



Approved Summary
San Juan River Basin Recovery Implementation Program
Biology Committee Conference Call
26 August 2015

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
Mike Ruhl – State of New Mexico
U.S. Bureau of Land Management – absent
Tom Wesche – Water Development Interests
Dale Lyons – Conservation Interests

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

Sharon Whitmore
Scott Durst
Nathan Franssen

Peer Reviewers:

Mel Warren – Forest Service Southern Research Station
Wayne Hubert – Hubert Fisheries Consulting and University of Wyoming

Interested Parties:

Matt Zeigler – New Mexico Game and Fish Department
Kevin McAbee – U.S. Fish and Wildlife Service, Upper Colorado River Endangered Fish Recovery Program
Michael Farrington – American Southwest Ichthyological Researchers
Howard Brandenburg – American Southwest Ichthyological Researchers
Carrie Lile – Southwestern Water Conservation District
Brian Hines – Utah Division of Wildlife Resources, Moab
Katie Creighton – Utah Division of Wildlife Resource, Moab
Susan Behery – U.S. Bureau of Reclamation
Ryan Christianson – U.S. Bureau of Reclamation
Kim Yazzie – Navajo Nation Department of Fish and Wildlife
Paul Montoya – City of Farmington
Bobby Duran – U.S. Fish and Wildlife Service, Region 2
Tom Sinclair – U.S. Fish and Wildlife Service, Region 2

Approve 8 July 2015 draft conference call summary and review Action Item list:

- Miller asked for an update on changes in the Program Office and an update on the next flow revision workshop. Westfall asked for an update on permitting to collect Razorback Sucker tissue samples for selenium analysis, and Durst suggested adding an update on the Gold King Mine spill.
- Durst received comments and distributed the revised summary. Wesche motioned to approve the revised summary, Davis seconded, and the summary was approved unanimously.

Update on changes in the Program Office – Program Office:

- The Regional Director appointed Whitmore as the Program Coordinator and Sinclair as the Service CC representative and CC chair.
- Franssen has been hired as a new Program Office biologist.
- The Regional Director approved back-filling the Assistant Program Coordinator position (vice-Whitmore).

Discuss draft FY2016 Annual Work Plan – Program Office:

- Whitmore sent a summary of the changes made to the latest draft AWP. There were no changes to Elements 1, 2, and 6. The non-native fish management SOWs in Element 3 will be modified to reflect the proposed study design upon approval. Any changes are expected to be budget neutral. In Element 4, the SOWs to determine daily growth rates and monitoring and translocate endangered fish at the waterfall are supported projects that are on hold until funding becomes available. The fish entrainment SOW was reduced from \$60,000 to \$50,000. The peer review SOW in Element 5 was reduced from \$80,000 to \$60,000 by limiting attendance to only the February, May, and workshop meetings (they would not be expected to attend the December meeting). Additional funding is expected to be available as part of the Four Corners Power Plant BO in January 2016. The Program Office recommends that this draft of the AWP goes forward to the CC.
- Wesche asked for an explanation about the reduction in the peer review budget. The Program Office and Reclamation will work together to revise and provide more detail in the peer review SOW.
- McKinstry, Miller, and Wesche support including the waterfall SOW as a currently funded project (and not have it subject to obtaining additional funding). Previously there was discussion of cutting two UDWR non-native removal trips to fund work at the waterfall while keeping the total budget balanced.
- Wesche asked for a SOW for a second flow workshop. There is a place holder in the current AWP but the Program Office will develop a SOW for this workshop.
- McKinstry indicated that natal origin efforts should focus on the waterfall and lake samples rather than the San Juan River proper. ASIR submitted separate budgets for lake and river work. If analyzing lake samples is a priority the AWP budget will need to be rebalanced because of the need to conduct additional background work to analyze the lake samples (budget for lake is greater than river).

Discuss FWS perspective on non-native removal and Peer Reviewers' hypotheses on non-native removal:

- Whitmore indicated non-native control is important to continue because it is identified in the Recovery Goals as a necessary management action. Rather than abandoning non-native removal efforts, it would be best to address outstanding questions on non-native removal to inform the Program's management. The Ecological Services Office will provide the Service's ESA

perspective on this but Whitmore indicated that non-native removal is a necessary management action. There are only a few management actions available with the intent to benefit recovery, non-native removal, stocking, flow manipulation, and habitat augmentation.

- The Peer Reviewers' comments indicate that non-native fish do not pose a threat to endangered and native fish in the San Juan River.
- Davis reported given the ambiguity of non-native impacts on native and endangered fish that the proposal intended to address outstanding questions related to non-native removal while continuing with this management activity. Better to inform management actions with on-the-ground research rather than abandoning non-native removal in favor of unspecified management actions. A revised SOW can be developed that includes the Peer Reviewers' comments on the proposal if this management activity is going forward.

Discuss draft proposal for non-native removal – Davis and Hines:

- Franssen outlined the proposal. Figure 1 of the proposal detailed the spatial stratification of the design. The proposed study area is Shiprock to Mexican Hat, covering portions of geomorphic reaches 5, 4, 3, and 2. Reaches 5, 4, and 2 have a control and treatment (removal) reach. Reach 3 has two control and two treatment reaches. NMFWCO proposes to conduct 20 passes from Shiprock to Montezuma Creek and UDWR proposes to conduct 8 passes from Montezuma Creek to Mexican Hat. During the initial pass Channel Catfish would be marked and CPUE for Channel Catfish, Colorado Pikeminnow, and Razorback Sucker would be determined at the RM scale. Temporal changes in Channel Catfish CPUE would be evaluated in treatment reaches following each removal pass. Using Fall Monitoring data, CPUE of Channel Catfish, Colorado Pikeminnow, and Razorback Sucker would be compared for paired control and treatment reaches by geomorphic reach. NMFWCO and UWDR reaches would be analyzed separately because of the different levels of removal effort their reaches would experience. This design would allow any reduction in Channel Catfish CPUE in treatment reaches to be determined. Also this design would allow the PIs to determine what happens to Channel Catfish in reaches where they are not removed and the response of endangered fish in control and treatment reaches to be determined. The initial pass sets a baseline CPUE of Channel Catfish and endangered fish on a RM basis. There would be no non-native removal downstream of Mexican Hat.
- The group discussed shocking control reaches to isolate experimental effects. It is possible to do this with this design. But additional questions can be addressed by not shocking control reaches although it would be difficult to disentangle the effect of non-natives and electrofishing on endangered fish.
- Any effect of movement confounding the comparison between control and treatment reaches could be evaluated because fish would be marked. Also would be able to assess displacement of endangered fish from treatment into control reaches.
- Questions that the Peer Reviewers' had regarding temporal changes in CPUE and specific models that would be run can be addressed in a detailed SOW if this proposal is moving forward. Also sample sizes were clarified and are twice the sample size the Peer Reviewers identified.
- Lamarra suggested that Channel Catfish movement will result in limited differences between control and treatment reaches. Franssen explained that Channel Catfish movement is actually low. Most Marked Channel Catfish are recaptured in the same location where they are tagged. However, smaller fish in downstream reaches have the largest upstream movement rates. These upstream movements appear to be generational (i.e., Channel Catfish slowly move upstream as they age).

- In the proposal endangered fish are worked up the same as in the past, at the end of a sample (not at the end of a treatment reach). Not shocking in control reaches could allow the Program to assess what happens to these fish when they are not shocked.
- NMFWCO and UDWR are open to suggestions on the proposal and can develop a more detailed SOW if this proposal is moving forward.
- Wesche indicated there is no evidence of Channel Catfish affecting endangered fish but others argue that the effects of non-natives are ambiguous. The studies cited in the Peer Reviewers' comments were not designed to address the impact of non-native fish. Wesche asked for a revised SOW before making any decision but could probably support a one year study but not a long-term study.
- Miller asked if problematic species can continue to be removed while addressing high priority issues like recruitment.
- McKinstry stressed the importance of moving forward with the work at the waterfall because the numerous tagged fish detected there. The AWP could remain budget neutral if two non-native passes are cut to fund waterfall work. Reducing the number of removal passes would not impact the analysis described in the proposal because there are different levels of removal effort between NMFWCO and UDWR reaches. However, reducing the number of removal passes may limit our ability to observe differences between control and treatment reaches.
- McAbee indicated a similar control-treatment study was designed in the Upper Basin and it might provide insight for this proposal.
- The BC is split on whether the proposal should move forward. Lamarra, Ruhl, Miller, Wesche, and Westfall support investigating other recruitment bottlenecks rather than continuing with the non-native removal proposal. Crockett, Mazonne, Davis, Schleicher, McKinstry, and Gori support the non-native proposal given the ambiguity of non-native impacts on endangered fish as a way to address outstanding questions. Supporters of proposal indicated that abandoning non-native removal without addressing these outstanding questions did not appear prudent. There was also general support for conducting waterfall work although there was disagreement if this should be funded at the expense of reduced removal effort.
- BC members will provide their detailed comments on the non-native proposal to the Program Office by 28 August 2015. Whitmore will consolidate these comments for CC review and Durst will include them in the summary of this BC call.

Detailed BC comments on non-native proposal:

Gori:

I'm unable to attend the BC call due to jury duty. I've asked Dale Lyons to fill in.

I've reviewed the materials you sent out and, without hearing the discussion on the call (which I think will be quite useful), I am currently in support of Option #2. I agree with the basic argument that instead of just ditching the effort, let's try to tighten up the experimental design and get some answers to the important management questions around the issue of NNR. I do have a concern, however, over the unequal removal effort by the two crews. Hopefully, the discussion can resolve this issue (or convince me that it's not a big problem).

McKinstry:

Here is my opinion on the AWP, and NNF removal in particular.

1) I recommend that NNF removal, as proposed in the Option #2 in the AWP, should be funded in its entirety. If the proposal is reduced in # of trips and scope I am worried that the ability to detect a change in catfish and other fish populations will be diminished.

2) I am in favor of moving the waterfall project into the "funded" category, if nothing else as an indication of how important that management action could be. I am worried that the current budget is sort of "setting" the budget for future years. As the initial year of this project it should give us an idea of the amount of effort that will be required to conduct the work in the future, if it looks like a viable project.

3) Since you seem to have balanced the budget with funding coming from 4-corners, it doesn't seem you will have problems with meeting the total budget. But, if that money does not become available I would recommend reducing or eliminating either the (1) habitat monitoring project (until it is reworked and we get habitat monitoring that can address our needs), or (2) small-bodied fish monitoring.

4) I also recommend that the ASIR project for determining the natal origin of fish captured and sampled BELOW the WATERFALL be analyzed in this year's budget.

Schleicher:

As per request from the BC call yesterday. My vote is for non-native removal to continue as planned from the revised 2016 proposal in place in the AWP. My position on this topic is that the effort proposed right now not be decreased as this was part of the original design to identify what an increased removal effort would do to the catfish population. As it stands right now, we would be increasing the removal 2.5 times in the river miles sampled. According to the "model" it would take almost 3 times the effort of 2015 SOW. So decreasing effort any amount from the proposed 2.5 times would only be measuring the decreased effort and the effects that has on the catfish population. Nate and the non-native guys have put a lot of time and thought into this plan and I look forward to seeing what the detailed SOW will entail.

Wesche:

I do not support this proposal because I feel it is doubtful any hard conclusions can be reached about the merits of non-native fish removal in the San Juan River in one year. As the Peer Reviewers stated, and we discussed yesterday, at least a three year effort would likely be needed to stand any chance of quantifying effects on channel catfish and the endangered fish. This would require a substantial commitment of Program resources over an extended period for what I consider to be questionable results at best. At this time, I would not necessarily be opposed to a drastically scaled back effort (perhaps a couple trips per year) that would be focused both temporally and spatially at targeting large, reproducing adults that are likely piscivorous. I would further recommend that additional funds be used to 1) capture, translocate, and evaluate movement of endangered fish now known to be moving up from Lake Powell to the waterfall, 2) move forward with the natal origin work for these fish to determine the extent of natural recruitment from Lake Powell, and 3) develop and implement a flow/restoration strategy for the San Juan that would promote natural recruitment of the endangered fish. Such a strategy could be developed in FY16 as part of the flow recommendation evaluation process now ongoing and our assessment of the TNC secondary channel development work. New proposals could then be developed for FY17 consideration that would hopefully move us further toward recovery. Another important activity that will likely be needed in the not too distant future is the planning

and conduct of river-wide endangered fish population estimates to gauge our progress toward recovery.

Westfall:

BIA is not in favor of moving forward with the revised nonnative fish removal proposal as outlined in the option 2 document presented at the BC meeting yesterday. My opinion at this point is that NNR has limited benefit for recovery of the species. I realize we don't know this as an established fact but I place a lot of weight on the combined experience of the peer reviewers. I am also concerned that upwards of 20 electrofishing passes is disruptive at least and harmful at worst to endangered species. I would like to see more effort placed on population estimates as Tom Wesche has suggested with removal of large catfish on an opportunistic basis. This would seem to cover the NNR management action. I would like to see more creative thinking from the BC and others on what questions do we need answered and then have the funds to answer those questions. People are unlikely to submit proposals if they know there is not a chance for funding because of budget constraints.

Miller:

I am not favor of recommending the draft scope of work (Option 2 Draft 4) to the SJRIP Coordination Committee as part of the 2016 annual work plan. The current proposal is specific to FY 2016, however, the authors state that more years of data collection may be needed. I am concerned that the proposal does not address a key issue regarding channel catfish and carp. The issue is whether the presence of those species is an impediment to the recovery of the endangered fish. I acknowledge that there is evidence of predation on the endangered fish. Whether that level of predation is negatively impacting the species or to what extent it impacts the species is unknown. The review of the non-native fish removal project by the Peer Review panel provides a technically sound discussion of the current non-native removal program. First, I recommend that the non-native removal program continue with a reduced number of annual passes and focus on large adult catfish. This approach is similar to the channel catfish removal in the Upper Colorado River Basin. I am still concerned that the extensive and repeated electrofishing passes is having a detrimental impact on the endangered fishes. Some of the potential impacts were discussed during the non-native fish workshop, including reducing reproductive success. Second, the Service should investigate the risk of impact to the endangered fish from the extensive electrofishing to determine if the project potentially harms the endangered fishes at the level of effort employed by the current non-native removal project and at the proposed level of increased effort. Third, I recommend two other studies that are currently proposed but unfunded be included in the FY 2016 AWP. These are the study at the water fall in Lake Powell and the microchemistry study to determine natal origin of razorback suckers. Fourth, there are several recovery elements that were listed as high priority by the Biology Committee in the Fall 2014 meeting. I recommend the Program Office staff, with assistance from the BC, develop scopes of work for the 2014 priority list early in FY 2016 and solicit RFPs if needed to complete the projects. Some of these projects are directly related to the review of flow recommendations. Finally, there are several research areas and projects listed in Section 4 in the Long Range Plan that were identified but never followed up. These should be reviewed and the appropriate projects related to the priority areas be considered for additional work in future years.

Lamarra:

I am casting my vote concerning the Non-Native Removal Program in writing. I cannot support Option 2 as proposed. Although I am not a fisheries biologist, the compelling evidence to date (as

summarized by the peer reviewers in their August 6, 2015 memo) supports my instinct that Channel Catfish cannot be shown to be a significant predatory or competitive treat to Colorado Pikeminnow or Razorback Suckers in the San Juan River. As part of the population modeling effort, we simulated the growth, reproduction, food consumption, predation, as well as direct mortality by choking (upon contact) of the entire San Juan River fishery food web relative to Channel Catfish populations. We found no negative impacts to the native fishes associated with catfish populations.

In addition, the methodology proposed in Option 2 (boat mounted electrofishing) cannot attain the necessary effort (exploitation rates) necessary to significantly reduce catfish populations without harming the native fish community including the two rare fish that we are attempting to recover. In part, I am basing this conclusion on the population model built by Bill Miller and myself. Even with efforts exceeding ten fold the current efforts, the populations would return to current levels if removal efforts were reduced in the future.

Given that there is some risk of a Type II error as pointed out by the Peer Reviewers, I would however support the continued removal of large Catfish (>350 mm) as part of the fall adult monitoring program.

In conclusion, the evidence suggests that we shift resources to those management actions that will increase the likelihood of recovery (habitat improvement, modified flow recommendations and understanding the role of Lake Powell in the population dynamics of the two listed species).

Mazzone:

I apologize for my delay in writing this response, though I'm glad I did in light of two recent communications from the USFWS office.

Specifically:

1. Wally Murphy, NMESFO Field Supervisor's memorandum dated August 31st 2015 in regards to the official opinion of nonnative fish removal (NNR) efforts. If I'm reading this memorandum and its intent properly, the USFWS is officially condemning any attempts by the Program to disengage from NNR.
2. Sharon Whitmore, SJRIP Program Coordinator e-mail dated August 28th 2015 in regards to recent budget findings in excess of previous sums thought to be available. As well as the monies from the 4 Corners Settlement available per year starting in 2016.

Option two as currently proposed is the first attempt I have been privy to that is designed to answer the "Nonnative Removal Question". Abandoning NNR without answering this question financially and ethical a poor return on investment.

The one aspect of this discussion that I do not recall coming up is the copious amount of data the NNR crews add to the Program. Including being the main source for PIT tagging, and recaptures of endangered fishes.

In my opinion these data have been used extremely effectively by people like S. Durst and N. Franssen to add to our understanding of the San Juan system and answered many questions that have been lingering for quite some time. By eliminating NNR you also eliminate one of the Program's main data streams regardless of channel catfish exploitation rates/ harmful effects/ extensive literature review/personal gut feelings/etc.

My last and maybe largest concern with abandonment of NNR in 2016 is the fact that no one has a project in the pipeline that has the blessing of the BC ready to execute in 2016. Maybe the team is playing their cards close to their prospective chests...

The “Waterfall Question” should be of high priority as should Natal Origin work (the BC seems to be in agreeance about these two projects if I understand correctly). Now that all projects can be funded at their desired levels in 2016, including but not limited to NNR Option 2 and Lake Powell Waterfall work, to me it appears a moot point for the 2016 AWP conversation.

In light of these recent updates from the USFWS and funding availability my “Vote” as taken on August 26th 2015 will remain unchanged.

Davis:

The purpose of this correspondence is to provide my support of the recently submitted proposal (Option 2) for nonnative fish removal in the San Juan River. With the uncertainties and ambiguity of the data associated with the specific impacts Channel Catfish may have on the native fish community, I believe that walking away or reducing the amount of effort at this time would be premature.

As proposed, this research based management proposal will help to address some long-standing questions and will help to inform the Biology Committee in making a more informed, data-driven, decision on the future of nonnative fish management.

Like many, I believe there are other questions and projects that should be considered into the future that could provide us with a better understanding of the two endangered fishes. However, these studies need to be prioritized and developed in a manner that would result in the implementation of management activities that will help lead to recovery. At this point, I am unaware of any thoroughly vetted ideas that would make sense in lieu of nonnative fish management. Until these proposals are developed and discussed, efforts to manage and control nonnative invasive fishes should continue.

Please consider this my official viewpoint and feel free to contact me should you have any questions.

Crockett:

The specific question put to the BC was whether to solicit a full scope of work for a re-envisioned NNF project, which the Principal Investigators had proposed in a somewhat summary form. As I said during the most recent BC conference call, I support the development of a full scope of work. Ideally the design would facilitate a rigorous, quantitative appraisal of 1) the impact of removal efforts on the channel catfish population, 2) the level of effort required to exploit channel catfish at a rate sufficient to have a lasting population-level effect (abundance and size structure), and 3) the resulting benefit (if any) to endangered fish, particularly in terms of recruitment. With regard to question #2, it will be essential to evaluate the necessary level of effort in terms of sustainability by the States and Tribes after the dissolution of the Program. It is not clear to me that all these objectives can be achieved by a single study, particularly a one-year study as is currently being contemplated.

I do not support continuation of the NNF program as it has been conducted to date because, as the Principal Investigators note in their recent response to Peer Reviewer comments, “16 years of indiscriminately removing nonnative fish has yielded very few definitive answers about effects of nonnative fish removal via electrofishing.” This is a remarkable admission. The ability to empirically assess management actions is fundamental to adaptive management, which is supposed to be the operating basis for this Program; hence this represents a serious failing which needs to be remedied without delay.

I suggest, however, that summarily discontinuing the NNF program would largely repeat the same mistake in the opposite direction, so to speak, that of making a consequential management decision without provisions to evaluate it. Rather than seesaw on this, I believe we need to design and execute a study to get to the bottom of these questions, or else determine it is not possible to do so. This needs to be accomplished as quickly as possible given the presumptive end date of this Program.

The Peer Reviewers provided an exhaustive and valuable review of the published literature and available Program research. The bulk of their review addressed the evidence that NNF pose a serious threat to endangered fish in the San Juan River by one of several mechanisms, and they conclude that the available evidence is weak at best. Their final, summary conclusion and recommendation, however, is that we don't actually know whether NNF represent a significant barrier to endangered fish recovery because, “no studies have specifically addressed the presence and magnitude of negative impacts of Channel Catfish and other nonnative fishes on the native fishes of the San Juan River....This is an important issue that needs to [be] rectified as soon as possible.” I do not see how this can be accomplished without a study. The San Juan River Population Model represents an intriguing alternative or supplement to a field project, but as the Peer Reviewers note it is unproven at this time, in the sense that the Program has not received or accepted a final report. I do recommend that we not lose sight of this as a future option.

Finally, I would like to suggest that in the broader context of Program activities, the re-envisioned NNF project is important but likely not the highest-priority new project we should be contemplating. The BC has become increasingly aware of other important circumstances (e.g., discovery of noteworthy numbers of endangered fish below the waterfall in Lake Powell), and other credible hypotheses about the apparent inability of endangered fish to recruit in sufficient numbers to achieve recovery (e.g., habitat constraints). We are reassessing the NNF project at this time, I think, partly because of awareness that the resources consumed by the NNF project preclude major studies and/or management actions addressing those other developments. It now appears this concern may be alleviated somewhat by the availability of additional resources, but we should not simply revert to operating as before. The Program should engage in hard thinking about the fundamental outstanding questions and develop RFPs to address those questions, without further delay.

Ruhl:

I would like to thank the U.S. Fish and Wildlife Service and Utah Division of Wildlife Resources for drafting the proposed nonnative fish removal and assessment plan. Control of problematic nonnative fish species is listed as a goal (3.1.1) in the San Juan River Basin Recovery Implementation Program's (SJRIP) Long Range Plan and has been occurring by mechanical removal since 1998 (SJRIP 2014; Duran 2015). Recent comments compiled by the SJRIP peer reviewers indicate a lack of data supporting the proposed hypotheses that Channel Catfish

negatively impact recovery of endangered Colorado Pikeminnow and Razorback Sucker in the San Juan River through competition or predation (Ross et al. 2015). Thus, the continuation or expansion of nonnative removal efforts appears unlikely to aid in the recovery of endangered fish in the San Juan River. I recognize that uncertainty regarding the efficacy of nonnative fish removal, and more importantly the response of endangered fish to it, still exists and that further investigation is warranted. However, the substantial fiscal cost of nonnative fish removal and the presence of other recovery bottlenecks require close consideration.

I have three substantial concerns with the current proposal to re-purpose all existing non-native fish removal funding into a one year investigation of removal efforts and their outcomes:

- 1- A one-time, one year project is unlikely to yield sufficient information, particularly regarding native fish responses, to make an informed decision on the long-term efficacy of non-native removal
- 2- The magnitude of fiscal investment proposed for the expected benefit considering other potential projects that could be funded
- 3- The pragmatic consideration of the long-term fiscal sustainability of current or expanded non-native removal

That is, the current level of effort has not been demonstrated to achieve the desired results river-wide, and thus the most likely conclusion of the proposed study will be that increased effort is needed to achieve more complete suppression. Increased effort will require increased fiscal resources which are as yet unidentified and would likely come at additional cost to other projects. Further, even the current level of effort is likely not sustainable by the states and tribes in the event that de-listing occurs and Program funding diminishes.

Given the significant uncertainties and lack of evidence supporting the benefits of non-native fish removal for Colorado Pikeminnow and Razorback Sucker on the San Juan River, the likely inability of the current proposal to detect a significant impact of nonnative removals on endangered native fish in one year, and important data gaps which are elucidated may better aid in the recovery of both endangered species; I recommend that funding for current nonnative removal efforts be decreased and shifted towards other areas identified as important in the SJRIP Long Range Plan. Specifically, I recommend development of a longer-term (3 to 5 years) non-native removal study that has a lower per annum cost (~50%) and shift the remaining funding to projects including investigation and mitigation of the waterfall near Lake Powell, a larval trigger study or other investigation of recruitment bottlenecks, investigation of alternative non-native fish suppression approaches including stocking of Trojan (YY) male Channel Catfish, or other management actions the Program identifies as beneficial for achieving recovery of endangered fish.

Discuss options to increase likelihood for a Type 4 hydrograph in 2016 – Behery:

- During the last BC call the group discussed elevating base-flows or having a fall spike flow to ensure the end-of-year-storage target in the reservoir is attained. Emails between BC members and Reclamation since that meeting questioned the possibility of storing any water over the storage target to increase the possibility of a Type 4 release in 2016.
- Miller asked that the process to arrive at the end-of-year-storage target be reviewed during the December meeting.

- Reclamation does not have a problem with winter operational releases if the reservoir elevation is kept high, but these kinds of releases violate the flow recommendations. The impact of high winter flows is unclear.
- Currently baseflows are between 500-600 cfs. High precipitation has subsided in the San Juan River Basin so downstream flows have not been as high as recently.

Discuss proposal to stock further upstream in the Animas River – McKinstry:

- Durst reported on the memo to stock endangered fish further upstream in the Animas River. Previously Cheek discussed the possibility of stocking Razorback Sucker in the Animas River with Ben Zimmerman. Durst followed up with Zimmerman about stocking Colorado Pikeminnow. SUIT is preparing a memo expressing their concerns. Colorado Parks and Wildlife have been contacted regarding fish health and fish importation issues. Given the short time frame, there are no plans to stock at these upstream reaches in the Animas River in 2015 but getting everything in place now could allow for possibly stocking in 2016.
- BC members should submit comments on the memo to Durst for further discussion at the December meeting.

CC request for BC input on future uses of the Hydrology Model – Program Office:

- Whitmore sent an email detailing the CC's request. Previously identified uses of the model included:
 1. One of the tools that will be used to evaluate the impact of depletions of a water project on the listed species
 2. Evaluate the impact of depletions on the ability to meet the flow recommendations
 3. Assist in the development of the flow recommendations
 4. Assist in the development of Navajo Dam operating criteria
 5. Evaluate the effects of future hydrologic variability in consultations and for recovery purposes
- Are there other uses of the Hydrology Model? Miller indicated it could be used to populate data in the Population Model. Behery asked for specific input on how the group wants to use the model. The BC should submit responses to Whitmore's email for further discussion at the December meeting.

Update on entrainment assessment SOW – Gori and Farrington:

- Site visits have been completed and additional information is being collected from some sites. Next steps include compiling field data and notes before work in the draft report is started.
- Farrington reported that there are substantial fish passage barrier in the Animas River.
- Ruhl noted that the Animas River is currently dry at the San Juan confluence.

Update on permitting to collect Razorback Sucker tissue for selenium analysis – Service and Westfall:

- Westfall asked for confirmation that the necessary permits will be in place to conduct this work. Whitmore indicated that the permitting issues would be addressed and that the Program Office would work with Keller-Bliesner and BIA to update the proposal for this work and ensure the permits are in place.

Update on Gold King Mine spill – Durst:

- Franssen and Durst were deployed to observe impact of the mine spill and NMFWCO staff was present on site immediately following the spill. There were no signs of fish kills in the Animas

and San Juan Rivers. Two non-native removal trips were cancelled just after the spill (from NMFWCO and UDWR) due to safety concerns. A UDWR trip was on the lower San Juan River just prior to the spill so there could be an opportunity to compare pre- and post-spill data.

Researchers' Meeting:

- The Annual Researchers' Meeting with Upper Colorado and San Juan participation will be held at Fort Lewis College in Durango over 12-13 January 2016. Calls for papers and request for assistance will follow since the San Juan Program is responsible for hosting this meeting in 2016.

Update on flow revision workshop:

- Summary from the previous workshop and a SOW to move forward with the next workshop will be completed by the end of September.
- The Program Office will start planning dates and tasks and solicit the BC for additional assistance.

Recap decision points and review assigned action items:

- The Program Office will send a Doodle poll to identify dates for the February BC meeting.
- BC should submit their comments on the non-native fish proposal by 28 August.
- The Program Office will develop a SOW for the next flow workshop.
- BC input on memo to stock endangered fish further upstream in the Animas River.
- McKinstry asked that work to determine the natal origin for Lake Powell Razorback Suckers have priority over the work for San Juan River fish.

Next meetings:

- CC meeting in Durango 21 September 2015 to approve 2016 AWP (Senate Chambers room at Fort Lewis College).
- BC meeting at Public Lands Center in Durango 1-2 December 2015.
- Annual Researchers' Meeting at Fort Lewis College in Durango 12-13 January 2016.

BIOLOGY COMMITTEE ACTION ITEM LOG

(Updated 2 September 2015)

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		

BIOLOGY COMMITTEE ACTION ITEM LOG

(Updated 2 September 2015)

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	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	FWS Fisheries/Program Office	5/2011 – provide update and extend as needed	12/1/15	
15	Pursue Non-native fish stocking procedures	11/5/09	Crockett and Ruhl	12/1/09	12/1/15	
16	Pursue effects study on Hg/pikeminnow with other groups/programs	1/14/10	Program Office lead	ongoing		
17	Include benchmarks for recovery in LRP	12/5/14	Whitmore	1/5/15	12/1/15	
18	SOW to conduct population estimates for Colorado pikeminnow and razorback sucker	2/20/15	PO	5/12/15	12/1/15	

BIOLOGY COMMITTEE ACTION ITEM LOG						
(Updated 2 September 2015)						
Item No. *	Action Item	Meeting/O rigination Date	Responsible Party(s)	Due Date	Revised Date	Date Completed
19	Position paper summarizing the effects of the non-native fish removal program	2/20/15	PO	5/12/15	12/1/15	
20	Finalize environmental flow workshop notes and summary	3/25/15	Whitmore	5/12/15	9/30/15	
21	Plan workshop to evaluate and revise flow recommendations	5/12/15	PO	9/30/15		
22	Investigate costs of converting San Juan electrofishing fleet to ETS units	5/12/15	Davis	9/30/15		
23	Distribute entrainment SOW	7/8/15	TNC/ASIR	7/31/15		7/20/15
24	Develop revised AWP within budget that includes prioritized projects	7/8/15	PO	7/31/15		8/18/15
25	Proposal to stock further upstream in the Animas	7/8/15	Cheek, Crockett, Davis, Durst, McKinstry	8/19/15		8/10/15
26	Comments of non-native fish proposal	8/26/15	BC to PO	8/28/15		
27	Comments on memo to stock endangered fish further upstream in the Animas River	8/26/15	BC to Durst	12/1/15		
28	Comments on purposes and uses of Hydrology Model	8/26/15	BC to Whitmore	12/1/15		

* 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"> • Review data integration results from previous year • Identify questions for annual data integration • Discuss Program priorities • LRP review and provide recommendations (with pros and cons) to PO • Appoint new BC Chair (every two years) 	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"> • Prepare for Annual Meeting • Provide preliminary results; draft report presentations • Final review of updated LRP • Review annual data integration priorities 	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"> • Program overview • P.I. presentations • Review preliminary draft AWP • Committee reports 	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			