FINAL SUMMARY
BIOLOGY COMMITTEE MEETING

December 3-4, 2019
Durango, CO

BIOLOGY COMMITTEE (BC) MEMBERS:	**REPRESENTING:**
William Miller	Southern Ute Tribe
Jacob Mazzone	Jicarilla Apache Nation, Chair
Brian Westfall	Bureau of Indian Affairs (BIA)
Stephen Davenport	U.S. Fish and Wildlife Service, Region 2
Mark McKinstry	U.S. Bureau of Reclamation (Reclamation)
Benjamin Schleicher	U.S. Fish and Wildlife Service, Region 6
Vincent Lamarra	Navajo Nation
Matthew Zeigler (phone)	State of New Mexico
Harry Crockett	State of Colorado
Carrie Padget (BC Alternate)	Water Development Interests
John Kendal (BC Alternate)	Bureau of Land Management
Absent	Conservation Interests

COORDINATION COMMITTEE (CC) MEMBERS:	**REPRESENTING:**
Ryan Christianson	U.S. Bureau of Reclamation

PROGRAM OFFICE (PO):	
Melissa Mata, Program Coordinator	U.S. Fish & Wildlife Service, Region 2
Scott Durst, Science Coordinator	U.S. Fish & Wildlife Service, Region 2
Eliza Gilbert, Biologist	U.S. Fish & Wildlife Service, Region 2

PEER REVIEWERS	
Mel Warren	Peer Reviewer
Wayne Hubert	Peer Reviewer
Brain Bledsoe	Peer Reviewer (via conference call)

OTHER INTERESTED PARTIES:	
Nathan Franssen	U.S. Fish and Wildlife Service, Region 2
Bobby Duran	U.S. Fish and Wildlife Service, Region 2
Weston Furr	U.S. Fish and Wildlife Service, Region 2
Daniel Kaus	U.S. Fish and Wildlife Service, Region 2
Casey Weathers	U.S. Fish and Wildlife Service, Region 2
Janess Vartanian (via conference call)	U.S. Fish and Wildlife Service, Region 2
Tildon Jones	U.S. Fish and Wildlife Service, Region 6
Steve Whiteman	Southern Ute Tribe
Ben Zimmerman	Southern Ute Tribe
Jill Wick, BC Alternate	State of New Mexico
Adam Barkalow, BC Alternate	State of New Mexico

Steve Platania	American Southwest Ichthyological Researchers (ASIR)
Stephanie Clark Barkalow	American Southwest Ichthyological Researchers
Kathrine Creighton	Utah Department of Wildlife Resources (UDWR)
Brian Hines	Utah Department of Wildlife Resources
Matt Owens	Bisti Fuels
Henry Day	Arizona Public Service
Tracy Diver-Franssen	New Mexico Department of Game and Fish
Jamie Shockey	City of Farmington
Jerrod Bowman	Navajo Nation Department of Fish and Wildlife
Kim Yazzie	Navajo Nation Department of Fish and Wildlife
Derek Fryer	Western Area Power Administration

Tuesday 3 December 2019

Introductions and changes to agenda
The Bureau of Land Management nomination of Ryan Besser to the Biology Committee (BC) was added.

Approve summary from 11 July 2019 BC meeting; review Action Item list
No further changes to the summary were requested. Miller motioned to approve the summary, Westfall seconding, and the motion was approved. The summary will be posted to San Juan River Basin Recovery Implementation Program's (Program) website.

BC alternate nominations (vote required)
The BC reviewed the nominations of Barkalow for the State of New Mexico, Zimmerman for Southern Ute Indian Tribe, and Ryan Besser for the Bureau of Land Management. Biology Committee member unanimously voted in the three nominees. The BC list serve will be update to reflect the new alternates and the updated roster will be posted to the Program's website.

Nomination for BC Chair (vote required)
Zeigler was nominated by Miller and seconded by Lamarra. No other nominations were received. The vote was unanimous for Zeigler and he will be the chair for the next two years.

Update on 2020 Annual Work Plan (AWP)
The federal fiscal year (FY) 2020 AWP was approved by the Coordination Committee (CC) and has been uploaded to the Program's website. The process in regards to sole sourcing to universities was brought up during the CC's approval process. The Kansas State University scope of work (SOW) is not a sole source contract but those to the University of New Mexico and Pittsburg State are. The PO and Reclamation has made sure that all federal guidelines pertaining to sole sourcing are being followed.

The FY 2020 budget has not been passed by Congress and the current continuing resolution (CR) does not include funding for the Program. If Principle Investigators (PIs) have funds remaining from FY 2019 those can be used to continue work into FY 2020 but McKinstry cautioned against doing FY2020 work if PIs do not have carry over. Each PI was asked to determine how much they have unspent from FY 2019 funds. This will help develop a contingency plan if the CR is extended into the spring. The PO will set up a conference call or set aside time at the researchers meeting to work with the PIs if the CR continues without funding to the Program. The SOWs that will begin to be implemented soon are

nonnative fish removal (January), the fish passage study (March), and larval monitoring (March). Nonnative fish removal can begin with the $50,000 provided by the Four Corner's Power Plant. The fish passage study can also begin as Kansas State University has available funding. The State of Utah has money from the Lake Powell study and those funds can be moved to conduct their portion of the fish passage study.

This is the second year that funding has been delayed. McKinstry suggested that if this is going to be the new normal, SOWs should be approved a year in advance. This would guarantee funding is available.

Defining BC roles in Section 7 Principles

The Program has a guiding document called "Principles for conducting endangered species act Section 7 consultations on water development and water management activities affecting endangered fish species in the San Juan River Basin (Principles)". The document outlines how the Program can be used to provide reasonable and prudent alternatives (avoidance of jeopardy) or measures (minimization and monitoring of take) for any proposed projects related to water development. When the BC is asked to review a SOW related to a Section 7 consultation and the Principles, the request is to comment on how the SOW can be improved from a biological standpoint. The capacity for the Program to serve as a reasonable and prudent alternative is assessed by the Service's Sufficient Progress report. Early coordination with the Program and the Service by any potential project proponents would be beneficial. This would provide the BC more opportunity to recommend best practices and provide the CC ample time to consider funding. The PO has been receiving requests from ditch associations in the upper San Juan and Animas rivers. The BC supported the PO offering Program support to these associations.

Incorporating Reclamation's need for maintenance release into decision tree and climate change modelling

In 2019, following the Flow Recommendation's decision tree resulted in no spring peak release. However, as part of their operations and in coordination with the Program, Reclamation released water for channel maintenance based on a recommendations from their Technical Service Center (TSC). This was the first year the maintenance release occurred and accomplished the goal of releasing 5,000 cfs. The Program requested extending the maintenance release to correspond with the high run-off Animas River resulting in almost meeting the 10,000 cfs target and meeting the 8,000 cfs target

Reclamation is planning on conducting future maintenance releases as needed and will coordinate these with the Program. The releases are intended to be small (short ramp-up, 1-7 days at peak, short ramp-down). Reclamation has flexibility on timing, ramp-ups, duration, and how often release would occur. There is concern that these maintenance releases are antithetical to the revised decision tree that intends store water in Navajo Reservoir unless there's sufficient water for a 21-day release to match the Animas run-off. At this point Reclamation does not plan to incorporate maintenance releases into the Flow Recommendations but the goal of the 28 January Hydrologic Baseline Workgroup meeting will be to develop scenarios to model how maintenance releases may affect the Program's ability to meet Flow Recommendation targets. Currently there are no triggers for a maintenance release but Reclamation is collecting qualitative and quantitative information (sediment transects) that could be useful in developing triggers. The second goal of the workgroup is to review the scenario of climate change.

Discussion of Colorado Pikeminnow broodstock genetic evaluation report
Reclamation funded the Southwestern Native Aquatic Resources Recovery Center (SNARRC) to evaluate their Colorado Pikeminnow broodstock genetics. The report was recently submitted to Reclamation and distributed to the BC. Currently there are four groups of fish at SNARRC: a group of wild fish are used to produce the fish stocked in the San Juan River, two groups of recently collected age-0 wild fish, and a group of fish spawned from the previous broodstocks (F2s). The genetics for the broodstock and F2s deviate from Hardy-Weinberg equilibrium. The broodstock are nearing the end of the lifespan and F2 fish may require another year or two to mature. Acquiring additional wild broodstock from the Colorado and Green Rivers is needed to increase the genetic diversity of fish in captivity.

The BC indicated that a genetic analysis of Razorback Sucker held in captivity needs to be conducted, if that has not been completed by SNARRC. Ulibarri mentioned he believed that work had already been completed for Razorback Sucker (The report was sent to the group following the meeting).

How can SJRIP support efforts to increase broodstock genetic diversity?
Additional collections from the wild need to occur to increase the genetic diversity of the Colorado Pikeminnow broodstock. To make sure there are enough people available to support this work, a SOW is likely required. During the BC's February meeting, additional coordination should occur.

Alternative stocking locations to downstream of the Public Service of New Mexico (PNM) weir passively harvested Razorback Sucker from the Navajo Agricultural Products Industry (NAPI) ponds
The BC agreed that a good alternative to stocking passively harvested Razorback Sucker from NAPI could be the site at the Hatch Brother's Trading Post or Lions Park on the San Juan River.

Stocking excess Bonytail in Lake Powell
The BC was apprised of potential plans by the Upper Colorado River Endangered Fish Recovery Program to stock untagged Bonytail in the Colorado River inflow to Lake Powell. There is coordination occurring with the PO. If stocking occurs, PIs working in the San Juan arm of Lake Powell and at the waterfall will be notified.

Wednesday 4 December 2019

FY21 and beyond planning – brainstorming session

Prioritization of investigations prior to post-2023
Hatchery enrichment
Experimental trials (flow training, prey training, and enhancing habitat in ponds) should occur before any large scale changes to facilities are undertaken. Flow training for Razorback Sucker has been done once at SNARC and plans are in place to flow train passively harvested fish at NAPI prior to stocking. SNARRC is building a flow chamber and it could be used to test evaluate whether flow conditioning increases swimming performance (a report by Mueller et al. 2007 was sent to the group following the meeting that pertained to this topic). Prey trained Colorado Pikeminnow were recently stocked and one group had high returns but other did not. Those previous stockings did not include control groups. The stocking of PIT tagged age-1 Colorado Pikeminnow this past November included a ~500 prey trained treatment fish and ~700 pellet fed control fish. A monitoring and evaluation plan would need to be

developed so that the effects of hatchery enrichment on both fish physiology and survival could be determined.

Investigate and minimize where entrainment is occurring
The BC tasked the PO to rank the sites identified in the Diversion Study for their entrainment risk. This could then be used to prioritize future entrainment investigations.

Investigate and improve fish passage barriers
The passive integrated transponder (PIT) antenna that will be installed at Ranchmans-Terrell ditch will provide information on whether fish are moving above the Farmington Lake diversion (also known as Penny Lane) but a formal investigation of fish passage rates at that diversion in the future may be useful.

Backwater habitat improvement at elevated baseflows
Two mapping flights were flown in 2019. One was flown at ~1500 cfs and the other ~500. Comparing these two habitat mapping flights will help determine if elevated baseflows result in increased backwater habitat.

Investigate rehabilitating side canyons increase backwater habitat
Rehabilitation of these sites would involve removing vegetation and sediment from canyon mouths. ASIR could provide a list of canyons with a description of vegetation encroachment and berming. Cowboy Wash at river mile 117, would be a good location for a test of this concept. The RiverEdge West (formerly Tamarix Coalition) has developed herbicides that may have a better kill rate than other chemicals previously used. Any vegetation removal would require continued maintenance.

Investigate nonnative vegetation removal to restore river function
The outside bend of the river where Russian olives trees are falling into the river may be worth removing as the overhanging vegetation blocks flows from scouring. There may be key areas in the river where removing Russian olive from the bank would be efficient.

Investigate means to increase channel complexity
This could happen by making debris piles in the middle of the channel. Habitat mapping could be used to identify which sand bars are persistent and those could be the location of new islands.

Potential locations for PIT antenna arrays: mouth of Chaco Wash or river spanning arrays
Chaco Wash is used by a lot of fish and may be a good place to install a PIT antenna. What is needed is an overall plan for installing antennas. The antennas that have been installed so far have each had a specific purposes.

Stocking radio-tagged fish in upper Animas River
Zimmerman has radio tagged 24 Roundtail Chub in an effort to determine the potential for entrainment. So far entrainment has not been detected and the most downstream detection was two river miles up from the San Juan River confluence. Three more flights are scheduled and the tags should be viable for another nine months. The Razorback Sucker passage study and Zimmerman should coordinate to make sure both are listening for tags from the other study.

Stocking Razorback Sucker in Lake Powell
Stocking Razorback Sucker into the San Juan Arm of Lake Powell below the waterfall could be done to assess movement, spawning behavior, and the potential to overcome the impacts of predators.

Stocking PIT tagged age-1 Colorado Pikeminnow versus age-0 fish
Switching from stocking age-0 fish to age-1 fish could result in a faster accumulation of adults. SNARCC can produce 12,000 age-1 fish, and could be at the cost of producing less (~1,000) Razorback Sucker. Additionally, stocking PIT tagged age-1 fish would allow for discrimination between wild and hatchery fish. The PO will review the data from age-0 and age-1+ stocking and evaluate survival rates needed for age-1 stocking to be a more efficient than age-0 stocking. This data is expected to be presented at the next meeting (February).

Colorado Pikeminnow Species Status Assessment (SSA)
Jones described the purpose and framework of an SSA, presented the draft Colorado Pikeminnow SSA, and requested BC comments by 16 December 2019 that pertain to larger issues or identify glaring errors.

Phase 3 funding
Capital funds were approved by the CC and are being sent to the Navajo Nation to contract the work. Construction will likely be conducted next winter. A SOW is needed for the monitoring, which was planned to be done by ASIR and New Mexico Fish and Wildlife Conservation Office's (NMFWCO) remote biologist.

Post-2023 Planning
The CC approved an estimated base funding and capital projects plan. This was forwarded to a funding committee made up of members from both recovery programs. The CC asked the PO to obtain comment from the BC on 15-year capital project plan developed by the PO.

Razorback sucker augmentation plan
The draft is with the PO and will be sent out to the BC for comment and review in the near future.

Colorado Pikeminnow adaptive management stocking plan
The plan was updated to reflect a trigger for runoff from the Animas River. The PO provided comments to New Mexico Department of Game and Fish (NMDGF). Once those are incorporated, the plan will be sent to the BC for review and comment.

Fruitland Fish Passage and Weir
Designs are at 90% and a final review will occur in the next week. Reclamation is transferring funding to the Navajo Nation for construction.

Update on fish passage at Arizona Public Service (APS) and Waterfall
Reclamation's TSC obtained bathymetry data from the area around the APS weir in October. This will be used to model potential passage designs. Miller and Crocket sent fish performance measures to McKinstry and Gilbert. These measures were forwarded to TSC for use in evaluating the various passage designs. Options for the waterfall will be based on current maps and LIDAR. In general, the BC was supportive of a selective fish passage at the waterfall. Besides a passage, options to trap and transport fish will be developed through a contract with FISHBIO. Both the fish passage report and options for trapping and transporting fish should be received next winter.

Hydrology model documentation, review by end of January
Behery is requesting reviews be submitted by the end of January 2020.

Phase 1 and Phase 2 maintenance
Maintenance was conducted this fall and the channels are now flowing.

Meetings
The Researchers Meeting will be canceled if the December 20th CR is extended without inclusion of funding for both recovery programs.

The Hydrology Baseline Workgroup Meeting on 28 January 2020 will be held in Albuquerque, NM at the New Mexico Ecological Services Office.

The next BC meeting will be held in Farmington and a doodle poll will be sent for participants' availability between February 10 and the 20th.

BIOLOGY COMMITTEE ACTION ITEM LOG (Updated December 23, 2019)						
Item No.*	Action Item	Meeting/Origination	Responsible Party(s)	Due Date	Revised Due Date	Date Completed
1	Provide RBS/CPM stocking/capture/recapture data		PIs to PO	Before Jan. 1		
2	Provide Preliminary Draft Report Presentations		PI	At Feb. meeting		
3	Review LRP		BC	At fall meeting		
4	Review Peer Review Comments from the February and May meetings		BC	At fall meeting		
5	Provide Draft Reports		PIs to PO	By end of March		
6	Scopes of Work		PIs to PO	By end of March		
7	Provide Final Reports		PIs to PO	By end of June		
8	Annual Data Delivery		PIs to PO	By June 30		
9	T&E Species Data		BC to PO	By Dec. 31		
10	Compile T&E data and Program progress into summary to address overall Program recovery goals/objectives for presentation		PO/BC	At May meeting		
11	Distribute consolidated data and list of annual data collected and available in the Program's database		PO to BC	By Jan. 31		
12	Recapture analysis on PIT tagged fish		Durst	By March		

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Item No.*	Action Item	Meeting/Origination	Responsible Party(s)	Due Date	Revised Due Date	Date Completed
13	Coordinate CPM stocking closely with BOR to avoid negative impact due to high flows/releases		PIs	Annually		
14	Revise RBS Augmentation Goals (based on the outcome of experimental stocking and analysis by Franssen and Durst). What is the appropriate numbers of fish to stock?	5/10/10	NMFWCO/PO	05/2011 – provide update and extend as needed	Ongoing	
15	Pursue effects study on Hg/Colorado Pikeminnow with other groups/programs	1/14/10	PO lead		Ongoing	
16	Include benchmarks for recovery in LRP (amended to also included in Pathways document and monitoring protocols)	12/5/14	Mata	01/5/2015	Ongoing	
17	Status updates for the LRP	12/2/15	PIs to Mata	02/23/2016	Ongoing	
18	Make Program peer-reviewed publications available to Program participants	11/29/16	PO (Mata)	02/21/2017	Ongoing	
19	Disposition of Razorback <300 mm TL	02/21/17	NMFWCO	05/16/2017	Ongoing	11/28/2017 TBD 2019
20	Draft a plan for Colorado Pikeminnow stockings	02/21/17	PO, NMFWCO, and NMDGF	02/21/2017	Ongoing	
21	Coordinate aerial flights for base flow imaging	11/28/17	BC (Lamarra)/PO (Franssen)	Fall	Ongoing	
22	Post BC July meeting notes	12/3/2019	PO			12/13/2019
23	Post Roster with updated BC alternates	12/3/2019	PO	Prior to Feb meeting		

BIOLOGY COMMITTEE ACTION ITEM LOG (Updated December 23, 2019)						
Item No.*	Action Item	Meeting/Origination	Responsible Party(s)	Due Date	Revised Due Date	Date Completed
24	Determine how much FY 2019 funds are remaining	12/3/2019	PIs and PO	Prior to Feb		
25	Present and evaluate age-1+ survival, how many would need to be stocked to exceed age-0 stocking results, and cost/benefit analysis from decision to stock age-0 fish	12/3/2019	PO	Feb meeting		
26	Rank entrainment risks for diversions included in the Diversion Study	12/3/2019	PO	Ongoing		
27	Develop a monitoring SOW for Phase III	12/3/2019	ASIR and NMFWCO	3/31/2019		
28	Develop a SOW for collection of Colorado Pikeminnow brood stock	12/3/2019	Utah Department of Natural Resources	3/31/2019		
29	Comment on the SJRIP Capital Projects plan	12/3/2019	BC			
30	Post BC May 14, 2019 meeting summary to SJRIP website.	07/25/2019	PO	Prior to fall meeting		
31	Signatures for the San Juan River Nonnative Fish Stocking Procedure and Cooperative Agreement.	07/25/2019	NMDGF	Fall 2019		
32	Update SOW 19a to ensure tagging of Colorado Pikeminnow is included.	07/25/2019	PIs	07/30/2019		
33	Resubmit SOW 44 for consideration in fiscal year 2021 based on feedback from BC members and peer reviewers.	07/25/2019	PIs	End of March 2020		
34	Provide BC AWP recommendation to CC for approval.	07/25/2019	PO	07/30/2019		

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Item No.*	Action Item	Meeting/Origination	Responsible Party(s)	Due Date	Revised Due Date	Date Completed
35	Submit post-2023 recommendation.	07/25/2019	BC	07/18/2019		
36	Respond to the doodle poll for post-2023 follow-up.	07/25/2019	BC	07/18/2019		
37	Provide summary of the Habitat Exercise from the May 16, 2019 meeting.	07/25/2019	PO	7/25/2019		
38	Colorado Pikeminnow adaptive management stocking plan revision	07/25/2019	NMDGF	Fall 2019		
39	Doodle poll for the Fall BC Meeting.	07/25/2019	PO	August 2019		
40	BC chair nominations	07/25/2019	BC	Fall 2019		
41	Develop a habitat workshop	02/21/19	PO	05/14/19	Fall 2019	
42	Razorback Sucker Augmentation Plan	05/14/2019	NMFWCO (Furr)	Nov. 2019	August 2019	

*Items were re-numbered after changes were made
Yellow highlight indicates annual action items
Green highlight indicates new action item
Red highlight indicates completed action items