Executive Committee Meeting

March 29, 2011

Meeting Materials:

Meeting Agenda

Meeting Minutes

CC and Program Manager Update

Biology Update

Middle Rio Grande Endangered Species Collaborative Program
EXECUTIVE COMMITTEE MEETING AGENDA
March 29, 2011
9:00 am – 2:00 pm

LOCATION: Bureau of Reclamation, 555 Broadway Blvd NE, Albuquerque, NM

1. **INTRODUCTIONS AND REVIEW OF PROPOSED AGENDA** *5 minutes*

2. **APPROVAL OF FEBRUARY 17, 2011 MEETING SUMMARY*** *10 minutes*

3. **EXECUTIVE COMMITTEE DECISION** *10 minutes*
   A. **Range of Options for Formation of an Adaptive Management ad-hoc Workgroup**

4. **PRELIMINARY PVA MODEL OUTPUT PRESENTATIONS**
   A. **FORTRAN Model** *(Daniel Goodman, Montana State University)* *45 minutes*
   B. **RAMAS Model** *(Phil Miller, IUCN Conservation Breeding Specialist Group)* *45 minutes*
   C. **Questions and Answers** *15 minutes*

BREAK

5. **USFWS and BIOLOGY UPDATE** *(L. Robertson)* *20 minutes*
   A. **Propagation and Genetics Workgroup Meeting Update** *(J. Remshardt)*

6. **USACE UPDATE** *10 minutes*

7. **RECLAMATION and HYDROLOGY UPDATE** *(L. Croft/M. Hamman)* *20 minutes*

8. **COORDINATION COMMITTEE/PROGRAM MANAGER REPORT** *20 minutes*
   A. **Adaptive Management Plan Development Update**
   B. **LTP Update**
   C. **Annual Report Update**
   D. **Workgroup Updates and 2011 Work Plans***

9. **FINAL PHASE I SAN ACACIA DIVERSION DAM FISH PASSAGE PEER REVIEW REPORT*** *(PBS&J and Panelists available via conference call)* *30 minutes*

10. **OTHER BUSINESS/ANNOUNCEMENTS** *10 minutes*

11. **PUBLIC COMMENT** *10 minutes*

Members

ABCWUA	**APA CABQ**	
ISC	**Isleta Pueblo**	**NMAGO**
NMDA	**NMGF**	**MRGCD**
Sandia Pueblo	**Santa Ana Pueblo**	**Santo Domingo Tribe**
UNM	**USACE**	**USFWS**
		Reclamation

12. **NEXT SCHEDULED EC MEETING – April 21, 2011**

BREAK

13. **CLOSED SESSION – EC MEMBERS ONLY (if needed)**

Denotes read ahead material provided for this topic

Middle Rio Grande Endangered Species Collaborative Program
Executive Committee Meeting
March 29th, 2011 9:00 am to 2:00 pm
Bureau of Reclamation, Albuquerque Area Office
555 Broadway Blvd. NE
Albuquerque, NM 87102

Decisions

- With a quorum present, the February 17th, 2011 EC meeting summary was approved for finalization with a correction to the meeting date.

Directives

- The EC directed the CC to continue the "synthesis of all existing data" discussions and brainstorm how to accomplish the actual synthesis work. It was recommended that these discussions take place simultaneously with the LTP development as the synthesis work may inform LTP priorities and activities.
- The EC directed the PVA and PHVA work groups to reach timely resolution (April 22nd 2011) regarding the incorporation of the hydrology scenarios into the PVA models. The EC requested a product from the April 22nd joint meeting – the product is to be a written statement explaining the resolution and expected schedule of completion. If the work groups cannot achieve an alterative solution that results in the ability of the PVA to have hydrologic scenarios that they are comfortable modeling, then the product statement is to explain why it was not possible. The product is expected to the EC by the May 2011 meeting.
- The EC directed the PVA work group to achieve a consensus data set.
- The EC directed the PVA work group to have robust discussions comparing and contrasting the analysis conducted in each PVA model. These discussions are to be documented with clear articulation of similarities and differences. These discussions should include the PVA work group technical perspective on whether or not both models' analyses need to have more agreements (similarities) and why or why not.

Recommendations

- Based on previous EC retreat discussions, the CC recommended not pursuing the formation of an Adaptive Management ad hoc work group at this time. Any changes to the Program structure – including formation of any new work groups – should be delayed until after the Long-term Plan (LTP) and Adaptive Management Plan (AM) have been completed. With clarification that the April AM notes will be captured either through GenQuest or ESSA, there was general EC agreement with this recommendation.
- The San Acacia Diversion Dam (SADD) Fish Passage Peer Review panel recommended the following "prioritized" list of actions for the Program to pursue:
    - (1) Synthesize results from the considerable literature on the minnow to document what factors have major detrimental effects on species; (2) following the synthesis, determine what factors are imposing the major controlling constraints on minnow populations; and (3) using steps 1 and 2, develop a conceptual model (road map) for recovery using a clear, stepwise, adaptive management approach that includes incremental steps and explicit feedback mechanisms as determined by the Program.

Announcements

- USACE intends to deliver their BA to the EC and the tribes on April 21st, 2011. Comments are requested by May 6th, 2011 in order to facilitate delivery of the BA to the Service by May 23rd, 2011.
- The CC has reevaluated meeting schedule and will now meet regularly on the first Wednesday of every month from 12:30 to 4:00 pm with additional CC/LTP meetings scheduled as needed.
- Ali Saenz is the new Program administrative assistant through Reclamation.
- Lisa Croft has taken a position with the Service's National Fisheries in Hawaii. Lisa was thanked for all her dedication and work with the Program; she will be missed and was wished the best in her new promotion. Mike Hamman will be the new EC representative for Reclamation.
- Michelle Shaughnessy is the Service's new Assistant Regional Director (ARD); she will be the Service's new EC member.
- The Rio Grande Compact Commission meeting is tomorrow (Wednesday March 30th, 2011) from 9:00 am to 12:00pm at MCM Elegante located near the intersection of University and Menual. A reception will be held tonight (Tuesday, March 29th) at 5:30 at same hotel. MRGCD was thanked for sponsoring the reception. Please contact Linda Tenorio (linda.tenorio@state.nm.us) if you have questions or need more information.

Actions

- ✓ Ali Saenz will post the San Acacia Diversion Dam Peer Review Prioritized Recommendations list (that was emailed during the meeting) to the Program website. – *completed 03/30/11*.

Next EC Meeting: April 21st, 2011 from 9:00am to 1:00pm at Reclamation.

- Tentative April Agenda Items: (1) after action analysis of MRGCD, Reclamation, and ABCWUA October 2010 change in water operations; (2) review Feb 17th and March 29th action items; (3) Reclamation's proposed actions shared;

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Executive Committee Meeting
March 29th, 2011 9:00 am to 2:00 pm
Bureau of Reclamation, Albuquerque Area Office
555 Broadway Blvd. NE
Albuquerque, NM 87102

March 29th, 2011 Meeting Summary

- **Introductions and Agenda Approval:** Brent Rhees called the meeting to order. The meeting agenda was reviewed and approved with 2 additional items under the PM/CC update: #8E will be an update on Program contacts and meeting schedules; and #8F will be an update on non-federal cost share.
- **Approval of the February 17th, 2011 Meeting Summary:** The February 17th, 2011 EC meeting summary was approved for finalization with a correction to the date.
    - In order to be more accountable and responsible, a review of the previous month's action items will become a standing agenda item. The February 17th and March 29th actions will both be reviewed in the April EC meeting.
- **EC Decisions:**
    - *Range of Options for Formation of Adaptive Management ad-hoc Work Group:* Based on previous EC retreat discussions, the CC recommended not pursuing the formation of an Adaptive Management ad hoc work group at this time. Any changes to the Program structure – including formation of any new work groups – should be delayed until after the Long-term Plan (LTP) and Adaptive Management Plan (AM) have been completed. With clarification that the April AM notes will be captured either through GenQuest or ESSA, there was general EC agreement with this recommendation.
- **Preliminary PVA Model Output Presentations:**
    - The Population Viability Analysis (PVA) work group joined the executive session and introductions made. Attendees were asked to hold all questions until after the presentations. It was explained that the executives would be given a question priority.
    - *FORTRAN Model – Dr. Goodman:* Dr. Goodman is a professor with Montana State University and teaches courses such as PVA. He has been involved in this project for 3 years and has been an active member of the work group for the last 2 years. He explained that the work group has been analyzing data to be used as inputs for the model. Dr. Goodman then briefly ran a demo of the FORTRAN model in order to highlight how quickly it can complete thousands of iterations and produce outputs. In the demo, the model was simulating a population response using 19 rows of parameters over 100 year's prediction time.
        - In this example run, the predicted frequency of the simulated population dropping below the 1,000 individuals in 100 years was 0.6%. Other outputs included an average final population size at the end of 100 years of 2 million but numbered up to 8 million in some years. Graphical outputs can be generated from the runs.
        - Dr. Goodman presented general background information on PVA models and explained that a PVA is a population model that makes future

predictions about population response but also tracks and shows the uncertainties and probability distributions. The outputs are thus probability distributions of a predicted population size for any given timeframe. PVA models can also be use to determine critical threshold of extinction (ex. 20 years). The "boiler plate" parameters for the FORTRAN model include 3 separate reaches, with specified up/down stream migration, and reach-specific rates based on data indications. There are at least 3 age classes and there is potential for river discharge to affect survival.

- This PVA model has been developed for the specific purpose of modeling the silvery minnow – which can be characterized as having a short life expectancy, volatile population dynamics (ex. 1 female fish can produce over 1,000 eggs so the population can change "over night" by a factor of hundreds), and existing in an unstable environment (making the species vulnerable to environmental change so the population can rapidly decline). The key to long-term survival is how the fish washstands the environmental change.
- For the silvery minnow, withstanding variability means the patterns and correlation structures with lambda (λ) - or the factor of population growth over a year – has to be looked at. The work group has spent the last 2 years analyzing data on *relative abundance* from the population monitoring data for the last ~20 years.
    - Catch per unit effort (CPUE) is the number of fish caught in a seined area equivalent to $100m^2$. It should be acknowledged that the CPUE is an *index* to the population size – there is a small net in a large river with a fast fish.
    - The CPUE data was used to generate different graphs for each year to track young of year and compare the relative population abundance to other factors. The survival is represented in the slope of the line. These graphs show the hold-over adults from previous year, and new preproduction or the maternity compared to the flow (hydrograph from Albuquerque gage). This allows yearly reproduction to be estimated and shows the interrelationships of these.
- Through his data analysis, Dr. Goodman concludes that the data are credible for (1) estimating the relative "brood strength" or reproduction by reach and year; (2) estimating the 1^{st} year cohort survival by reach and year; and (3) average in the 2^{nd} year survival rate. Note that the sampling of older fish is "spotty" due to relative lack of numbers caught in sampling.
- All the graphs support the volatile nature of this species. Within a single year the population can explode from 10,000 fish to millions. Each fall census can be used to form a λ ratio year to year. On average, there is no change in the long-term trend but there is a lot of scatter or uncertainty in the long-term λ – this indicated that we cannot confidently say anything about the long-term trend from the estimate of average λs. Remarkably, however, the abundance estimate tracks the spring flow amazingly well. Note that λ does not track flow.

- Based on these observations, Dr. Goodman's perspective is that the Program should be cautious in looking at random λs and trying to estimate patterns to arrive at long-term trends. He suggests that the Program should not set long-term λ as part of the recovery goals. If done in this manner, the predicted time to extinction is very rapid.
- Dr. Goodman then explained his perspective that the data indicate that (1) the minnow population can successfully rebound from extremely low numbers; (2) λ corresponds strongly to carrying capacity (K; or how many fish the river can support this year); (3) the spring flow sets "K" for reproduction; (4) flow does not enhance survival although it influences reproduction; (5) large λ values occur if there was a small population size the year before, but if the population is large then λ is small.
    - The population corresponds to flow but the growth rates do not. The flow can predict the number of offspring produced – low flow there will be small numbers of young of year for low flow and young of year numbers increase with increased (higher) flow. There is no real relationship between the summer survival and summer flow. In fact, years with high summer flow actual show lower survival of fish to the next year – but this not to be misunderstood as justification for decreased flow!
- The results of the current data inputs into the FORTRAN model indicate that the population is resilient to "normal" range of river flow variations. Of course, there are upper and lower limits to the population but the model (and data) is indicating that the predicted probability of extinction is much lower than originally thought. This means that the optimal management strategies will be very different than originally thought (i.e., rethink long-term λ goal in the recovery plan, etc.)
- There are critical uncertainties with the minnow resilience: (1) how "small" a number of parents can replenish the population? The species have been able to "bounce back" from the low numbers observed so far.; (2) what are the limits to "normal" summer drying? How "low" of flow is too low?; (3) what minimal habitats provide survival refuge in the summer? Where are the minnow going and how are they surviving the dry spells?; and (4) what are the habitat characteristics? How much of that habitat is needed?
- The opportunity to use PVA in a jeopardy evaluation will require decisions. The PVA can compare 2 scenarios - a contemplated action (defined as a scenario) against the baseline (or the system in absence of that proposed action). This comparison will indicate the potential impacts (differences) of that contemplated action. The PVA model(s) can also be used to quantify the difference in time to extinction, probability of extinct, time to recovery, etc. with the proposed action.
- Remember that future conditions needs to include climate (trends), meteorology (weather variability), land use changes (trends), geomorphology changes (trends), habitat interventions, etc. Water management also needs to be considered in terms of water availability, storage and transfers, diversions and withdrawals, low-flow channel operations, pumping, etc.

- To evaluate a water management strategy, if/then rule sets can be used to test the "future world" and simulate applying the rule set using the PVA model. The results can be "scored" with the PVA and the scores for different strategies can be compared.
- Next steps for PVA work group include: (1) consolidating and creating a consensus data set; (2) then performing a consensus data analysis; and (3) if consensus cannot be achieved then explain and document the differences. Agencies within the work group need to define what the "baseline" and "actions" scenarios are and define the metric(s) for evaluation.

- *Questions*
  - ***Question:*** Given all the variables and information, how much is the water quality issue (diversions, inflows, etc.) included into the model? ***Response***: Water quality is not factored into model *per se*, but it is included in the data analysis. When analyzed by reach and by year, it turns out that the San Acacia Reach has the "happiest minnows" even though it has the worst water quality. Given the range of water quality seen, water quality issues are not seemingly having a detrimental affect on the fish.
  - ***Question:*** But are these the same fish over time? ***Response***: There is no evidence in a differential population between the reaches. The genetic analysis implies a single population. The involvement of the minnow in the ecosystem and food chain are incorporated into the "thinking" in a big way. The fish does "evolve" and this fish has evolved and adapted high tolerance to harsh conditions (ex. high temperatures, low oxygen, etc.). Also, there is no evidence of reach-wide [water quality] problems but there may be localized issues. However, the data indicates the fish can tolerate the current range of "normal" to "poor" conditions.
  - ***Question:*** What are the indicated impacts of the channelization – meaning faster flows – on the minnow? ***Response***: The tendency of the river to incise will have to be counteracted. Dr. Goodman strongly encouraged the Program to look closely at investing more into habitat modification experiments and projects. Based on his analysis, it is time to "scale up" the habitat projects to a larger scale as to be obviously detectable on the fish population. Dr. Goodman's perspective was that this would be a very promising intervention.
  - ***Question:*** Can you speak more about the climate change issue and incorporation into the PVA? ***Response***: The most responsible thing to do is to use the best climate predications that are available – there are predicted warming trends. But the predictions for precipitation are much more uncertain. Management strategies need to be designed with enough flexibility to allow the appropriate agencies to respond to those changes that materialize (i.e., options need to be build in so response can be quick).
  - ***Comment***: The HR work group co-chair thanked Dr. Goodman for his perspective on the importance of habitat restoration research and projects. It was shared that the HR work group needs this type of

information in order to effectively determine projects and paths forward. ***Response:*** Dr. Goodman responded that the estimates of inundated area(s) are credible and can be used confidently.

- ***Question:*** Is the rescue/salvage data being incorporated into the trend analysis? And if so, how much impact is there? ***Response:*** The record for *how many* minnow were rescued/salvaged is fairly good – and great in some years. But unfortunately, not a lot is known about release locations and the subsequent survival and where released. Dr. Goodman encouraged the Program to get estimates of how effective salvage is in terms of survival and to consider ways to capture release location information.
- ***Question:*** With the data (and model) that we have now, is it possible to determine the minimal flow summer requirements are now? ***Response:*** There is probably enough data to be able to pursue this question. The model is capable of predicting the frequency of low flow years and the population response. However, it is recommended that this question be first run through the work group to attempt to arrive at consensus before a blanket number (with no context or caveats) be supplied. It has been observed that even in extraordinarily dry years there is still some reproduction – this can be quantified. The data indicates that there is a 1,000/1,500 cfs flow threshold – below which reproduction is significantly reduced but does still occur. It needs to be determined if that 1,000 cfs is enough to keep the population going. The question is answerable but a specific response cannot be given today.
- ***Question:*** Can the minimal summer flow requirement question be answered in time for consideration in the new Biological Opinion (BiOp)? ***Response:*** Yes; there is no foreseen reason why not.
- ***Question:*** There is a lot of uncertainty that is not captured in the model - what will it take to address this and improve the model? ***Response:*** The uncertainty is captured as the back ground noise; the trends in the noise are all the "other" variables. To gather more specifics on the "noise" and uncertainties, it will require funds and commitments from everyone to pursue.

- *RAMAS Model – Dr. Miller*: Dr. Miller presented on the RAMAS baseline model input summary. Dr. Miller thanked the EC for their continued support of this project and explained that the information presented today will demonstrate the evolution of the "thinking" and analysis as the work group moves closers to useful analytical tools. The background PVA information was not repeated – instead, the focus was on the demographic RAMAS model he is constructing.
  - There is considerable uncertainty and variability (manifested as the fluctuations in natural system) with the hydrology and biology in the Middle Rio Grande (MRG) system. This uncertainty makes it difficult to have confident, detailed interpretations of available data. To address this, Dr. Miller is creating a model that mimics the general trends in the population abundance and demographic dynamics observed through historic population monitoring efforts. Dr. Miller's perspective is that there is merit to looking at the long-term population behavior; this does not mean that it is possible to predict how many fish will be in any one

place at any point in time. Dr. Miller emphasized the comparative approach to interpreting the quantitative outputs across scenarios.

- The RAMAS model uses an age-based life table that contains up to 5 age classes (Age 0 through Age 4). *Note: Earlier versions only had 2 or 3 age classes but there is some evidence to suggest the existence of small numbers of the older individuals so placeholders are being built into this iteration.* Age 0 ranges from birth to 11.99 months; Age 1 ranges from 12 months to 23.99 months, etc. The RAMAS model is based on a pre-breeding census; in other words, the census is taken just before reproduction.
    - Fecundity is a combination of maternity (egg production) and the survivorship of those hatched individuals to the next census. The model takes the number of individuals this year and using a growth rate and mathematical calculation predicts the population numbers for the next year.
- This is a female-only model and the data on maternity is based on the study published by Platania and Altenbach in 1996. The regression analysis was extended to derive the anticipated maternity estimates for the older age classes; maternity is increased for each of the older age classes.
- For the RAMAS model, a reference value for survivorship (that is tied to a long-term growth rate) needs to be established. This is not saying that the population is restricted to that growth rate but we need to understand how the growth rate is affected by other variables. Quarterly CPUE values can be used and regressed to the previous quarter CPUE to derive a survivorship value for that quarter. Assuming a long-term population growth rate of 1.0 (to initiate the analysis), the reference value of age specific survivorship (spawned this spring and survive to next spring) is developed at 0.0016.
    - The survivorship values for older age classes were derived from the modal progression analysis by Rich Valdez. It is assumed, in the absence of actual data, that the survivorship rates of older individuals will be the same as the Age 1 fish.
- Please note that the fecundity and survivorship rates in the MRG are not static – this is driven by environmental variation (EV) which is typically expressed as statistical variability or standard deviation around mean rates. It is very difficult to make accurate assessments of EV due to the complexity associated with using CPUE data for estimating age-specific survivorship and coarse estimates for mean demographic rates. To simulate the observed annual variations in CPUE, Dr. Miller has expressed annual EV as a coefficient of variation around the mean demographic rates. The current range of variation around fecundity and survivorship is between 20% and 40%. This allows the impact of the EV on the long-term predictions about the population abundance to be explored.
- Dr. Miller then shared that to initiate simulations, the initial reach-specific population size needs to be input; these "seed" the model as a starting point for the comparison of population responses predicted. This

should be thought of as an "abundance index" and how the index changes over time instead of actually taking the specific run numbers. Using 2009 data, it is estimated that there are 1,048,598 minnow in Angostura; 1,602,348 in Isleta; and 923,352 in San Acacia.

- There has to be some ecologically based limit to the number of individuals that can be supported by the river and habitat. This term, carrying capacity (K), is notoriously difficult to characterize and quantify. K is an expression of density dependence; in other words, the population is regulated in abundance as the population approaches the maximum resource base. Dr. Miller's opinion is that the relationship between density dependence and the risk of population decline given different hydrological scenarios is not clear.
    - Assuming a gross but acceptable correlation between CPUE and an index of abundance, Dr. Miller has computed that the assumed K is about 2.5 times the 2009 population abundance. In other words, based on historic population abundances, the MRG system is capable of supporting more than double the 2009 population numbers (Angostura K – 2,600,000; Isleta K – 4,000,000; and San Acacia K – 2,300,000 for a total capacity of 8,900,000). Attendees were reminded that this starting point allows for exploring the simulated population responses. K is not a static variable but will be tied closely to the spring flow.
    - Dr. Miller cautioned that the risk of extinction should neither be over or under estimated. The density dependence initiated at low population abundance will affect the predictions on how the population can or will rebound. The intensity of density dependence at low population numbers is still not clear. A population "ceiling" that limits the population growth at high densities is one mechanism that can be employed to address K. This ceiling or cap at high populations is a "brute force" way to enforce the density dependence. Low density dependence is not currently included in the RAMAS model.
- Dr. Miller next discussed survivorship. The May-July survivorship is tied to the magnitude of the spawning flow and the August-October survivorship is tied to the extent of summery drying. The relationship between flows and long-term demographics can be explored once the spawning flows are derived from the hydrologic models (such as URGWOM). The flows can be translated and tied to the survivorship values of newly spawned individuals. This will allow for directly exploring the impact of flow - including the impacts of repeated years below a certain threshold (ex. 3 or 4 dry years in a row).
    - Unfortunately, there is still much uncertainty and doubt on the nature and intensity of the relationship between the extent of drying and summer survivorship. In order to incorporate the summer drying into a PVA, the functional relationship (between drying and survivorship) is important (linear? thresholds? etc.)
- Because this is a reach-specific model with reach-specific demographics, the down (and possibly up) stream dispersal needs to be understood.

There is some information available but it is not definitive. This means that a range will have to be used to explore the necessary level of dispersal to maintain the metapopulation structure.

- The augmentation program data is being taken into account in the RAMAS model. The total number of individuals added each year can be extrapolated with the survival to assume the approximate numbers of fish available each year in the spawn.
- Dr. Miller concluded by showing example graphs of model outputs showing how the example iterations describe what is actually seen on the river and in the population. The K and density dependence processes at high density still need to be addressed.

- *Questions:*
  - ***Question:*** Is there any ways to improve the hydrologic (ex. URGWOM) models as well? ***Response:*** Dr. Miller expressed that he is not an URGWOM expert so it would not be responsible for him to give advice on the model construction. The integration of the hydrologic scenarios into the PVA models remains unresolved. One issue is that URGWOM is being used to look at much short time horizon (5 to 10 years) in the future for a very detailed look at river operations and responses; but the PVA needs to look much further into the future for the longer-term horizons. The PVA is still trying to determine how to create longer hydrologic sequences.
  - ***Question:*** Can you provide clarification to the reference value? ***Response:*** Dr. Miller wants to be able speak to "a particular increase in spring flow will relate to a particular response in output" – in order to do this, it requires a reference value for comparison purposes. It is unknown if Dr. Goodman is adopting the same approach to relate the hydrology to biology.
  - ***Question:*** What is meant by carrying capacity? ***Response:*** Carrying capacity is simply the number of individuals that a habitat can support in an equilibrium sense in the long-term; it is related to the amount of resources the habitat has and the degree to which they can be replenished as the population utilizes those resources. As a starting point in the RAMAS model, K is 8.9 million. How the fish responds to reduced habitat during summer drying still needs to be explored. There is the potential for the population to increase larger than 8.9 million in any particular year depending on the flow but that large a population couldn't be sustained.
  - ***Comment:*** Regarding the risk of extinction, in the examples graphs shown there are cases when the population "bumps along" the extinction line but never seems to cross. ***Response:*** Remember, a large number of replicate runs have to be summarized in order to look at the probability that the population will go below a specified threshold. There are high levels of variability and Dr. Miller reiterated that he is not comfortable with how the K is currently being expressed. The model can generate thousands of runs to express the probability that the population goes below a specified threshold (1 individual; 10,000 individuals; etc.) or quasi-extinction level for management purposes.

- ***Question:*** These are sample runs - where in process is the final product? ***Response:*** One important component in the development of final model is the incorporation of hydrologic sequence data. That hasn't yet occurred. There needs to be more face to face discussions and meetings with the PHVA work group to actually gather those scenarios and provide the specific results. Also, there are other data analysis issues that need to be explored (discussions began at the last meeting) and the development of a consensus data set (for confidence).
    - ***Response:*** The FORTRAN model could be implemented now, but it is not recommended. Dr. Goodman reiterated that the PVA work group has been assembling data and analyzing data. They are just to the point of designating a consensus data set. Consensus on the analysis/conclusions drawn also needs to be attempted. Dr. Miller's presentation highlighted some of the differences that have not yet been agreed on, such as density dependence. These topics need to be discussed at the technical work group first.
    - Dr. Miller shared his opinion that these models are not supposed to be exactly the same and he doesn't want to delay the delivery of a functional product because there are arguments about the differences between the two models. His opinion is that the models can still be complementary even with differences. Dr. Goodman disagreed with this position and shared that his perspective is that the Program could be ill served if there are two models producing very different results but no clear context justifying the divergence.
- ***Question:*** Is there consensus on the variables that are going into the models? Hydrology? Biology? Habitat? Habitat size? etc. Where is the work group in terms in confidence on the variables that are being considered? ***Response:*** The variables that have data have been considered, analyzed, and incorporated to the models to the best of the work group's ability. There are specific variables that the work group would like to be able to include but unfortunately, the quantitative nature of the relationships with those variables is unknown – making inclusion difficult. To address this, the work group is developing a philosophy on how to explore those terms. The consensus data set has not been officially agreed to yet.
- ***Question:*** The Program is currently working on developing AM and the LTP. Can these models be relied on for the management recommendations and water decisions? ***Response:*** Yes, once the PVA models are functional and scientifically credible. The PVA can be use to generate hypotheses that guide the AM by providing high probability "if/then" scenarios. The AM response is to "bet" on the high probability actions but have flexible plans in place for quick response if the monitoring indicates the hypothesis was wrong. There is no right or correct answer; the PVA will run scenarios that will subsequently need to be tested over time. The models will be continually be refined as more data is collected. The value of the models come with the on-the-ground testing in AM.

- **USFWS and PVA/Biology Update:** For the minnow, Lori Robertson reported updates on Big Bend, population monitoring, and reintroduction work updates. Jason Remshardt reported on the last Propagation and Genetics meeting.
    - Attendees were reminded that October 2010 monitoring indicated the minnow population was decreased. Augmentation occurred in December 2010 and the population numbers have increased (except for in the Angostura reach, which is not augmented at this time). In December, approximately 48% of captured fish were marked; in February, only 22% of captured fish were marked.
    - Big Bend monitoring sites will be expanded to cover more of the entire reintroduction are in June of this year.
    - In the monthly report on the reintroduction work, it was shared that Mark Brennan has been successful in meeting with San Felipe pueblo consultants to discuss current Program funded habitat project development. He will be meeting with the Santo Domingo tribe. Mark is beginning to write the safe harbor agreement for the Rhodes property (San Acacia reach).
    - *Propagation and Genetics Work Group Meeting Update:* At the request of the executives in January, Jason Remshardt provided an update on the Propagation and Genetics (P&G) work group meeting in March 2011. He also provided updates on the minnow facilities. Attendees were reminded that the P&G work group is not affiliated with the Program, although there is cross-participation. The P&G group meets twice a year to estimated fish numbers for production purposes. The 2011 estimated fish requests are: 204,000 for the MRG for fall 2011 (based on the previous year stocking efforts and the expected flow) and 200,000 for Big Bend for fall 2011.
        - The P&G work group also discussed the (1) ISC Los Lunas Silvery Minnow Refugium (LLSMR) permit status, fish requests, and the impacts to production needs; (2) the 2010 UNM genetic report summary that indicates the genetics (diversity) of the captive population represents the wild population well; (3) future research needs for Dexter and UNM; and (4) other production needs and projected future 10j fish requests (none for 2011).
        - In the minnow facility update, it was explained that Dexter is the largest facility and is able to raise about 600,000 minnow annually. Dexter staff is involved in field efforts, field surveys, and fish health monitoring for all the facilities. The Large Mouth Bass Virus was detected at Dexter last summer. No minnow lots were affected, but Dexter has to undergo 2 years of testing negative for the virus to return to the Federal Class "A" status. At this time, the Service does not have any concerns about the supply of silvery minnow to the other facilities. The EC briefly discussed the use of VIE tags and the potential for reinitiating use to mark locations.
            - The Bio Park contributed 28,000 minnow last year. They collected 2,000 wild caught eggs resulting in 500 broodstock and also collected enough fish for that year's production needs. It was shared that between Dexter, LLSMR, and the Bio Park, the fish request/demand has been met and the 2011 requests do not exceed maximum production ability. The Bio Park did temporarily "scale back" production in order to work on the

facilities and ponds (operational for over 5 years) and to "fine tune" actual production ability (for healthier, more viable fish). There is a plan to increase production again.

- The full pump/water testing has begun at the Minnow Sanctuary. All the pumps are running and it is hoped that the sanctuary will be operational soon.

- **USACE Update:**
  - The forecasts continue to predict a dry year; the stream flow forecasts continue to decrease: 76% in February and 63% in March. The Weather Service is predicting a dryer than average summer. Based on the forecast and the modeling, the peak flow expected is only 2,000 or 2,500 cfs at Albuquerque. This is not sufficient volume to operate a Cochiti Deviation and save water this year. The Corps might be able to hold and lengthen the peak for 7 to 10 days at Albuquerque instead of enhancing the peak. This might mean a maximum storage at Cochiti of only 5,000 ac-ft. These discussions will be continued. No impact is expected on MRGCD operations or demand.
  - Regarding the BA, the Corps have continued dialog with Reclamation and ISC. Dr. Tuggle is being provided status updates. The intent is to deliver the BA to the EC and tribes on April 21, 2011. Comments will be requested by May 6th to facilitate timely delivery to Service by May 23rd, 2011.
- **San Acacia Diversion Dam (SADD) Fish Passage Peer Review Final Report:** Several of the SADD fish passage peer review panels were available via conference call to address any final clarifications or questions on the recommendations that the executive might have. In a brief summary on the project, it was shared that the Program (through Reclamation) requested a list of panelist to review the equipment for fish passage at the SADD. An independent and credible review panel was selected. The panel reviewed general background information on the MRG and specifically on the SADD and 2003 BiOp. Once panelists were familiar with the current context, they submitted a draft report that addressed the question "was the requirement for fish pass at SADD based on sound science." Comments on the draft report were incorporated in a revised and final report. The educated recommendations from experts outside the basin are the "meat" of the report. At the recent request, the panelists reorganized the report recommendations into a logical (prioritized) sequence:
  - (1) synthesize results from the considerable literature on minnow to document what factors have major detrimental effects on species; (2) following the synthesis, determine what factors are imposing the major controlling constraints on minnow populations; and (3) using steps 1 and 2, develop a conceptual model (road map) for recovery using a clear, stepwise, adaptive management approach; including incremental steps and explicit feedback mechanisms as determined by the Program.
  - The panel also identified data or knowledge and urged the research of the following topics: (1) evaluation of impact of non-native fishes on recovery of minnows; (2) evaluation of the loss of minnow into ditches and canals as water is diverted from river; (3) evaluation of important of larval drift to the mixing of minnow; 4) an evaluation (preferably in the field) of the tendency of the minnow to move upstream; and (5) evaluation of field prototype fish passage inlet to determine its use by conservation of minnow and other species.
  - The panel's findings neither accepted nor rejected the potential contribution of fish passage to sustain conservation of the minnow in the MRG. The panel explained that it was completely uncertain whether the fish passage would or wouldn't work so they

were not comfortable in recommending proceeding to spend $40 million if it might not be successful. More research and more information is needed. The panel never categorically said that it wouldn't work or that it was necessarily a bad idea, but it couldn't be determined if there was sound science that pointed to the need. There is the need for an overall analysis of all the data and information collected; this would help inform how fish passage fits into the over all recovery.

- Panelists expressed shock at the complete lack of synthesis of a decade worth of information and how that could impact the recovery of the species. If the information regarding the sound science for the fish passage is available, it is hidden in the copious amounts of studies with no coherent collection. There was just too much uncertainty to say "yes" or "no." That uncertainty might go away with a synthesis of all the data.
- Genetically, there is a single population of minnow – with no differences between fish among the reaches. In terms of pre-productive output, it is not known how successful fish passage would be. In terms of increasing the number of breeding individuals, a large number would have to pass to have any significant impact. It takes 1,000 minnow in the river to make 1 reproductive adult. So 20,000 individuals would have to pass through the dam to effectively add 20 adults.
- The review panel expressed interest in helping the Program with the next step and moving forward and staying involved.

- The review panelists were thanked for their time and input. Attendees continued the discussion and shared that the adaptive management (AM) contractors have also pointed out the lack of synthesized data and information and how that impacts the formation of a road map for recovery. The PVA is working on some data analysis, but it is just one small component.
- The EC directed the CC to continue the "synthesis of all existing data" discussions and brainstorm how to accomplish the actual synthesis work. It was recommended that these discussions take place simultaneously with the LTP development as the synthesis work may inform LTP priorities and activities.

- **Reclamation BA and Hydrology Update:**
  - *BA Update:* Reclamation is working slight changes to the proposed actions in response to last month's comments. The proposed actions will be presented in April but the timeline has not changed.
  - *Hydrology Update***:** Continuing Resolution (CR) is in place through April 8th. As it relates to the Program, Reclamation cannot obligate more than 50% of the reduced 2011 budget. Potential work has to be prioritized but Reclamation is attempting to having all the background work completed now so that it is ready should funding become available.
    - There has been no real change in reservoir storage except that irrigation season has started in the MRG, below Caballo, and Las Cruces/El Past valleys. Based on the March 1 forecast, calculated P&P in El Vado is 26,000 ac-ft but that could likely go up with the April 1 forecast. Determined emergency drought water stored for minnow operations is 10,000 ac-ft and MRGCD at 18,500 ac-ft. The forecasted inflows are

expected to drop with the April 1 update. Only extreme monsoon events could remove the Article VII restrictions. Current snowpack data shows the upper Rio Grande and Chama at 20% of normal; the Pecos is well under 40% of normal. Even though the snow pack is dropping, there hasn't been much seen at the gages. A "hole" is expected in the river due to Colorado irrigation – 400 or 500 cfs at Otowi. Releases might have to be tied in to compensate

- **Coordination Committee/Program Manager's Report:** *Please refer the CC/PM report read ahead for details and additional information.*
    - *Minnow Facilities:* The LLSMR permitting is still pending. The Minnow Sanctuary is not ready but the Service has been a tremendous help in trying to get it operational.
    - *Adaptive Management Plan Development Update:* The revised working draft AM plan has been distributed. The next technical sessions are scheduled for next week.
    - *CC Update:* The CC reevaluated their meeting schedule. The intent is to be more realistic and efficient. The CC agreed to start having targeted meetings to focus on the LTP.
    - *Cost Share Update:* The Pueblo of Isleta recently reported on cost share. They claimed quantified returned water (and applied a fair market value) as part of the cost share. Reclamation is in the confirmation process; but this estimate put the total cost share at $14.7 million to date (compared to the target cost share of $13.9 million).
    - *PMT Update*: The PMT has provided a Program meeting schedule and contact list as a read ahead. The co-chairs and PMT liaisons are listed for each work group as well as the contacts for the CC and EC.
- **Other Business/Announcements:**
    - Ali Saenz is the new Program administrative assistant through Reclamation.
    - Lisa Croft has taken a position with the Service's National Fisheries in Hawaii. Lisa was thanked for all her dedication and work with the Program; she will be missed and was wished the best in her new promotion. Mike Hamman will be the new EC representative for Reclamation.
    - Michelle Shaughnessy is the Service's new Assistant Regional Director (ARD); she will be the Service's new EC member.
    - The Rio Grande Compact Commission meeting is tomorrow (Wednesday March 30th, 2011) from 9:00 am to 12:00pm at MCM Elegante located near the intersection of University and Menual. A reception will be held tonight (Tuesday, March 29th) at 5:30 at same hotel. MRGCD was thanked for sponsoring the reception. Please contact Linda Tenorio (linda.tenorio@state.nm.us) if you have questions or need more information.
- **Public Comment:** There was no public comment.
- **Meeting Follow Up**: The EC discussed the potential need to meet in closed session. The topics of concern were not confidential or private so the closed session discussions were held openly as a meeting follow up.

- Some EC members expressed concerned about the ongoing PVA/PHVA delay in resolving the hydrology integration issue. It was suggested that the EC simply provide the directive for those groups to complete this task within a certain assigned timeline. Also, during the PVA presentations it was shared that the PVA may need to be tasked to reach consensus on the data set.
    - A joint PVA/PHVA meeting has been scheduled for April 22nd although not everyone can attend as this is Good Friday. Attendees were reminded that part of the challenge with scheduling the joint meetings is including the PVA modelers who have to travel in from out-of-town. The PHVA has water scenarios that can be modeled but the PVA doesn't have a way to incorporate those in a defensible manner.
    - The EC discussed requesting a specific outcome/product that will be expected at the end of the joint meeting. The EC directed the PVA and PHVA work groups to reach timely resolution (April 22nd 2011) regarding the incorporation of the hydrology scenarios into the PVA models. The EC requested a product from the April 22nd joint meeting – the product is to be a written statement explaining the resolution and expected schedule of completion. If the work groups cannot achieve an alterative solution that results in the ability of the PVA to have hydrologic scenarios that they are comfortable modeling, then the product statement is to explain why it was not possible. The product is expected to the EC by the May 2011 meeting.
    - The EC directed the PVA work group to achieve a consensus data set.
    - The EC directed the PVA work group to have robust discussions comparing and contrasting the analysis conducted in each PVA model. These discussions are to be documented with clear articulation of similarities and differences. These discussions should include the PVA work group technical perspective on whether or not both models' analyses need to have more agreements (similarities) and why or why not.

Executive Committee (EC) Meeting Attendees
March 29th, 2011, 9:00 am to 2:00 pm

Attendees:

Representative	*Organization*	*Seat*
Brent Rhees (P)	Dept. of the Interior	Federal co-chair, non-voting
Estevan Lopez (P)	NM Interstate Stream Commission	ISC
Lisa Croft (P)	Bureau of Reclamation	USBOR
LTC Jason Williams (P)	U.S. Army Corps of Engineers	USACE
Brian Gleadle (P)	NM Department of Game and Fish	NMDGF
Janet Jarratt (P)	Assessment Payers Association Of the MRGCD	APA
Wally Murphy (P)	U.S. Fish and Wildlife Service	USFWS
Rick Billings (A)	ABCWUA	ABCWUA
Steve Farris (P)	NMAGO	NMAGO
Hilary Brinegar (P)	NM Department of Agriculture	NMDA
Subhas Shah (P)	Middle Rio Grande Conservancy District	MRGCD
Bruce Thompson (P)	UNM	UNM
Matt Schmader	City of Albuquerque	COA
Frank Chavez	Pueblo of Sandia	Sandia

Others

Yvette McKenna – PM	Bureau of Reclamation
Mike Hamman	Bureau of Reclamation
Terina Perez	Bureau of Reclamation
Mary Carlson	Bureau of Reclamation
Kathy Dickinson	Bureau of Reclamation
Jeanne Dye	Bureau of Reclamation
Leann Towne	Bureau of Reclamation
Mary Carlson	Bureau of Reclamation
Jim Wilber	Bureau of Reclamation
Dagmar Llewellyn	Bureau of Reclamation
Josh Mann	Bureau of Reclamation
Kris Schafer	U.S. Army Corps of Engineers
Susan Bittick	U.S. Army Corps of Engineers
William DeRagon	U.S. Army Corps of Engineers
Mickey Porter	U.S. Army Corps of Engineers
Darrell Eidson	U.S. Army Corps of Engineers
Lori Robertson	U.S. Fish and Wildlife Service
Jen Bachus	U.S. Fish and Wildlife Service
Janet Bair	U.S. Fish and Wildlife Service
Jim Brooks	U.S. Fish and Wildlife Service
Delfina Montoya	U.S. Fish and Wildlife Service
Christopher Shaw	NM Interstate Stream Commission
Grace Haggerty	NM Interstate Stream Commission
Brooke Wyman	MRGCD
Adrian Oglesby	MRGCD
Ann Moore	NMAGO
Sarah Cobb	Senator Udall's Office

Patricia Dominguez	Senator Bingaman's Office
Matt Zidovsky	Congressman Heinrich's Office
Mike Marcus	Tetra Tech
Reese Fullerton	GenQuest
Ali Saenz	Reclamation – Administrative Assistant
Marta Wood	Tetra Tech

PVA Attendants who joined at 9:30:

Dr. Dan Goodman	Montana State University for MRGCD
Dave Campbell	U.S. Fish and Wildlife Service
Jason Remshardt	U.S. Fish and Wildlife Service
Stacey Kopitsch	U.S. Fish and Wildlife Service
David Gensler	MRGCD
Tanya Scott	MRGCD
Gary Dean	Bureau of Reclamation
Rich Valdez	SWCA for ISC
Allison Hudson	ISC
Dr. Phil Miller	CBSG
Jerry Ginsburg	Thomas Village NA
Rob Dudley	ASIR
Christine Sanchez	Tetra Tech

Coordination Committee and Program Manager Update
Middle Rio Grande Endangered Species Collaborative Program
Executive Committee Meeting
March 29, 2011

Updates

The amendment to the **Los Lunas Silvery Minnow Refugium** Threatened and Endangered (TE) permit is in process. The New Mexico Interstate Stream Commission (NMISC) has been allowed by the U.S. Fish and Wildlife Service (Service) to conduct preparation work for the spawning study, including obtaining fish for the study. The fish will not be placed in the outdoor refugium until NMISC receives an approved permit amendment from the Service. The expected date for the amendment to be received is late April, following a 30-day comment period in the Federal Register.

Security cameras have been installed at the **Rio Grande Silvery Minnow Sanctuary.** Additional repairs to get the facility operational in order to initiate testing phase include:

1. Remove 1st sediment intake that is currently washed out and cap off. It is not anticipated to be needed for operation at this time.
2. Install sump pump into area where sediment pumps are to keep dry and prevent pumps from shorting out.
3. Remove sediment pump that has already failed due to moisture.
4. Install rack over culvert to keep pedestrians out.

Work should be completed in the next few months and then the Service will begin testing phase to understand water seepage, water quality issues, etc. There are several anticipated "tweaks" and redesigns that will likely be needed as the testing phase is carried out.

The **Adaptive Management (AM) Planning** contractors, ESSA and Headwaters, will conduct follow up technical planning sessions on April 5-7, 2011 at Reclamation. An AM Plan Workshop is scheduled for May 18-19, 2011. The participant list has been updated and additional information on adaptive management planning has been posted on the Program website (www.middleriogrande.com) under "Library >> Adaptive Management." No logins or passwords are required to access this information.

The **24 hour dispatch number for New Mexico Department of Game and Fish** (NMDGF) to report a wildlife incident (i.e. dead fish in Rio Grande) is **505-827-9376**.

Coordination Committee

Revised Long Term Plan Development

Long-term Plan development has been on hold for the past several meetings as the Adaptive Management process and San Acacia peer review occupied the CC. The CC in the upcoming months will meet to do a critical analysis of the components of the LTP, discuss commitments from all signatories to incorporate in the plan, and complete a draft LTP for Executive Committee (EC) review. The past Program activities have been completed by GenQuest and are posted on the Program website under: Library -> Revised LTP Development -> LTP Past Activities March 2011. The CC will review and use them as a basis for determining what future activities will be included in the revised LTP.

CC meetings

The CC held meetings on March 2 and March 16 where they worked on: developing a range of options for adaptive management sessions and discussing recently posted AM documents; reviewing workgroup 2011 work plans, and scheduling recurring CC meetings.

CC meetings will now be regularly scheduled for the first Wednesday of every month from 12:30 to 4:00 pm with additional CC/LTP meetings scheduled as needed. It was agreed that the next CC meeting will be on April 13 from 12:30 to 4:00 pm and the May 4 CC meeting will be from 10:00 am to 4:00 pm with a working lunch.

Program Management Team

The PMT welcomes the addition of Alighieri (Ali) Saenz as the new Program Administrative Assistant. Ali comes to Reclamation from the City of Albuquerque where she wore many, many hats as an Office Assistant for various divisions in the Economic Development Department. Ali is fluent in Spanish and works as a translator for the "Breaking Bad" TV series production company, and also served in the same capacity for the City. Ali is a former United States Army Reservist where she served for 8 years as a specialist during Operations Enduring Freedom, including a tour in Kandahar, Afghanistan. Ali is working on completing her bachelor's degree in Business Administration and Management.

PMT liaison support for workgroups is as follows: Monika Mann for the Database Management System (DBMS) ad hoc workgroup and the Habitat Restoration workgroup (HRW); Stacey Kopitsch for the Science (ScW), Population Viability Assessment (PVA)/Biology and Monitoring Plan Team (MPT) ad hoc workgroups; Terina Perez for the Species Water Management (SWM) workgroup, the Population Habitat Viability Assessment (PHVA)/Hydrology and the San Acacia Reach (SAR) ad hoc workgroups; and Ali Saenz for the Public Information and Outreach (PIO) workgroup. The PMT liaisons completed their workgroup's 2010 accomplishments and have revised the 2011 work plans.

Jericho Lewis has been training a new Contract Specialist, Anndra Vigil, and staff on detail. Diana Herrera continues to work on: Program cost share updates, expenditure reports, water leasing obligations; and FY2012 and FY2013 Program budgets. Edward McCorkindale, Lisa Freitas, Amy Lahti, and Rebecca Christy, GenQuest, and Christine Sanchez and Marta Wood, Tetra Tech, continue to assist the Program in the revised LTP development, annual report preparation, and meeting support and summaries.

Habitat Restoration Workgroup

The HRW met on March 15 where several topics were discussed including: a conceptual physical system model for the HRW; adding a new monitoring phase into HR projects; and a presentation by Robert Padilla on Sediment Transport Modeling. With no funding for HR construction projects, the group continues to review HR related reports. A white paper is written by group members and a summary is presented to the workgroup at each meeting.

The next HRW meeting will be held on April 19 at NMISC where topics such as the Tamarisk Leaf beetle and SRH-2D Modeling will be presented and discussed.

Monitoring Plan Team ad hoc Workgroup

The MPT met on March 1 to discuss revisions for the Draft 2010 Effectiveness Monitoring report. The final version of this report was recently made available for Program review and comments. Also discussed was coordination of this spring's low-intensity monitoring to be performed by the MPT members. The MPT is putting

out a request for volunteers from the Program to help with monitoring during this year's spring run-off. A draft statement of work (SOW) has been developed for the high-intensity portion of the effectiveness monitoring, with a focus on habitat food availability. This SOW is currently undergoing revision. The next regularly scheduled MPT meeting is on April 19 at the ISC.

Science Workgroup

The Science Workgroup held a regular working meeting on March 15. A presentation of the Age and Growth Study results was given by American Southwest Ichthyological Researchers (ASIR) and Academy of Natural Sciences researchers. Following this presentation, the Service provided an update from the March Propagation and Genetics workgroup meeting. A discussion on revising the Population Estimation Program Peer Review SOW also occurred, with the ScW recommending including peer review of the Population Monitoring Program along with the Population Estimation peer review that is currently underway. The next regularly scheduled ScW meeting will be held on April 19 at the ISC.

Species Water Management Workgroup

The SWM workgroup is evaluating data needs and recommendations for changes to the USGS groundwater (GW)/surface water (SW) Interaction Project. As part of this effort, SWM representatives met with users of these data, including the URGWOM Technical Team. Since the contract for this project expires this month, the workgroup will continue to discuss options for future monitoring. SWM is also coordinating with the HRW on concepts for the development of fine-scale hydraulic modeling capabilities to track the impact of habitat restoration projects. The workgroup is still planning a spring Middle Rio Grande Conservancy District (MRGCD)/NMISC Atrisco Project field trip, which will most likely take place in May.

The next regularly scheduled SWM meeting will be April 6 from 10:00 am to 12:00 pm at Bureau of Indian Affairs (BIA).

San Acacia Reach ad hoc Workgroup

The SAR workgroup made plans to facilitate a tentative "roundtable" discussion on the floodplain encroachment topic with interested parties. For clarification, the purpose of this project is to attempt to determine if floodplain encroachment presents or could present an issue for the Program. If there is no issue identified scientifically, then no more effort needs to be expended. The workgroup's and Program's role is strictly to inform, voice concerns and advocate, therefore the workgroup recognizes the need to explore the possible extent and impacts of future encroachment.

The U.S. Army Corps of Engineers (USACE) will be able to complete the first 5 tasks of the 2011 Floodplain Encroachment Project. These tasks are the analysis and modeling portion of the project. The workgroup is working on revising the original SOW to include the Program's portion (Tasks 6, 7, and 8) of the Floodplain Encroachment Project. Socorro County and FEMA would be the responsible parties who could act on the results of the study, as FEMA was ordered to consult with the Service on their nationwide floodplain mapping because of endangered species impacts from possible recommendations. George Dennis, the Service's representative on this consultation effort (who recently gave a presentation to the CC), has encouraged the workgroup to be proactive and approach the communities now, and plans to attend the next workgroup meeting.

The workgroup also continues to work on drafting a series of white papers on the Low Flow Conveyance Channel (LFCC)/Levee system, agricultural sustainability, sediment transport, water rights/adjudication, floodplain land development, and habitat restoration. Although the white papers may not be ready to incorporate into a public document before the end of the year, SAR may still attempt to put together a workshop on one of the key topics.

The next regularly scheduled SAR meeting will be March 24 at Reclamation, where tentative agenda items are to include roundtable discussions on the floodplain encroachment issue, and planning for a SAR field trip at the end of April.

Population Viability Analysis (PVA)/Biology ad hoc Workgroup

The PVA workgroup is scheduled to meet for a full day on March 29, during which time PVA model presentations will be provided to the Executive Committee members. A joint PVA/PHVA meeting will also be held on April 22 to allow for discussion of the mechanisms for integrating Middle Rio Grande hydrologic and Rio Grande silvery minnow demographic models.

Population Habitat Viability Assessment (PHVA)/Hydrology ad hoc Workgroup

All of the URGWOM rule sets were finalized and discussed at the last PHVA meeting and the results of the first model runs were presented. A brief explanation describing the limitations of the model's predictions of Compact credits will be presented at the next meeting, which is scheduled for March 24 from 1:00 to 3:00 pm at Reclamation. Also, a joint PVA/PHVA meeting to discuss PVA needs from the URGWOM model and to review information provided by the PHVA to date will be held on April 22.

Database Management System ad hoc Workgroup

The DBMS workgroup met on March 14 to discuss the last few remaining data sets that the workgroup would like incorporated into the DBMS. Currently almost all the data has been given to the contractor for incorporation and they should be able to test the Pilot DBMS in a couple months.

The next DBMS meeting is April 11 from 1:00 to 2:30 pm where action items and next steps from the last meeting will be discussed.

Public Information and Outreach Workgroup

The PIO workgroup met on March 10 to discuss opportunities for upcoming events. After proposing a Habitat Restoration event for later this spring, it was determined a follow-up meeting with members of the HRW was necessary to determine how HR projects are quantified. PIO is also laying groundwork for a large Open House with Science workshops in the fall. PIO continues to reach out to SAR to determine whether there is still a need for a brochure. A 2011 draft work plan was prepared and discussed by the workgroup.

Biology update for EC meeting, March 29, 2011

I. Silvery Minnow

Silvery Minnow Population Monitoring

- Report on December 1-3, 2010, Feb 10 and Feb 14 population monitoring conducted by American Southwest Ichthyological Researchers, LLC

Sample Date	Presence at sites	CPUE (ind/100 $m^{2)}$ All Reaches	Angostura	Isleta	San Acacia	% VIE marked[1]
Dec 1-3	17 of 20 sites	6.16	0.1	3.7	11.1	48.6%
Feb 10; Feb 14	16 of 20 sites	3.49	0.07	1.4	6.8	21.9%

[1]Present only in the Isleta and San Acacia reaches

- The increase in densities in December and February compared to October (1.13 ind/100m^2) in the Isleta and San Acacia reaches was caused primarily by the stocking of hatchery raised individuals.

Big Bend

- Major survey to be conducted this summer to assess distribution of silvery minnow in Big Bend
  - June 12-19, Lower Canyons – 84 river miles
  - June 21-27, Santa Elena – Rio Grande Village – 74 river miles
  - June 21 – 23, Redford – Lajitas – 34 river miles

Reintroduction/Cochiti reach biologist monthly work highlights

- Developed planning materials to assist in communications with the Santo Domingo Tribe, and the Pueblos of Cochiti and San Felipe.
- Arranged meeting with Governor of San Felipe Pueblo and in process of arranging meetings with Santo Domingo Tribe.
- Attended training in Traditional Ecological Knowledge.
- Developing preliminary assessment of Cochiti reach hydrological and habitat conditions for silvery minnow using available information; will amend as additional information becomes available.
- Captive Propagation and Genetics Workgroup: discussed possible timeline for needing silvery minnow for Cochiti augmentation and/or next NEP reintroduction effort
- Safe Harbor: began developing a Safe Harbor Agreement for the Rhodes property