



**BIOLOGY COMMITTEE MEETING  
FINAL SUMMARY  
28-30 November 2023**

**Biology Committee (BC) Members**

Absent  
Kerri Pedersen  
Jacob Mazzone  
Vincent Lamarra  
Ben Zimmerman  
Harry Crockett (Chair)  
Matthew Zeigler  
Absent  
AJ Keith  
Brian Westfall  
Steve Davenport  
Benjamin Schleicher  
Absent  
Tom Chart

**Representing**

Bureau of Land Management  
Bureau of Reclamation  
Jicarilla Apache Nation  
Navajo Nation  
Southern Ute Indian Tribe  
State of Colorado  
State of New Mexico  
State of Utah  
The Nature Conservancy  
U.S. Bureau of Indian Affairs  
U.S. Fish and Wildlife Service, R2  
U.S. Fish and Wildlife Service, R6  
Ute Mountain Ute Tribe  
Water Development Interests

**Program Office (PO):**

Melissa Mata, Program Coordinator  
Eliza Gilbert, Assistant Program Coordinator  
Scott Durst, Science Coordinator  
Raphaela Ware, Program Biologist

**Representing**

U.S. Fish and Wildlife Service  
U.S. Fish and Wildlife Service  
U.S. Fish and Wildlife Service  
U.S. Fish and Wildlife Service

**Other Interested Parties:**

Tracy Diver, BC alternate  
David Speas, BC alternate  
Carrie Padgett, BC alternate  
Dan Lamarra, BC alternate  
Adam Barkalow, BC alternate  
Jason Davis, CC member  
Dale Ryden, CC member  
Kara Scheel, CC alternate  
Nate Caswell, CC alternate  
Chris Kitcheyan, CC alternate  
Lee Traynham, CC Member  
Colleen Cunningham, CC Member  
Joseph Trungale  
Mel Warren, Peer Reviewer  
Wade Wilson  
Nathan Franssen  
Kin-Lan Han  
Rachel Grey

**Representing:**

U.S. Fish and Wildlife Service, R2  
Bureau of Reclamation  
Water Development Interests  
Navajo Nation  
State of New Mexico  
U.S. Fish and Wildlife Service, R2  
U.S. Fish and Wildlife Service, R6  
State of Colorado  
U.S. Fish and Wildlife Service, R2  
Bureau of Indian Affairs  
Bureau of Reclamation  
New Mexico  
The Nature Conservancy  
USDA-Forest Service  
U.S. Fish and Wildlife Service  
U.S. Fish and Wildlife Service  
U.S. Fish and Wildlife Service  
U.S. Fish and Wildlife Service

**Other Interested Parties:**

Paul Badame  
Jenn Logan  
Jerrod Bowman  
Ben Robinson  
Brian Hines  
Tara Ashby  
Jeremy Hammen  
Sophia Bonjour  
Keegan Epping  
Johan Cleveland  
Steve Platania  
Mike Farrington  
Stephanie Clark Barkalow  
Melissa Trammell  
James Whitney  
Shana Rapoport  
Richard Valdez

**Representing:**

U.S. Fish and Wildlife Service  
State of Colorado  
Navajo Nation Fish and Wildlife  
Ute Mountain Ute Tribe  
Bureau of Reclamation  
Bureau of Reclamation  
Bureau of Reclamation  
Kansas State University  
Kansas State University  
Kansas State University  
American Southwest Ichthyological Researchers  
American Southwest Ichthyological Researchers  
American Southwest Ichthyological Researchers  
National Park Service  
Pittsburgh State University  
State of California  
SWCA

**Introductions and changes to agenda**

Zeigler asked for an update on the nonnative stocking procedures and for dates of future scheduled meetings. Both items were addressed on Thursday December 30, 2023.

Crockett announced that he was retiring in February 2024 and the BC members as well as other SJRIP participants expressed their gratitude for all of Crockett's contributions to the SJRIP and native fishes.

**Approve draft summary from 18 July 2023 BC meeting; review Action Item list – Ware**

Ware provided an overview of comments received. Zeigler motioned to approve, Crockett seconded, no one opposed, and the summary was approved without discussion.

Action Items from 18 July 2023 Biology Committee Meeting

1. The PO will reach out to Schleicher to clarify if his suggestion of improved accessibility at Piute Canyon could just be a boat ramp or whether roadwork development is also necessary.  
*On this meeting's agenda.*

**Nomination for BC representatives from Utah and Ute Mountain Ute (vote)**

Durst reported that Katie Creighton will shift from the BC alternate to BC representative for Utah with Sarah Seegert's departure. This required no BC action because Creighton was already voted as the Utah alternate. Randy Oplinger was nominated as Utah's BC alternate but was not available for this meeting. The nomination will be considered at the next BC meeting which will be held in February. Ute Mountain Ute Tribe hopes to nominate Ben Robinson as the BC representative at the BC's next meeting and Robinson was in attendance.

**Nomination for BC chair for 2024-2025 term (vote)**

Crockett's term as BC chair ends with this meeting. The CC is considering language in the Program Document revision that the BC chair shall rotate among members, but these changes have not been finalized. Davenport nominated Schleicher as BC chair and Chart seconded. Schleicher accepted the nomination and was voted in as BC chair with no opposition or further discussion. Chart volunteered to serve after Schleicher's term.

### **Meeting purpose**

Mata indicated that the purpose of the meeting was to prioritize future SJRIP activities but said the first half of the meeting would be a discussion to determine how the SJRIP could more efficiently prioritize and implement activities. Gilbert added that the idea was to articulate a mission, vision, or philosophy for how the SJRIP conducts its recovery activities with short, mid, and long-range goals. This shift in focus is to address identified SJRIP problems and some of the on-going discussion related to SDM within the Coordination Committee. Barkalow asked if participation in the discussion is limited to BC members. Mata replied that the focus is a BC discussion, but participation by all in attendance is encouraged.

### **Recap recent SJRIP workshops to frame SJRIP future direction:**

#### **Review recruitment bottlenecks and potential paths to address bottlenecks**

**Why we think identified bottlenecks are the "bottlenecks"**

**What have we done about those bottlenecks?**

#### **Review habitat workshop**

**Why did we have this workshop?**

**What did we come to understand?**

**Ideas identified to increase key habitats**

Durst began by reviewing the data to support the two identified recruitment bottlenecks for razorback sucker. Stocking sub-adult fish has resulted in the establishment of a large adult razorback sucker population in the San Juan River. The first identified bottleneck is the limited survival of wild-spawned larval fish to later larval and juvenile stages, which impedes the SJRIP's ability to establish a self-sustaining population. The second identified bottleneck is the potential low number and low proportion of hatchery-originated adults that contribute to successful spawning, which limits the total reproductive output by razorback sucker in the San Juan River. Other bottlenecks might be present, but these identified impediments need to be addressed first.

Durst reminded the BC that one of the outcomes of the recruitment bottleneck workshop was prioritized hypotheses and paths to address these impediments to recovery. The SJRIP had taken actions on many of these. For razorback sucker, the SJRIP has provided upstream passage at the waterfall. Most of these fish only remain upstream of the waterfall temporarily but in 2021, 25 translocated adult razorback suckers contributed to 6% of larval production in the San Juan River, highlighting the importance of this management action.

Another action was to improve passage at PNM to increase razorback sucker reproductive output. When the PNM fish passage was seasonally run open, the probability of successfully negotiating the passage increased for Colorado pikeminnow, flannelmouth sucker, and razorback sucker. Both sucker species also decreased the amount of time to move through the passage when it was run open. While passage improved, the SJRIP did not specially address the hypothesis that increased passage would benefit spawning and reproductive output for razorback sucker. Given the increased efficiency of the passage when it was run open, starting in 2023, the passage was run open year-round.

Elevated baseflows were also thought to increase the availability of rearing habitat and increase rates of recruitment. Based on analysis of 1992-2016 habitat data, the frequency of main channel backwaters increased on a river mile basis with increased flow at mapping (a surrogate for baseflow) but frequency of secondary channel backwaters trended downward. The area of secondary channel backwaters on a river mile basis increased with increased flow at mapping but area of main channel backwaters remained constant. When backwater habitat was measured at two different flows in 2019, the results were contradictory to the concept that backwater habitat increases with flow. The river was flown in September at a high baseflow (1,431 cfs) and again in November under a lower baseflow (685 cfs). Yet, in November there was twice the total amount of backwater habitat than measured in September. The reason for a different response with these two approaches is unclear.

The recruitment bottleneck workshop identified that estimates of  $N_b$  for wild self-sustaining fish in the San Juan River would be important to put the low  $N_b$  for razorback sucker in context.  $N_b$  estimates for flannelmouth sucker are much higher than razorback sucker. Flannelmouth sucker have a much larger population (although abundance estimates are lacking) and they're found further upstream in the San Juan and Animas Rivers where razorback sucker are rare. The razorback sucker population in Lake Mohave is similar in abundance to the San Juan River but it has a higher  $N_b$  and its  $N_b/N_c$  is an order of magnitude higher than  $N_b/N_c$  in the San Juan. Management activities in the San Juan that increased  $N_b$  would probably result in higher reproductive output in the system and might increase the chance that some larval fish reach the juvenile life stage if it's a "numbers game." Increasing post-stocking survival of razorback sucker and providing increased passage of razorback sucker at the waterfall or PNM was proposed in the bottleneck recruitment workshop as a way to increase  $N_b$  if those activities result in more fish successfully spawning.

Durst then reviewed the data to support the single identified bottleneck for Colorado pikeminnow. The SJRIP's efforts to increase the size of the Colorado pikeminnow population in the San Juan River have primarily focused on stocking age-0 juveniles but has recently shifted to stocking age-1 juveniles and the persistent low survival of stocked juvenile Colorado pikeminnow was identified as the recruitment bottleneck for this species. It has slowed the accumulation of hatchery-reared adult Colorado pikeminnow in the San Juan River. While there's not comparable age-specific survival data for all ages, age-3 Colorado pikeminnow in the San Juan River was 25% lower survival than 350 mm TL fish in the Green River but age-4 fish in the San Juan River had similar survival to 450 mm TL Colorado pikeminnow in the Green River.

While the persistent low survival of stocked juvenile Colorado pikeminnow has slowed the accumulation of adult fish in the San Juan River, this bottleneck is not as severe as those identified for razorback sucker because stocking Colorado pikeminnow has built a population of hatchery-reared adults. These adults have successfully spawned over the last 10 years and a relatively high proportion of adults contribute to successful spawning. This suggests that unlike razorback sucker, the reproductive success of stocked Colorado pikeminnow is not a bottleneck to this species recovery. In some years, wild-spawned Colorado pikeminnow recruit to age-0 young-of-year in the fall. This recruitment through the larval stage to age-0 is in contrast to razorback sucker that do not demonstrate much successful recruitment to this age. Until recently the SJRIP was unable to identify subsequent recruitment to older ages because stocked fish and wild fish were indistinguishable. Other information we know about Colorado pikeminnow is that successful reproduction and recruitment to the age-0 young-of-year life stages generally corresponds to years with high spring discharge.

Typically, these years have spring releases that exceed the 5,000 cfs flow targets and meet at least half the target days at 8,000 cfs.

To better detect and quantify Colorado pikeminnow recruitment out of the age-0 age class, the SJRIP transitioned to stocking PIT tagged age-1 fish from untagged age-0 fish in 2021. However, untagged wild age-2+ fish and age-2+ stocked fish that lost their PIT tag cannot be distinguished. With the implementation of Colorado pikeminnow egg and larval stocking to supplement age-1 stocking genetic parentage analysis hatchery spawned fish now occurs. This provides a method to distinguish, wild from hatchery fish at all ages as long as tissue samples are collected, and subsequent genetic analysis is conducted.

An important component of stocking PIT tagged age-1 Colorado pikeminnow is to conduct hatchery enrichment to improve post-stocking survival. We assumed stocking 400,000 age-0 fish and 12,000 age-1 fish would result in similar numbers of age-2 fish in the river, but this has not yet been assessed due to some difficulties in obtaining age-specific survival estimates through the Demographic Monitoring scope of work. The SJRIP is working on ways to conduct hatchery enrichment and approved funding for infrastructure at SNARRC to expand its hatchery enrichment efforts that will focus on flow conditioning and prey training. SNARRC has conducted experimental flow-conditioning of age-1 Colorado pikeminnow and the expectation is that we will see the same positive response as observed for flow-conditioned razorback sucker.

Another hypothesis developed in the recruitment bottleneck workshop was related to the quality of different types of backwaters (secondary and main channel backwaters). Because there is a different response of main channel and secondary channel backwaters to varying baseflows, the SJRIP funded Blake Hansen's work to assess qualitative difference between the two backwater types. He found that secondary channel backwaters may be superior nursery habitats, but monsoons diminished the quality of all backwaters in the San Juan River. As previously noted, the response of backwater area to elevated baseflows differed between the retrospective analysis of 1992-2016 data and measuring that habitat at two different times in a single year (2019). Hopefully future monitoring associated with the Jicarilla water lease can provide clarity on this relationship.

A habitat workshop was held in 2019 as part of the approval to fund the Phase III wetland. Because the goal of the wetland was to produce wild age-0 juvenile razorback sucker, the workshop focused on this species and life stage. The summary for the workshop was intended to be used by the CC for decision making on future habitat projects or the development of a habitat management plan. The habitat workshop was set up around answering six questions:

1. What habitat is critical for age-0 razorback sucker recruitment? Using a weight of evidence approach, the group agreed that zero velocity habitat is critical for razorback sucker recruitment and hypothesized that increasing this habitat would increase production of age-0 juvenile razorback sucker.
2. When does this habitat need to be available? We used a temporal conceptual model showing this habitat needs to be available following razorback sucker spawning from spring to late summer.
3. Where is this habitat currently located? Zero velocity habitat is longitudinally and laterally distributed throughout the San Juan River.
4. How much is needed? We used a back of the envelope calculation to estimate that 32,000 age-0 juveniles would be needed to produce 5,800 adults. However, we were unable to estimate how much habitat would be needed to produce that number of juveniles.

5. Does the habitat need to be constructed or can it all be done by flow? When high flow targets are met, there's more backwater habitat particularly for secondary channel backwaters (when the 5,000 cfs target is met and more so when the 8,000 and 10,000 cfs targets are met). However, these high flow targets are not attained at the desired frequency and in some cases the maximum number of years without reaching these targets is exceeded.
6. How do we make more of this habitat available to age-0 razorback sucker larvae? Rather than focusing on increasing water availability (like purchasing or leasing water), we focused on methods to restore or create zero velocity habitat in the San Juan River. Numerous ideas to increase zero velocity habitat were identified at the workshop and some were subsequently implemented.

Durst indicated that between the recruitment bottleneck workshop and the habitat workshops, the SJRIP BC identified numerous ideas to address the Colorado pikeminnow and razorback sucker recruitment bottlenecks and many of these ideas were funded as SJRIP SOWs. However, the SJRIP does not have a systematic process to prioritize and implement projects in a forward-looking way to ameliorate or understand the recruitment bottlenecks. Durst indicated that the remainder the day and the next day's morning would be a discussion on whether developing a systematic process to prioritize and implement projects would be useful for the SJRIP and if so, how should the SJRIP develop that process?

**PO suggested strategy to frame SJRIP future direction:**

*Implementing management hypotheses that test our ability to ameliorate recruitment bottlenecks, evaluate their success, and use those evaluations as our vehicle to learn and adapt. When necessary, conduct research to identify mechanisms driving recruitment bottlenecks to develop management actions that ameliorate impediments to recovery.*

**Review and discuss CC/BC/PO responses to problems and how PO thinks strategy address identified problems**

**BC response or thoughts on PO strategy**

Gilbert presented the PO's suggested strategy identified its constituent parts. In general, the strategy aims to implement management hypotheses that are focused on the identified recruitment bottlenecks. These management hypotheses should be actions that attempt to alleviate or ameliorate bottlenecks for Colorado pikeminnow and razorback sucker. As part of any management hypothesis (either as part of the SOW for the action or a related SOW), each action will be evaluated to determine if it's successful and that evaluation will be the SJRIP's means of iteratively learning and adapting its management actions. Secondly, the strategy supports research when it is needed to identify mechanisms contributing to the bottleneck so management action to address that impediment can be devised.

Some BC members suggested this approach to research was overly restrictive, but Gilbert indicated that this was the PO's intention as a way to provide boundaries that focus the SJRIP's efforts. The BC discussed the idea that it has been difficult to understand the management or recruitment bottleneck research hypothesis behind some past actions. It was suggested that going through the exercise of identifying the hypothesis behind SJRIP actions and documenting that process might be useful to guide an SJRIP adaptive learning process. Durst suggested that many SJRIP activities already fit into this proposed strategy but sometimes the evaluation and consideration of "next steps" was not fully addressed. The BC discussed and appeared to acknowledge that the SJRIP often chases "shiny

objects” like new technology that are interesting and result in high quality projects but sometimes it is unclear how these projects fit together under a unified umbrella. The BC discussed wording changes to the proposed strategy such as streamlining it to reduce redundancy between the two sentences and clarifying the prioritization of management versus research. Some BC members asked how this strategy would change the development of SOWs and the AWP. Gilbert said the strategy was intended to frame what activities are important to push recovery and to provide a systematic longer-view framework to determine what SJRIP get funded and implemented. Some BC members thought there were a limited number of activities available to the SJRIP to promote recovery.

The BC then identified common themes in the compiled SJRIP problems to identify how the SJRIP problems might be addressed by the proposed strategy. The themes included:

- Lack of a unifying structure and not being systematically focused or forward-looking.
- An inability to get past indecision and stagnation around not reaching consensus.
- Lack of shorter-term goals and lack of teamwork.
- Fear of failure and risk aversion prevents trying new ideas and leads to indecision.
- Without an adaptive management approach, SJRIP actions are not assessed.
- SJRIP participants are disengaged and lack commitment to the Program.
- Not enough management actions are implemented, particularly for habitat.
- Lack of consistent integration among PIs and long-term documentation.

Westfall motioned to adopt the PO proposed strategy with the understanding that wording of the strategy will be refined based on BC input over the next few weeks. Zeigler seconded the motion and there were no objections.

**If buy-in on PO strategy:**

**What tools does the SJRIP currently have in place to make this a reality?**

**Program Document – PO/BC/CC responsibilities**

**Long Range Plan**

**Are these tools sufficient to implementing strategy?**

**If not, what tools would the BC support developing?**

**If there is not buy-in on PO strategy:**

**How does the BC want to make progress on ameliorating species’ recruitment bottlenecks?**

Gilbert expressed concern that the CC may be hesitant to adopt the strategy and might come back to the BC to help better describe how the strategy is useful to address the Programs problems.

The Program Document says the Long-Range Plan (LRP) will indicate the logical progression and priority of implementing identified recovery actions. However, the tasks described in the LRP reflect what has been done, not what we should be doing (backward, not forward looking), and does not provide any short or midterm goals. Most of the tasks are high priority so it’s not possible to identify what is really the highest priority. Some BC members suggest that we are not as far along the path to recovery as we might think and everything in the LRP is a high priority because we don’t know enough about the system to discern what we should be doing to promote recovery. Others thought that activities that we thought would be successful 30 years ago no longer have the desired impact and we need to evaluate what actions we can implement that would benefit recovery.

The BC did not seem to think the LRP was useful in providing a systematic process to implement management actions. Some BC members thought the Annual Work Plan (AWP) process was rushed and too much time is devoted to Scopes of Work (SOW) that don't need to be reviewed every year. Some BC members thought the LRP could be modified to make it useful to prioritize and implement SJRIP activities and be consistent with the strategy. The BC discussed the Platte Recovery Program and its Adaptive Management Plan and a Science Plan. Scheel, said the Adaptive Management Plan is high level and is not used as much as the Science Plan. However, Scheel thought the Adaptive Management Plan might have been needed to produce the Science Plan. The BC generally agreed the SJRIP lacks a process that guides its prioritization and implementation of recovery activities and there is a disconnect between how the Program Document describes the purpose of the LRP and how it actually functions. Some BC members thought a revised LRP could be helpful to PIs in the development of SOWs and possibly promote more effective collaboration on projects. Some members thought priorities could be established through BC conversation, but others did not think that was an actual process for identifying priorities that guides the recruitment bottlenecks the SJRIP is trying to address.

Chart suggested the BC's role in AWP development needs to be expanded in the Program Document. Currently, the BC can make technical comments on the AWP but does not vote on recommending it to the CC. Chart thought the BC should be responsible for voting on an AWP. The BC discussed that there had been an issue of BC conflict of interest when BC members were voting on scopes of work on which they were Principle Investigators. Chart motioned that the BC pursue increasing their role in the AWP process as the CC is revising the Program Document. Davenport seconded and the motioned passed unanimously. Chart said he would draft a memo for BC review requesting that the CC consider revising the role of the BC in the AWP approval process. If the BC approves the language it would be forwarded to the CC for their consideration to incorporate into the Program Document. It was mentioned that an increased role would likely increase the BC's workload.

The PO polled the BC on what tool/vehicle/process it wanted to use to implement the strategy. Many BC members suggested an adaptive management plan but also suggest revising the LRP or producing a Science Plan that is based on a few critical questions. Concern over an adaptive management plan or structure was that it could slow down getting work done on-the-ground. In theory the process/plan that implements the strategy identifies the hypotheses the SJRIP is trying to address, and the SOWs implements the work to address the hypotheses. The BC decided it needed to understand what "vehicles" are available to implement the strategy, particularly related to things like adaptive management plans. The PO said it would provide some options for BC consideration and discussion at the February meeting.

### **Reality check!**

**May require a year or more to agree on a tool or process to implement the PO or BC identified strategy to make progress on ameliorating species' recruitment bottlenecks**

**Need to identify fiscal year 2025 annual work plan priorities.**

**Review and discussion PO priorities, we think are consistent with the goal of implementing management hypotheses that test our ability to ameliorate recruitment bottlenecks and evaluate actions to assess success and use that assessment as our vehicle to learn**



**Activities to continue (management actions and their evaluations)**

**Activities to revise (management actions and their evaluations)**

**New activities (management actions and their evaluations)**

**New activities (recruitment bottleneck mechanisms)**

Gilbert presented the PO priorities and said they were developed to be as consistent with the proposed strategy but were not determined through a systematic process. Given the deadline to come up with a Fiscal year 2025 AWP, SOWs will need to be submitted prior to sorting out a process to implement the proposed strategy.

Management actions to continue without modification include operation of the PNM Fish Passage and stocking of age-1, eggs, and larval Colorado pikeminnow and >300 mm TL razorback sucker. Management evaluation to continue without modification include assessing the reproductive contribution of razorback sucker translocated upstream of the Piute Farms waterfall, using PITPASS to evaluate passage at Hogback, APS, and PNM, larval monitoring to assess egg and larval Colorado pikeminnow stocking, and habitat monitoring associated with the Jicarilla water lease. The BC agreed it would be a useful exercise to set aside some time at the February meeting to generate hypotheses around these on-going management actions and evaluations as a “test run” to implementing the strategy to develop hypotheses that guide SJRIP activities.

Management actions to revise include increasing effort to translocate fish upstream of the Piute Farms Waterfall. Extending work at the waterfall later in the year would allow crews to presumably access and translocate more Colorado pikeminnow. Razorback sucker and pikeminnow are present at times other than the 3- or 4-week window in spring when past work was conducted.

The SOW enhancing channel complexity and low-velocity habitat (“chain gang”) is another management action to revise so the PO proposed a 2025 SOW incorporates a 3–5-year plan of using low-tech process-based tools to maintain secondary channel cleared in 2023. This revised SOW should include the development of a habitat plan with input from experts in this methodology and conducting relevant management actions identified and implemented from the habitat workshop.

Management evaluations to revise include the assessment of age-1 Colorado pikeminnow stocking. The current Demographic Monitoring SOW does not recapture sufficient fish across years to produce reliable survival estimates. Methods to obtain more recaptures across years like deploying wagon wheel antennas or using permanent antennas should help increase recaptures and tighten confidence intervals around survival estimates. Analysis should also be revised to obtain first year overwinter survival of stocked age-1 fish.

Evaluation of the management action of translocating Colorado pikeminnow upstream of the Piute Farms Waterfall should be considered as a new evaluation activity. Currently Demographic Monitoring, permanent PIT tag antenna, or the PITPASS could be used to obtain a coarse assessment but if the SJRIP is going to institute the strategy, a specific SOW to conduct this evaluation would be needed. Schleicher thought the analysis conducted by Dr. Casey Pennock and Dr. Brian Healy, was sufficient as it demonstrated Colorado Pikeminnow stayed upstream, moved high into the system, and had high survival. Zeigler thought there were other hypothesis that might need to be evaluated especially if translocation occurred in the summer when high temperatures could result in mortality.

Gilbert provided background on the San Juan Soil and Water Conservation District's (SJSWCD) efforts to install Rubicon Flume Gates in four irrigation canals. If this technology effectively reduces entrainment, they could be installed at irrigation canals throughout the San Juan River basin. The PO proposed a new management action to evaluate entrainment prior to and after the installation of the Rubicon Gate to assess their effectiveness. Gilbert indicated the SJRIP had been discussing this with the SJSWCD and they were supportive of the idea.

The SJRIP has opened the PNM Fish Passage year-round but there is no assessment of channel catfish response. The PO proposed a new management evaluation was needed to determine how channel catfish are responding to the opening of the PNM Fish Passage if the SJRIP wants to try and implement a strategy of evaluating management hypothesis.

The PO proposed new research to address the razorback sucker larval bottleneck should be a priority. The PO proposed a project to rear wild eggs and larvae to better understand mechanisms driving this bottleneck. A pilot study was conducted in 2023 and developing this project could assess hypotheses that the razorback sucker bottleneck is driven by low survival due to negative genetic hatchery effect, low egg viability of hatchery fish, or contaminants transferred to eggs leading to reduced survival.

The PO will provide these priorities to the BC for comment, revision, and identification of additional priorities to pursue for the FY25 AWP. The PO requested BC participants indicate their interest in submitting SOWs addressing these priorities by the end of January 2024. If BC participants do not want to develop an idea into a SOW, they would then determine whether to solicit SOWs to address these priorities. The PO said it was always available to help develop potential SOWs.

The BC discussed the difficulty and timeline to implement habitat projects. Gilbert said that one of the reasons for proposing a 3–5-year plan as part of the revised chain gang effort was address this concern. Chart asked how habitat monitoring was being considered for FY25? He was supportive of the general approach but suggested that the timing of mapping might shift to answer other habitat questions. The BC discussed what hypotheses habitat monitoring (or any monitoring effort) are addressing that helps alleviate or evaluate a management action or understand the mechanism contributing to recruitment bottlenecks. Westfall thought habitat monitoring was an important metric in evaluating the flow recommendations.

### **Discuss how to incorporate Animas River flows into operating procedures for Navajo Reservoir**

Durst reminded the group that the PO recommended conducting a release from Navajo Reservoir in 2023 when available water was not sufficient for a 21-day release because it seemed like high flow targets could be met given the snowpack in the Animas River Basin. At the time, BC members recommended revising the operating procedures to accommodate these conditions. Durst asked whether the SJRIP could have this operational flexibility without revising the 2018 operating procedures through an addendum that described the conditions when the SJRIP would consider a release that was outside of the decision tree. The purpose would be to minimize back-and-forth between the BC, PO, and Reclamation. The BC agreed to revisit the topic during a no more than half-day workshop during the February meeting with the purpose of deciding whether and how to incorporate Animas River flows into the Navajo Reservoir operating procedures.

### **Capital projects update**

Gilbert reported that construction of the weir to reduce entrainment at the Fruitland irrigation ditch could be started in November 2024 pending Navajo Nation decisions. Reclamation is collecting

additional data at the APS weir to address concerns from APS about sediment deposition impacting their operations. Construction of fish passage at APS could occur in November 2024 pending the acquisition of easements on river right. There was a productive site visit in August at the proposed Bluff razorback sucker wetland. The Bluff project engineer, PO staff, and Reclamation conducted a tour of Upper Basin wetlands to inform design considerations for the San Juan. Reclamation is working through contracting for the Bluff wetland conceptual designs. Once contracting is figured out the designs could be available within 6 months. Reclamation's Technical Service Center has indicated it was working on producing a 30% design for two proposal providing passage at the Piute Farms Waterfall and the PO has a meeting scheduled with them and other BOR engineers in early December. Southwestern Native Aquatic Resources and Recovery Center (SNARRC) pond and raceway designs are at 90%. The purpose of this infrastructure is to increase capacity for hatchery enrichment at SNARRC. A building to support enrichment is at 30% design. Construction at SNARRC could happen in 2024 or 2025. Replacing the pumps at Hogback that interfere with PIT tag antennas is moving forward and should happen soon.

Navajo Nation has indicated it would seek non-SJRIP funding to provide flow conditioning of razorback sucker at NAPI. Grand Junction currently does not have the capacity to flow train their razorback sucker that are stocked into the San Juan. Some BC members questioned the need to flow condition razorback sucker given their abundance in the San Juan River but increasing post-stocking survival could increase the abundance of older individuals and allow the SJRIP to stock fewer fish so annual budget resources could be devoted elsewhere. This need should be discussed further pending results of the Age at Maturity study.

### **Schleicher's preferred solution to accessibility at Piute Canyon – Is a road needed or just a boat ramp?**

Schleicher indicated an improved road would provide easier takeout access for work conducted downstream of the waterfall. A ramp wouldn't be ideal since it would result in more public use. The Park Service is open to these discussions, but funding would have to come from the SJRIP. Given the cost and limited need for improved access, the SJRIP will not pursue this project until there is a greater need.

### **Zeigler sharing model to support stocking YY catfish**

Zeigler will give a presentation at the February meeting on this model and the efficacy of this technology at other sites in New Mexico.

### **Update on nonnative fish stocking procedures**

Only some SJRIP participants have signed the agreement and discussions are underway to determine if the task can be considered complete as is.

### **Upcoming meetings**

New Mexico requested later dates in February be considered for the next BC meeting since they have limited availability to participate 6-8 February. The PO will send a Doodle poll to see if there are other options in February. The group also asked the meeting be held in-person in Albuquerque since it is easier for travel and an in-person meeting is preferable for most. Westfall offered a presentation from USGS on the results of their razorback sucker selenium effects study.

The Researchers Meeting will be held 30-31 January 2024 in Grand Junction. The first call for papers is due to Tildon Jones 12 January 2024.

**Action Items**

1. Durst will send paper cited in Tuesday's presentation.
2. The PO's proposed strategy will be sent to the BC for edits and revision that captures concerns discussed during the meeting.
3. Chart will provide a draft memo for the BC to consider on increasing the role in the AWP process. If/when approved Chairman Schleicher will forward it to the CC for their consideration.
4. The PO will include a hypothesis generation trial run on the agenda for the February meeting (2 hour agenda item).
5. PO will seek BC input on its priority projects list.
6. The BC will revisit the Navajo Reservoir release decision tree during a brief workshop at the February meeting (4 hour agenda item).
7. Zeigler will present the YY model at the February meeting.
8. The PO will provide an update on the nonnative fish stocking procedures at the February meeting.
9. Durst will send a Doodle poll to find alternative February meeting dates.
10. Mata will communicate to the CC that the BC will hold its February meeting in-person in Albuquerque.
11. The PO will provide an easier format to view the 3-year schedule of meetings on the website.
12. Westfall will confirm USGS availability to present the results of the selenium study at the February or other upcoming meeting.