry hydrologies: smallmouth bass flow spike, CPM base flows, and LTSP if supported by hydrology. Committee members requested that specific language be included to revert to Muth and discount LTSP if water availability does not support implementation of all three experiments in a dry year.

The BC used Menti to get initial impressions on priorities for average flows. The Committee asked to make recommendations for both above and below median average conditions.

The Committee determined rankings for all four categories based on the following results:

What are your priorities for dry to moderately dry conditions?					
	1st	2nd	3rd	4th	5th
Larval Trigger Study Plan for peak flow operations	0	0	7	0	0
Smallmouth Bass Flow Spike	7	1	0	0	0
Colorado pikeminnow experimental base flows	1	7	0	0	0
Channel maintenance spring peak (if different than LTSP)	0	0	0	5	0
Other	0	0	0	0	1
What are your flow priorities for average (below median) hydrologic conditions?					
	1st	2nd	3rd	4th	5th
Larval Trigger Study Plan for peak flow operations	1	0	6	1	0
Smallmouth Bass Flow Spike	6	1	1	0	0
Colorado pikeminnow experimental base flows	1	7	0	0	0
Channel maintenance spring peak (if different than LTSP)	0	0	1	5	0
Other	0	0	0	0	0
What are your flow priorities for average (above median) hydrologic conditions?					
	1st	2nd	3rd	4th	5th
Larval Trigger Study Plan for peak flow operations	5	1	2	0	0
Smallmouth Bass Flow Spike	0	0	1	5	0
Colorado pikeminnow experimental base flows	1	6	1	0	0
Channel maintenance spring peak (if different than LTSP)	2	1	4	0	0
Other	0	0	0	0	0
What are your priorities for moderately wet & wet hydrologic conditions?					
	1st	2nd	3rd	4th	5th
Larval Trigger Study Plan for peak flow operations	3	5	0	0	0
Smallmouth Bass Flow Spike	0	0	0	3	0
Colorado pikeminnow experimental base flows	0	1	6	0	0
Channel maintenance spring peak (if different than LTSP)	5	2	0	0	0
Other	0	0	0	0	0

Experiment Priority	May 1 st Hydrologic Classification			
	Dry to Moderately Dry	Average Below median	Average Above median	Moderately wet or Wetter
1 st Priority	SMB flow spike	SMB flow spike	LTSP ¹	Channel Maintenance (match Yampa)
2 nd Priority	CPM base flows	CPM base flows	CPM base flows ² (should be achieved)	LTSP
3 rd Priority	LTSP or revert to Muth if not possible (Muth should be default, based on ROD)	LTSP	SMB flow spike	CPM flows (should be achieved)

Note: experiments do not eliminate the need to attempt achieving flow targets from Muth for peak and base flows. As a result, a peak flow release and base flow releases should still occur in the absence of implementing a specific experiment.

ADJOURNED: 4:15 pm

¹ Effort should be made to achieve peak flow targets from Muth to aid in channel maintenance, if possible, in conjunction with larval triggered releases to inundate floodplains

² In wetter hydrologies, CPM base flows largely overlap with those from Muth, but attention should be paid to timing appropriate flows before larval CPM drift.

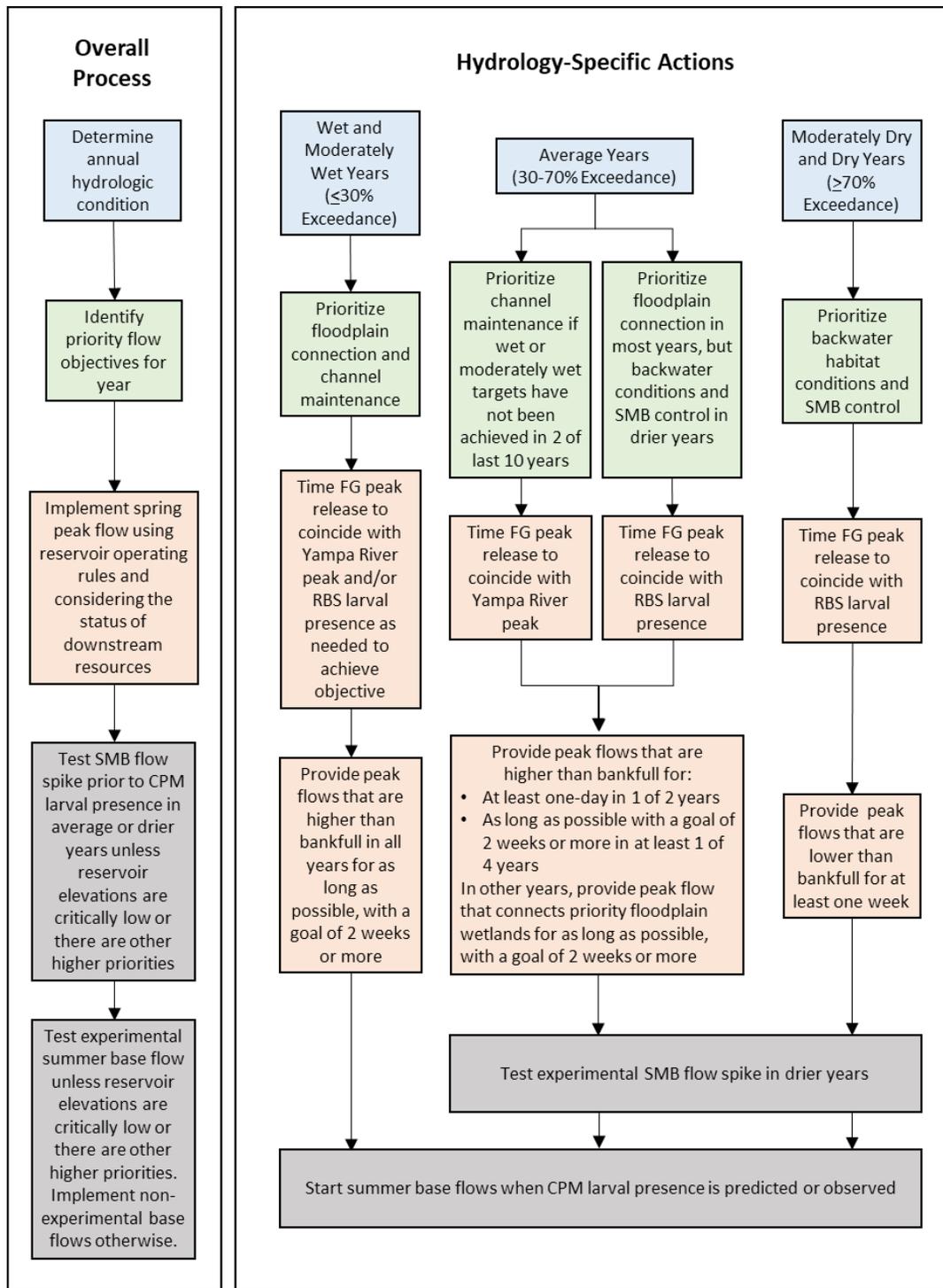


FIGURE 5-1 Process for Identifying Annual Peak and Base Flow Objectives and Characteristics. Left: overall process to be used in setting annual objectives and flows. Right: preferred hydrology-specific actions to be taken in a given year. Related elements of process and actions are given similar color shading. FG = Flaming Gorge, CPM = Colorado pikeminnow, RBS = razorback sucker, SMB = smallmouth bass. A more detailed implementation diagram is presented in Appendix D.