



**Approved Summary**  
**San Juan River Basin Recovery Implementation Program**  
**Biology Committee Meeting**  
**Public Lands Center**  
**Durango, CO**  
**3-5 December 2014**

**Attendees:**

**Biology Committee Members:**

Bill Miller, Chair – Southern Ute Indian Tribe  
Jacob Mazzone - Jicarilla Apache Nation  
Brian Westfall – Bureau of Indian Affairs  
Jason Davis – U.S. Fish and Wildlife Service, Region 2  
Mark McKinstry – U.S. Bureau of Reclamation  
Benjamin Schleicher – U.S. Fish and Wildlife Service, Region 6  
Vincent Lamarra – Navajo Nation  
Harry Crockett – State of Colorado  
Eliza Gilbert – State of New Mexico  
U.S. Bureau of Land Management – absent  
Tom Wesche – Water Development Interests  
Dave Gori – Conservation Interests

**Program Office – U.S. Fish and Wildlife Service, Region 2:**

David Campbell  
Sharon Whitmore  
Scott Durst

**Peer Reviewers:**

Brian Bledsoe – Colorado State University  
Steve Ross – Eco-Consulting Services and University of New Mexico  
Mel Warren – Forest Service Southern Research Station  
Wayne Hubert – Hubert Fisheries Consulting and University of Wyoming

**Interested Parties:**

Brian Hines – Utah Division of Wildlife Resources, Moab  
Nate Franssen – University of New Mexico  
Tom Czapla – Upper Colorado River Recovery Program  
Dale Ryden – U.S. Fish and Wildlife Service, Region 6  
Tom Sinclair – U.S. Fish and Wildlife Service, Region 2  
Bobby Duran – U.S. Fish and Wildlife Service, Region 2  
Chris Cheek – Navajo Nation Department of Fish and Wildlife  
Carrie Lile – Southwestern Water Conservation District  
Phil Miller – Conservation Breeding Specialist Group  
Rich Valdez – SWCA  
Maria O'Brien – BHP Billiton

Kent Applegate – BHP Billiton  
Patty Corbetta – BHP Billiton  
Suzy Baldwin – Arizona Public Service  
Greg Kelly – Navajo Transitional Energy Company  
Mike Ruhl – New Mexico Department of Game and Fish  
Alex Birchfield – Office of Surface Mining Reclamation and Enforcement  
Harrilene Yazzie – Bureau of Indian Affairs, Navajo Region  
Dale Lyons – The Nature Conservancy  
Claudette Horn – Public Service Company of New Mexico  
Richard Grimes – Arizona Public Service  
Henry Day – Arizona Public Service  
Wally Murphy – U.S. Fish and Wildlife Service, Region 2  
Rick Williamson – Office of Surface Mining Reclamation and Enforcement  
Ernest Teller – U.S. Fish and Wildlife Service, Region 2  
Steven Platania – American Southwest Ichthyological Researchers  
Dan Lamarra – Ecosystems Research Institute  
Tony Lamarra – Ecosystems Research Institute  
Susan Behery – Bureau of Reclamation

**Approve 15 September 2014 draft conference call summary and review Action Item list:**

- Durst incorporated previous comments. Note that following action item numbers refers to those found in the 15 September 2015 summary. Action items numbers in this summary have been revised to reflect action items removed (because they were completed) or added.
- Action item #15 (Revise RBS Augmentation Goals) is on-going based on the results of survival of stocked razorback sucker analysis by Franssen and Durst.
- Action item #17 (Pursue Non-native fish stocking procedures) is included in the current agenda.
- Action item #18 (Pursue effects study on Hg/pikeminnow with other groups/programs) will be covered during presentation on second day.
- Action item #22 (Prepare memo to CC conveying BC recommendation to conduct a feasibility study on removing fish barriers in the lower Animas River) is included in the current agenda. The group discussed the possibility of conducting additional work in the Animas River. Additional monitoring data from Ben Zimmerman (SUIT) can be used to determine a response to potential management actions. The BC has forwarded this memo to the CC but a new action item should be added to the list to follow up with the CC and determine their response to the memo. The RFP for entrainment study may be able to address passage issues. The BC should review work by Stamp and Francis on passage issues (Durst will distribute) for further discussion at the February meeting.
- Action item #23 (NNF workshop recommendations to Davis) has been completed and will be re-distributed prior to February meeting for additional discussion.
- Action item #24 (Complete Threats Assessment draft) has been completed by TNC but the data behind the maps and a narrative description have not been provided. Gori will follow up and provide an update by the February meeting.
- Davis motioned to accept the conference call summary as approved, Wesche seconded, and the summary was approved unanimously.

**Discussion of 2015 LRP, 2016 priorities, and data integration past results and future needs:**

- Whitmore distributed the 2014 and 2015 priorities prior to the meeting. In future prioritization, ESA compliance needs to remain highest. These past priorities were:

- 1) ESA compliance activities (O&M of existing facilities, SJRB Hydrology Model, peer review)
  - 2) Augmentation, including production, stocking, and evaluation.
  - 3) Data integration in association with upcoming revision to flow recommendation
  - 4) Integration of general biological data.
  - 5) Efforts to document recruitment.
  - 6) Non-native monitoring and control.
  - 7) Fish monitoring (in order of priority: larval, small-bodied, and adult).
  - 8) Habitat monitoring.
- The group asked for the status of the Colorado pikeminnow Recovery Plan. Chart indicated to Campbell that it will soon be distributed to Recovery Program partners for review. The revised recovery numbers from Miller and Lamarra (400 adult Colorado pikeminnow) has been accepted and incorporated into the document. The positive population response criteria and sufficient progress report should be updated to reflect these numbers. The sufficient progress report is due in 2014 and work is on-going.
  - The group discussed how integration priorities mesh with planned flow-related workshops. The workshop planned in February will focus on target reservoir elevation, the 2015 release, and the process for future flow release. In February we will discuss how to use available water to best meet current flow recommendations. Subsequent workshops will address review, evaluation, and possible revision of the flow recommendations. Some confusion persists on what will be happening at these workshops. Will flow-related recommendations from the Miller (2006) integration report be incorporated?
  - The Research period did not include a systematic evaluation of flow effects. During the Research period the Program used available water to maximize a spring peak release based on matching flow from the Animas River. Different flow metrics are autocorrelated (e.g., days of 8000 cfs versus 5000 cfs) so it is difficult to assess flow effects. Also cross-channel metric are no longer collected. Evaluating flow will require datasets collected by all PIs and efforts can be made to include flow-related analysis in individual reports. How can the Population Model address flow effects? In any revision to the flow recommendations, how do we address declines in available water due to changing hydrological conditions (i.e., what kind of flows will be available given changing hydrology)? Additionally, what are the important flow recommendations to meet? Lamarra indicated that there has been an increase in sand in the system, so what management actions are available to address this? These flow-related workshops should be included within Program priorities and the LRP.
  - ASIR's natal origin work is on-going. A trip to do another round of analysis is planned for January. While current work focuses on natal origin of razorback sucker, similar work for could be done for Colorado pikeminnow in the future. However, at this time natal origin work for pikeminnow is not a priority because there is limited evidence of recruitment of wild-spawned fish and age-0 pikeminnow continue to be stocked in high numbers.
  - The group discussed shifting priorities to reflect current Program activities and future needs based on the LRP. 2016 priorities by rank:
    - 1) ESA compliance activities (O&M of existing facilities, SJRB Hydrology Model, peer review)
    - 2) Augmentation, including production, stocking, and evaluation.
    - 3) Initiate process for reviewing and revising, if needed, Program flow recommendations including:
      - a) Planning and conducting workshops
      - b) Data integration in association with upcoming revision to flow recommendation

- c) Integration of general biological data
  - d) Monitoring and evaluation
  - 4) Connectivity and range expansion
  - 5) Efforts to document recruitment
  - 6) Non-native monitoring and control
  - 7) Fish monitoring (in order of priority: larval, small-bodied, and adult)
  - 8) Habitat monitoring
- Whitmore has not yet included the benchmarks for recovery in the LRP or summary tables. She previously sent out a draft version and will re-resend for BC review prior to incorporation into LRP. The positive population response criteria can be integrated with these benchmarks. Tasks and actions identified in the sufficient progress report should also be integrated in the LRP. Whitmore will include benchmarks and outstanding tasks identified in Sufficient Progress Report in revised LRP.
  - The group discussed the Program's progress toward recovery and progress in meeting recovery goals. Are actions that the Program is doing sufficient to deem that the Program is making sufficient progress? Is it possible to state that the Program has made some percent of progress toward recovery? Need to identify tasks that contribute toward recovery and identify bottlenecks and limitations to recovery.
  - Should the Program be conducting formal river-wide population estimates? Sampling effort should be focused to produce reliable estimates. The group discussed the efforts necessary to obtain reliable estimates. Are more sampling passes needed (rafts)? Should sampling cover shorter distances with more passes? How can Durst's estimates be incorporated? Should these estimates be conducted on an annual basis? How can antenna data be utilized?
  - An update on the status of the razorback sucker augmentation plan needs to be included in the LRP. Opportunistic stockings have not recently occurred but this task should remain in the LRP and evaluated on a case-by-case basis. Ross asked about genetic integrity of hatchery fish. SNARCC has a management plan that should be reviewed by the group. The current AWP includes work by SNARCC to conduct CPM genetic analysis. Also, there was a genetic assessment conducted by the University of New Mexico that should be reviewed by the BC.
  - Videography is set to occur during 2015. There was a sense that nothing was lost by not conducting the flight in 2014. Earlier imagery was used for habitat mapping in 2014 and this imagery matched on-the-ground conditions.
  - The LiDAR data has been useful for post-processing habitat restoration data. The LiDAR data would be useful for selecting and designing future habitat restoration sites but are there other ways to use the data?
  - Progress on the Hydrology Model is on-going. Following some personnel changes, Behery has taken over the model with help from Reclamation's Denver Technical Center. Behery is developing appropriate model documentation. The Program should have an archived version of the Hydrology Model to incorporate in the "database." The group discussed the process of model peer review.
  - How can the physical effects of flow releases be measured under the current habitat monitoring protocol? Additional monitoring tasks may need to be included to evaluate the effects of any revision to the flow recommendations. Should LiDAR data be collected on a more regular basis? Miller will investigate River Analyzer software to address any deficits in the habitat monitoring protocol.
  - Funding for I&E related tasks goes to the Upper Program. The Upper Program should provide a report detailing the outcome of this funding. Can these funds remain within the San Juan Program to fund I&E related work?

- Is it possible to fund an external (outside of FWS) website of Program material and information? Whitmore will check to see what the Upper Basin spends on their website. Are there other ways to share information among Program participants? What about a Dropbox type service? Also BIA has a server that could possibly be used for this.
- PIs should provide status updates for relevant LRP tasks by the end of December. The BC should review and provide comments on the LRP by 15 January

**Planning for January/February workshop to modify Navajo Dam annual flow release process – goal of workshop will be to modify the available water calculation and the decision tree for determining the timing and magnitude of spring peak releases:**

- The workshop is scheduled for 12-13 February 2015 in Albuquerque. Plans are in the works to have a dedicated note-taker and facilitator for the workshop. Development of a workshop agenda and objectives are on-going.
- Workshop planning will continue with a conference call among the planning teams on 9 December 2014. Decisions need to be made on how any additional analyses will be completed. Perhaps Lamarra's previous retrospective analysis can be used as a starting point.
- Gilbert said that it is important to acknowledge that setting a target reservoir elevation to determine available water prior to determining the amount of water needed for recovery may constrain future water releases. The amount of water needed for recovery should happen first to inform determination of a target reservoir elevation. Because end of year storage targets were modeled to start at the same elevation, the available water calculation is not affected by different reservoir elevations. Perhaps a more realistic model could be constructed allowing the end of year storage target to vary?
- The group agreed that outside experts should not participate in the workshop because of the time necessary to get them up-to-speed. Kevin Bestgen would be an exception. Also the group agreed that Jim Brooks would be a good choice to facilitate the workshop.
- What did the Upper Basin go through to arrive at the Flaming Gorge annual flow release process? The outcome of the upcoming workshop is not permanent and can change in the future if it is not meeting the needs of the Program.
- Behery asked if there were other model scenarios to run before the workshop. Model runs have been completed based on past hydrology but could also include climate change scenarios as well. The latest Hydrology Model will be able to address all depletions that have occurred in the past and those expected to occur into the future. Also, the interaction between reservoir operations and climate can be modeled into the future.
- During the interim period before the flow recommendations are reviewed and possibly revised, the shape of the peak release needs to be determined. Also we will need to determine the process to review and revise the flow recommendation. The amount, frequency, and timing of water releases needed for recovery should be determined in the absence of dam limitations in order to understand what recovery actions may be needed outside of those controlled by flow-related processes. Alternatively, limitations in releases from Navajo Dam could be acknowledged upfront in the process of determining the amount, frequency, and timing of flow necessary for recovery.
- The first workshop will focus on maintaining baseflows and avoiding shortage. Subsequent workshops will address other aspects of the San Juan River hydrology.
- A workshop agenda will be distributed to the BC following the upcoming planning team conference call.
- Westfall and Miller commended the work Whitmore has put into this planning process.

**Update on Phase 2 of habitat restoration – Gori/Westfall:**

- The linear distance of restored habitat and area of non-native vegetation removed exceeded initial goals. A total of 4.7 miles of channel were restored and 17 acres of non-native vegetation were cleared. Non-native vegetation was cleared with help from a Southwest Conservation Corps crew.
- Trail cameras are set to monitor flow conditions. Also water level will be monitored with pressure transducers. Habitat (including cross-channels) and fish monitoring is planned to be completed in 2015 at restored and control sites.
- PIT tag antennas were installed although the downstream antenna is currently exposed. A spring peak flow should occur before any effort is made to reset that antenna.
- TNC is trying to obtain funds to carry out more work. LiDAR data can be used for next round of site selection.

**Test of Hogback Fish Weir – McKinstry & Cheek:**

- There has been nationwide interest in the weir wall concept. To test the efficacy of the weir, nearly 400 razorback sucker and over 400 Colorado pikeminnow were put into the upstream side of the weir. A total of 18 fish were detected entrained within Hogback Canal but over 50% of the total number of fish was never detected. The undetected fish could have escaped upstream. Future test should include an antenna at the upstream inflow from the San Juan River (Hogback headgate). Any analysis is complicated because not all fish were detected at one of the antennas.
- Are there methods to deter fish from going over the weir? The weir could be electrified. The BO will need to be revised because it only allows take of larval fish but pikeminnow > 200 mm TL and razorback > 400 mm TL were detected in the canal.
- Another test of the facility should occur in the future. The VFD pumps that caused interference with the antennas will be replaced by the 2015 irrigation season.

**Update on non-native fish stocking procedures – Crockett and Gilbert:**

- Ruhl reported that he is working on some edits at the direction of the NM Fisheries Director. These edits focus on procedure and reorganization, not content. Intend to finish document this winter for Tribes and Colorado to review revised draft.

**Presentation and discussion of FWS issue related to an on-going section 7 consultation – Campbell and Murphy:**

- Murphy provided background on the Four Corners Power Plant consultation. Part of that consultation has been the development of a PVA (population viability analysis) for Colorado pikeminnow that includes the effects of mercury. The Service is looking for input from the BC for management actions to mitigate for the effects of mercury on Colorado pikeminnow.
- Phil Miller provided a presentation on the Colorado pikeminnow PVA. The PVA can be thought of as a tool and process to synthesize knowledge in order to model population dynamics. The PVA was developed in Vortex using an age-structured stochastic simulation model. The Vortex platform is not species specific, but can be modified to fit any species.
- Miller has completed a Colorado pikeminnow PVA report but Campbell indicated that will not be available for review until the BO is finalized.
- A series of initial reference models were created. One model showed a rapid population decline representing the population in the absence of recovery management actions. Another model with a stocking program in place and lambda of ~1 represented current conditions of a population maintained by augmentation efforts. Modeled scenarios were evaluated based on a comparison to baseline models. The population level impact of mercury was based on modeled individual

accumulation of mercury and a percent injury based on specific tissue burdens. Reproductive effect of mercury to adult pikeminnow is modeled based on increasing tissue mercury accumulation by age. Reproductive output is inversely related to age in the modelled mercury scenario. Increasing mercury in the environment through time also increases pikeminnow tissue burden through time.

- Mercury was modeled to affect reproduction, survival, and reproduction and survival together. Small changes in survival had large impacts on population projections. Other factors also impact survival and reproduction but they are not explicitly modeled because the functional relationship between factors like larval habitat or non-native fish and survival or reproduction is unknown. The contribution of mercury is likely relatively small compared to other factors negatively affecting Colorado pikeminnow demographic parameters.
- Alternative management actions can be mimicked by changing the survival rates of different life stages and evaluating population trajectories. Increasing a few of the survival and reproductive parameters in the model maintains the population through time only if the augmentation program is maintained. In order for a population trajectory to be self-sustaining in the without stocking, every survival and reproduction parameters in the model need to be increased. So a self-sustaining population is possible demographically but its feasibility is unknown. However, the precise management actions needed to increase survival and reproduction parameters to the magnitude necessary for a self-sustaining population in the absence of stocking have not been identified. Specific functional relationships among the Program's management activities and demographic parameters have not typically been developed.
- Modeled percent injury based on mercury tissue burden is based on a variety of assumptions, the best available science, and expert opinion. Given that the baseline population trajectory is only maintained through stocking, what can be done to increase survival parameters? Increasing the stocking rate does not result in a self-sustaining population once stocking is stopped. The group discussed the number of adults needed to produce the reproductive equivalent of the stocking program (i.e., how many adults are necessary to produce 400,000 age-0 fish ~50 mm TL?). Does the relationship between total backwater habitat and number of larval Colorado pikeminnow indicate a limitation in backwater habitat that could be managed by increasing low velocity habitat? Understanding the different sources of mortality could be important to inform the management actions necessary to increase demographic parameters. If there is confidence in the functional relationship between survival and some factor or management action, then the PVA model can include those relationships. Can low velocity habitat be increased and maintained in reaches of the San Juan River where it historically existed through habitat restoration actions? The results of the Population Model suggest a connection between Lake Powell and the San Juan River is needed for a self-sustaining pikeminnow population. There is concern that non-native fish would expand upstream to the San Juan River if there was access from Lake Powell. If managed flows do not have a substantial impact on low velocity habitats, these flows are still important to maintain spawning habitat. What is the role of non-native vegetation on habitat limitation? Can habitat be expanded upstream toward Navajo Dam in the San Juan River or into the Animas River? Need to determine the management actions that would result in small changes in various demographic parameters since these parameters have a large effect on the population.
- The PVA model does not explicitly model mortality (mortality is caused by a multitude of factors that are not ascribed in the model). In contrast, the Population Model does explicitly model mortality including entrainment in Lake Powell. All models have inherent strengths and weaknesses and the PVA and Population Model should be seen as complementary and not

competing. The PVA model is stochastic and demographic while the Population Model is deterministic and bioenergetic.

- The group discussed the uncertainty of mercury impacts to pikeminnow since that data was based on other species. A study to determine the impact of mercury on Colorado pikeminnow would be important but in the BO this action would not improve conditions for pikeminnow in the San Juan. Any additional BC input on possible management actions to benefit Colorado pikeminnow should be made to Campbell.

### **Review of past temperature modelling efforts and discussion of how to proceed with possible temperature modification – McKinstry and Miller:**

- Over the past several meetings there has been discussion of the negative effects of cold water releases from Navajo Dam and how to move forward with possibly modifying these releases. Releases from Flaming Gorge were modified because of temperature suppression and those temperature limits are exceeded in the San Juan (6-8°C temperature depression).
- The Cutler report modeled temperature depression in July but questions remain about the temperature depression when releases are occurring from Navajo Dam. The group discussed re-running her model results or creating a new model to investigate this. McKinstry is coordinating with Cutler to get old files. Lamarra indicated that re-running the model would be easy with the old geometry files.
- What can be done to modify the temperature of Navajo Dam releases to benefit native fish? Can spawning of endangered fish be moved upstream?
- The group discussed range expansion into the Animas River. It currently has a natural flow and temperature regime and largely native fish community. The BC previously sent a memo to the CC to evaluate passage in the Animas River. An action item needs to be created to follow up on the status of this memo. There has been some work evaluating barriers in the Animas River. Also Colorado, New Mexico, and Southern Ute Indian Tribe conduct monitoring at various reaches of the Animas River so monitoring data is available to evaluate the effect of any management actions in the Animas River. Zimmerman, Crockett, and Gilbert will look into available data on the Animas River. The LRP should be updated to reflect the possible need for range expansion in the Animas River.
- Ruhl indicated that temperature modification of Navajo Dam could be a problem for New Mexico because of perceptions by the trout anglers in the tailwaters of the dam. Miller said that increasing temperature could benefit the trout fishery. The BC should review information on the response of trout to temperature modification of Flaming Gorge and work below Glen Canyon Dam.

### **Update on maintenance work to maintain flow at PNM – Cheek and McKinstry:**

- Cheek is working with Bob Norman to install an automated trash rack cleaner on the upstream intake to the fish passage. Funding for this project is through NFWF and a grant Cheek obtained.
- Cheek will give an update in February but hopes to have this installed in time to open the passage in March. Hopefully this will fix the persistent sedimentation issue at the fish passage. Cheek thanked PNM for their help at the passage in resolving the sedimentation issues.

### **Update on RFP to evaluate entrainment in the San Juan River Basin – McKinstry:**

- The Program needs to identify where entrainment is occurring and also understand the magnitude of possible entrainment in the system. This work will cover the length of the San Juan River and the Animas River upstream to Durango. McKinstry hopes this can be awarded by March.

- In addition to entrainment the work can examine passage issues. Data will include GIS and photographs. Also the work will attempt to prioritize the threat of various structures. Land ownership will also be documented.

### **Survival of stocked razorback suckers – Franssen**

#### **Update on efforts to balance experimental design of razorback sucker stockings – Franssen, Cheek, and Ryden**

#### **Discussion of stocking NAPI at lower density to increase growth – Cheek:**

- What can be done to increase the efficiency of the stocking program? Program MARK is being used to model apparent survival and detection probability of stocked razorback sucker. Although Bestgen et al. (2009) conducted a similar analysis it is valuable to continue this evaluation because there have been changes to stocking protocols (including new sources and stocking sites), a larger sample size is available for a more robust analysis, more annual replication is available, and it is possible to determine the repeatability of results over time. Model combinations that include source, stocking location, time variation, and size of fish at stocking have resulted in ~2,400 models that are 85% complete. Thus far complex models are being ranked highest, indicating that all factors have some influence or there is some source of unexplained variation.
- Because of an unbalanced design it is not possible to examine the interaction between source and stocking site. It is also not possible to look at seasonal effects because they are confounded. Data is not available to evaluate the effect of truck load or hauling density. We should be cautious interpreting results because of the unequal spatial sampling effort. Modelling should be completed by February and results will be reported at that meeting along with the results of movement and habitat analyses.
- Cheek reported on a stocking design implemented in 2014 to reduce confounding factors. Fish from NAPI (actively harvested) and Horsethief were stocked at Montezuma Creek, PNM, Berg Park on the Animas, and Bloomfield over 6-14 October. This protocol should be carried out over the next 3-5 years to evaluate the effect of source, stocking site, and their interaction.
- The effect of hard versus soft releases for razorback sucker stockings was evaluated using passively harvested fish from NAPI. Hard and soft stocking events were paired to reduce confounding factors. These stockings occurred just downstream of the PNM Weir on opposite sides of the San Juan River (soft releases occurred within the PNM sluiceway). This protocol should continue for another year and the results will be evaluated in 2016.
- To evaluate the effect of PNM as a barrier, razorback sucker from NAPI were stocked just downstream of the weir and 1.7 RM upstream. Fish stocked at both locations have been detected by the PIT tag antenna in the PNM fish passage.
- Opportunistic stockings in the future should occur in the Animas River. Although the SJRIP has not conducted monitoring in the Animas River due to low fall flows, these efforts can be shifted to periods with higher water levels. Also Colorado, New Mexico, and Southern Ute Indian Tribe all conduct monitoring through various reaches of the Animas River. Fish health importation issues would have to be addressed if NAPI fish are stocked in Colorado. Also entrainment issues will need to be evaluated since most good stocking sites appear to be in association with diversion structures.
- Miller suggested adding this discussion to the agenda in February. A memo on these various concerns should be written for the BC to digest and make a recommendation.
- Since there appears to be a large effect of size on post-stocking survival, what can be done to increase the size of fish stocked from NAPI? Perhaps lowering stocking density, overwintering at NAPI, or getting larger fish from SNARCC? It would be important to conduct a preliminary cost-benefit to sort out some of these ideas. This discussion should also continue at the February

meeting with some back-of-the-envelope cost-benefit calculations at a minimum to provide guidance.

### **Evaluating barriers to fish movement**

#### **Update on results of PIT tag reader at PNM Fish Passage – Cheek Fish movement upstream of barriers – Durst:**

- Cheek reported that far more fish are being detected by the PIT tag reader at the fish passage than are being captured in the facility. Plans are in the works to install an additional reader further upstream in the passage to determine how far upstream fish move.
- The group discussed some way to automate detection of PIT tagged native fish.
- Durst looked at captures of PIT tagged fish to document movement upstream of Hogback, APS, PNM, and Fruitland diversions. Fish captures upstream of APS indicate it is not a barrier at all times. It is difficult to assess movement upstream of PNM and Fruitland since so little sampling occurs upstream of these diversions.
- McKinstry reported on additional PIT tag antenna installations at the headgate to Hogback and the stilling basin at PNM Weir.

#### **Update on Colorado Natural Heritage Program’s database development efforts – Durst and McKinstry:**

- Durst reported on Colorado Natural Heritage Program’s progress with an online database for both Recovery Programs’ PIT tag data needs. To date a server and software have been purchased, a preliminary database has been designed based on existing databases. A conference call with core team will assess progress to date. Code and database will continue to be developed through the end of the year. A preliminary roll-out will occur during the Researcher’s Meeting in January and a model workshop focusing on further development and assessment will occur in Grand Junction in March 2015.
- Any interested San Juan PIs should attend the workshop.

#### **Interest in future presentation from Southwest Conservation Corps on their efforts to remove non-native vegetation – Westfall:**

- Westfall detailed the use of Southwest Conservation Corps staff during the Phase 2 habitat restoration. These crews were able to remove non-native vegetation from smaller areas and areas where minimal disturbance was essential but heavy equipment is a better option to clear large areas of non-native vegetation present in most areas of the San Juan River.

#### **Schedule February meeting and review decision points and assigned action items:**

- The flow workshop is scheduled for 12-13 February 2015 in Albuquerque.
- The next BC meeting will be for two full days on 19-20 February 2015 at a location to be determined in Durango.
- Davis will review non-native fish recommendations and augmentation plans.
- BC should review LRP by mid-January.
- Whitmore will include benchmarks in LRP.
- PIs should provide status updates to LRP tables by end of December (Whitmore will follow up with individual PIs).
- A draft agenda of the flow workshop in February will be distributed following the planning team’s conference call on 9 December 2014.

- Joint annual Researcher's Meeting will be in Moab 13-14 January 2015 and SJRIP participants should attend and present.
- If there are any additional comments on the PVA or Murphy's request of the BC, they should be forwarded to Campbell.

**Population model workshop – Miller and Lamarra:**

- Miller and Lamarra provided an overview of the background and the latest developments on the Population Model.
- Miller and Lamarra have fitted Population Model output based on results recent monitoring efforts, abundance and estimates. The group discussed means of testing and validating the model.
- BC should provide comments on the accompanying report to Miller by mid-January.

## BIOLOGY COMMITTEE ACTION ITEM LOG

(Updated 15 December 2014)

Item No. *	Action Item	Meeting/O rigination Date	Responsible Party(s)	Due Date	Revised Date	Date Completed
1	Provide RBS/CPM stocking/capture/recapture data		P.I.'s to the Program Office	Annually before Jan. 1		
2	Provide Preliminary Draft Report Presentations		Project Leads (authors)	Annually at Feb. meeting		
3	Review LRP		BC	Annually at fall meeting		
4	Review Peer Review Comments from the February and May meetings		BC	Annually at fall meeting		
5	Provide Draft Reports		Project Leads (authors) to Program Office	Annually by end of March		
6	Scopes of Work		Project Leads to Program Office	Annually by end of March		
7	Provide Final Reports		Project Leads (authors) to Program Office	Annually by end of June		
8	Annual Data Delivery		PIs to Program Office	Annually by June 30		
9	T&E Species Data		BC to Program Office	Annually by Dec. 31		

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(Updated 15 December 2014)

Item No. *	Action Item	Meeting/O rigination Date	Responsible Party(s)	Due Date	Revised Date	Date Completed
10	Annually compile T&E data and Program progress into summary to address overall Program recovery goals/objectives for presentation at annual meeting		Program Office/BC	By Annual Meeting in May		
11	Distribute Consolidated Data and list of annual data collected and available in the Program's database		Program Office to BC	Annually by Jan. 31		
12	Recapture analysis on PIT tagged fish		Durst	Annually by March		
13	Coordinate CPM stocking closely with Reclamation to avoid negative impact due to high flows/releases		Project Leads	Annually		
14	Waterfall Inundation Whitepaper – review past meeting summaries, determine what is needed, and provide report at the next meeting.	05/18/07	Program Office	12/07/07	Not a current priority	
15	Revise RBS Augmentation Goals (based on the outcome of experimental stocking and analysis by Franssen and Durst)	5/10/10	FWS Fisheries/Program Office	5/2011 – provide update and extend as needed	2/20/15	
16	Develop a detailed outline for San Juan River Recovery Program case history manuscript	11-5-08	Propst/Miller			On hold
17	Pursue Non-native fish stocking procedures	11/5/09	Crockett and Gilbert	12/1/09	2/20/15	

## BIOLOGY COMMITTEE ACTION ITEM LOG

(Updated 15 December 2014)

Item No. *	Action Item	Meeting/O rigination Date	Responsible Party(s)	Due Date	Revised Date	Date Completed
18	Pursue effects study on Hg/pikeminnow with other groups/programs	1/14/10	Program Office lead	ongoing		
19	Discussion of what is the appropriate number of fish to stock	3/23/10	BC	ongoing		
20	Schedule maintenance work at PNM	8/5/14	BR, NN, PO	12/31/14	2/20/15	
21	Plan workshops to determine an end of season reservoir elevation for revised available water calculation and develop a protocol to implement replacement for "decision tree" to make releases from Navajo Dam	9/15/14	Program Office	ongoing		
22	Follow up with CC regarding memo on feasibility study to remove barriers in the lower Animas River	12/5/14	PO	2/20/15		
23	Include benchmarks for recovery in LRP	12/5/14	Whitmore	1/5/15		
24	Review SNARCC genetic integrity management plan	12/5/14	BC	2/20/15		
25	Review University of New Mexico genetics assessment	12/5/14	BC	2/20/15		
26	Provide status updates to LRP tasks	12/5/14	PIs to Whitmore	12/31/14		
27	Review and comment on LRP	12/5/14	BC	1/15/15		

## BIOLOGY COMMITTEE ACTION ITEM LOG

(Updated 15 December 2014)

Item No. *	Action Item	Meeting/O rigination Date	Responsible Party(s)	Due Date	Revised Date	Date Completed
28	Prepare memo on opportunistic stocking of RBS in Animas River	12/5/14	Cheek et al. to BC	2/11/15		
29	Prepare memo on stocking larger RBS from NAPI	12/5/14	Cheek et al. to BC	2/11/15		
30	Review and comment on Population Model report	12/5/14	BC to Miller and Lamarra	1/15/15		

\* Items were re-numbered after changes were made

Yellow highlight indicates annual action items

Green highlight indicates new action items

Red highlight indicates completed action items that will be removed from the next iteration of the Action Item Log

Date	Annual Tasks	PO	CC	BC	P.I.
Oct.	Reclamation administers contracts	X			
Nov.	BC Meeting (peer reviews typically do not attend this meeting) <ul style="list-style-type: none"> <li>• Review data integration results from previous year</li> <li>• Identify questions for annual data integration</li> <li>• Discuss Program priorities</li> <li>• LRP review and provide recommendations (with pros and cons) to PO</li> <li>• Appoint new BC Chair (every two years)</li> </ul>	X		X	
Dec. 31	RBS/CPM stocking/capture/recapture data to Program Office				X
January	Notification/update of Program rosters/mailling lists	X			
January	Executive meeting (Program Office; Reclamation Fund Manager; CC and BC Chairs) to do preliminary planning for upcoming year	X	X	X	
January	Updated LRP to BC and CC for review	X	X		
January	Reclamation provides a determination of perturbation for BC Review.	X			
Jan. 31	Distribute consolidated PIT tag data and post other data	X			
February	BC Meeting (peer reviewers are expected to attend this meeting) <ul style="list-style-type: none"> <li>• Prepare for Annual Meeting</li> <li>• Provide preliminary results; draft report presentations</li> <li>• Final review of updated LRP</li> <li>• Review annual data integration priorities</li> </ul>	X		X	X
Feb/Mar	Final updated LRP to CC (with explanation of input included/not included)	X			
March	CC approval of LRP				
March	Annual guidance/solicitation for SOWs based on LRP/list of prioritized projects	X			
March 31	Draft final reports and SOWs due to Program Office			X	X
April	Preliminary draft Annual Workplan and Budget	X			
May	Annual Meeting <ul style="list-style-type: none"> <li>• Program overview</li> <li>• P.I. presentations</li> <li>• Review preliminary draft AWP</li> <li>• Committee reports</li> </ul>	X	X	X	X
May	Annual hydrology meeting to review and solicit information regarding the San Juan River Basin Hydrology Model	X			
June/July	Draft Annual Workplan and Budget	X			
June 30	Provide final reports and data sets to Program Office				X
July	Final reports posted on website	X			
August	Tech review of draft AWP; recommendations with pros and cons to Program Office			X	
August	Revise AWP based on input and transmit final draft to CC with documentation of all input	X			
Sept.	Review and approve final AWP		X		
Sept.	Post final AWP to website	X			