

Science and Habitat Restoration Work Group Meeting

April 18, 2017

Meeting Materials:

Meeting Agenda

Meeting Minutes

Draft Performance Work Statement Development of High Through-Put Markers for RGSM [not included]

Draft Performance Work Statement for Evaluation of Paired Spawning and Communal Spawning for RGSM [not included]

Draft Performance Work Statement Habitat Restoration Feature Data Synthesis and Evaluation of Restoration Success to Determine Parameters Under Which Re-Vegetation is Necessary [not included]

Draft Performance Work Statement PIT Tagging and Genetic Characterization of Broodstock [not included]

Draft Performance Work Statement RGSM Spawning Cue and Early Life History [not included]

Draft Performance Work Statement Re-Analyses of Existing Data Collected During Population Monitoring of RGSM, 2009-2016 [not included]

Draft Performance Work Statement Acquire and Evaluate Information from All of the Habitat Restoration Projects that Have Occurred Under the Collaborative Program [not included]

Draft Performance Work Statement Establish a Habitat Monitoring Program for the Sevilleta Site [not included]

Draft Performance Work Statement Evaluation of Techniques Performed at Habitat Restoration Sites [not included]

Draft Performance Work Statement for Identifying Restoration Priorities for Threatened Tamarisk Dominated Habitat to Benefit Future Habitat for SWFL [not included]

**Middle Rio Grande Endangered Species Collaborative Program
Habitat Restoration and Science Joint Workgroup Meeting
April 18, 2017
1:00-3:00 PM
at ISC**

HRW/ScW Agenda

1. Introductions
2. Approval of Agenda
3. Presentation and discussion: 2017 peak flow monitoring - Jeremy Branch, USACE
4. Approval of March meeting notes
5. Announcements
6. Program Updates
7. Action Item Review
8. Discussion/ Action item: Discuss and prioritize FY2018 Project SOWs

Action Items:

- Matt Johnson will email the ScW/HRW co-chairs with the USGS climate change report website links.
- Matt Johnson offered to provide information on which bird species experienced significant impact (“dropped out”) due to tamarisk habitat changes and whether or not they “rebounded” with restoration efforts (for the Virgin River).
- Mick Porter will email a reminder to ScW/HRW members for agency volunteers to review the GIS data tables (populate fields, review for accuracy, etc.). A “focus group” of agency representatives (and/or ScW/HRW members) to review the GIS/geodatabase and discuss restoration site name standardization may be convened.
- Debbie Lee will contact Ann Demint for updates on the DBMS and Program Website needs. Reclamation and the Corps are in the process of determining what options are available.
- Debbie Lee will add the discussion on how all groups will “tie” into the Program to the EC Retreat agenda. The Genetics & Propagation Workgroup will be used as a specific example. *(modified from 02/21/17)*
- Ken Richard will develop examples of his proposed site naming convention and present them to the workgroup at the April meeting.
- ✓ Dana Price will track down the Scopes of Work/RFP documents developed for the previously identified projects. – *completed 03/24/17*
- Mike Marcus will write up a general Scope of Work/project description based on the Tetra Tech report for the Corps that identified potential restoration sites for confirming through groundtruthing. - *completed 4/5/17*

- ✓ Dana Price will work with Kathy Lang, Alison Hutson, and Wade Wilson to develop the Paired Mating Pilot Study Scope of Work document. – *in progress*
- Mike Marcus will develop a Scope of Work for the Population Monitoring Workgroup projects. - *completed*
- Mike Marcus to find the written project description for the Restoration Regrowth Comparative Study (looking at historical vegetation development on sites to determine where active restoration might be needed versus a more passive, natural regeneration could be expected) and provide it to the workgroup. - *completed*
- Draft FY2018 Project Scopes of Work will be circulated to the workgroups by end of this month for feedback before the April 30 deadline. *in progress*
- ✓ Dana Price will poll workgroup members for the April meeting date (proposed for the week of April 10). – *completed*
- Brian Hobbs will send the Genetics Project contract tasks to workgroup members for a review of what is currently being done and what changes have been included. *completed*
- Dana Price will contact Wade Wilson to get clarification on (1) his specific concerns with paired mating and (2) which pieces from the genetics recommendations are being incorporated into the Propagation Plan. *completed*
- Mick Porter will coordinate and schedule a presentation on the Corps' 2017 Inundation Monitoring and Activities for the April meeting. - *completed*

Ongoing Action Items:

- Debbie Lee will discuss the potential for WEST to host the ScW/HRW geo-database/GIS. Contractual and hardware limitations need to be considered. (*continued from 02/21/17*)
- Mick Porter will contact the State Forestry in an attempt to incorporate fire location data into the geo-database/GIS. (*continued from 02/21/17*)
- Mick Porter will contact Paul Tashjian to find the “naming convention” references. (*continued from 02/21/17*)
- Mick Porter will update the geo-database/GIS with the suggested revisions from today's discussion and will distribute the data tables (sites and associated data) to meeting attendees upon completion. (*continued from 02/21/17*)

Next Meeting: May 16, 2017 from 1:00-3:00 PM at ISC (consider postponing to June 20)

**Middle Rio Grande Endangered Species Collaborative Program
Science and Habitat Restoration Joint Meeting**

April 18, 2017

1:00pm to 3:00pm

ISC

Decisions Items:

- The March 2017 ScW/HRW Joint Meeting notes were approved for finalization with no changes.

Action Items:

- Mick Porter will work with Susan Bittick to write up a one or two page handout listing the Corps' projects and estimated costs for 2018. This information will be provided to the EC as some point in the future.
- After May, Mick Porter will revisit soliciting agency volunteers to review the GIS data tables (populate fields, review for accuracy, etc.) and/or convene a "focus group" of agency representatives (and/or ScW/HRW members) to review the GIS/geodatabase and discuss restoration site name standardization may be convened. *(revised from previous)*

Ongoing Action Items:

- Matt Johnson will email the ScW/HRW co-chairs with the USGS climate change report website links. *(continued from 03/21/17)*
- Matt Johnson offered to provide information on which bird species experienced significant impact ("dropped out") due to tamarisk habitat changes and whether or not they "rebounded" with restoration efforts (for the Virgin River). *(continued from 03/21/17)*
- Debbie Lee will contact Ann Demint for updates on the DBMS and Program Website needs. Reclamation and the Corps are in the process of determining what options are available. *(continued from 03/21/17)*
- Ken Richard will develop examples of his proposed site naming convention and present them to the workgroup at ~~the April~~ a future meeting. *(continued and revised from 03/21/17)*
- Debbie Lee will discuss the potential for WEST to host the ScW/HRW geo-database/GIS. Contractual and hardware limitations need to be considered. *(continued from 02/21/17)*
- Mick Porter will contact the State Forestry in an attempt to incorporate fire location data into the geo-database/GIS. *(continued from 02/21/17)*

Recommendations/Requests:

- Attendees made several recommendations for the Corps to consider in their 2017 efforts:
 - Consider expanding the modeling area farther south into Los Lunas or even Reinken Street in Belen;
 - The annual flycatcher surveys include staff gage information from permanent gages related to the "core" flycatcher territories. More staff gages are added when the territories expand. The gage location has a shape file but the actual data values are in an Excel format.
 - Consider coordinating with the Service on the flycatcher surveys to incorporate data from those past efforts and for future collection efforts;
 - BEMP (Bosque Ecological Monitoring Program) has wells with pressure transducers that are ready by GSA;
 - River surface elevation is another feature that would be good to track.
- It was requested that a meeting announcement be sent to the Program, specifically the ScW and HRW workgroups, with the details on the next Confluence Meeting.

Next Meeting: May 16, 2017 from 1:00pm to 3:00pm at ISC

- Attendees briefly considered cancelling the May meeting due to expected field work during spring runoff. However, others would like a report out from the EC Retreat to occur as soon as possible. It was agreed to keep the regularly scheduled May meeting for now.

- Tentative May meeting agenda items: (1) EC Retreat Report Out – implications for workgroups, next steps, etc.; (2) Spring Runoff Updates – flows, overbanking, egg collection, etc.;

Meeting Summary

- Rick Billings brought the meeting to order and introductions were made.
- Jeremy Branch presented on the “*April 2017 Projected Water Operations*” which was an abridgement of the presentation given to the MAT at their April meeting and with a focus on the Corps’ high flow monitoring and inundation mapping work.
 - *Projected 2017 Volumes*
 - The updated April NRCS forecasted volume was run through the hydrology models to predict flow and possible operations along the Rio Grande.
 - The spring runoff is predicted to be good this year. The most probable forecast from NRCS predicts 560,000 ac-ft total volume from April through September. However, the Colorado Water Sources Division (in Alamosa) is expecting closer to 645,000 ac-ft in this time period and they have been more accurate in recent years. If the higher volumes are realized, then the water levels could fall between the 50% (most probable) and 30% (wetter) exceedance probabilities.
 - Flows in 2017 are predicted to be the highest they have been since 2005. Last week, Cochiti flows were at 2,500 cfs but have already increased to 4,200 cfs. And flows could reach as high as 5,000 cfs within the next few weeks.
 - It is assumed that Abiquiu and Cochiti will be in flood control operations for quite a long period (but the duration of flood ops depends on the timing and duration for high flows). The safe channel capacity below Abiquiu Reservoir is 1,800 cfs.
 - Any additional precipitation could extend these timeframes.
 - *Corps’ 2017 Projects and Monitoring*
 - *Los Lunas Bridge:* The Corps is closely watching the Highway 6 bridge in Los Lunas. In previous high-flow years, the levees here reached toe-to-toe during overbanking at 5,000 cfs. But reduction in channel capacity means that the levees are already toe-to-toe at 3,000 cfs.
 - *ERDC Deposition Model:* The Corps’ Engineering Research and Development Center is working on a deposition and degradation model to assist with accurate representations of what is occurring in the river.
 - As part of the ERDC modeling, more staff gages are needed to collect data on water level for different stages of flow – for both restoration sites, infrastructure sites (levees, bridges), and flood management.
 - There are five (5) currently prioritized sites ranging from the oxbow in the north down to the Bosque Farms area.
 - *Aerial Imagery:* there is an effort with the Reservoir Control and GIS folks to get aerial imagery, elevation data, and 3D data for inundation boundaries during high flows. The Civil Air Patrol will also be taking high resolution imaging for certain sites of interest. The contact boundaries between land and water should be easily observed. Several of the sites will also have hydrologic data collected for 2D modeling.
 - The entire length of the river from Cochiti to Elephant Butte is on the “radar” but funds will determine what can be accomplished. Currently, the Albuquerque Reach is the top priority since there are a lot of restoration projects. However, the reduced channel capacity and flood risk may result in Bosque Farms/Los Lunas becoming the higher priority area.
 - There are no current plans to complete in-depth ground work. However, since the vegetation overstory might interfere with the aerial imagery, the Corps team could be on-the-ground in certain locations.
 - *High Flow Channel Monitoring:* The high flow channels at the Rio Grande Nature Center, Route 66 A and Route 66 C are priority projects for sampling, monitoring, cross sections

and profile surveys, flow rates and velocity measurements, etc. Part of the project is to assess changes in channel geomorphology and determine areas where channels are filling in, where they are becoming narrower, etc. The goal is to track changes and try to determine patterns and whether or not the site is moving to or away from an “ideal” species habitat.

- Understanding these changes could lead to improvements with habitat restoration. What is “too much” water for the minnow? What is too fast? What is not enough water? Are more willows needed? How is local sedimentation affecting the minnow? Etc.
- Attendees briefly discussed other 2017 spring efforts.
 - The Corps and SWCA are working on Temperature Degree Day data using 10 years’ worth of hydrology modeling, egg data, and air and water temperatures in an attempt to better understand the complexities of the physical and temporal relationships influencing minnow spawning.
 - For 2016, the estimated peak spawning dates were back calculated along with the associated TDD. The peak spawning occurred between May 15 and May 29.
 - The Corps also has a pilot project to explore the vertical stacking of eggs and larvae within the water column to determine vertical distribution.
 - ISC has two studies planned for this spring. The first is a higher-intensity monitoring for 4 restoration sites in the Albuquerque Reach and includes fish movement on/off the floodplain, evidence of spawning, eggs, and larval fish. This effort will repeat and expound upon the 2016 monitoring efforts. The second is a random sampling of larval fish accomplished by boat (drifting the river) and collecting larval fish at 10 random locations per reach. The intent is to get a better idea of the distribution of larval fish along the channel and in the vegetated and floodplain habitat.
- Attendees briefly discussed permitting needs and process for spring 2017.
- The March 2017 ScW/HRW Joint Meeting notes were approved for finalization with no changes.
- In the announcements, the Corps shared a synopsis of their projects and funding for 2018. Please note that some of these are duplicates of projects discussed in the Corps presentation for 2017.
 - *Literature Reviews*: (1) eDNA for detecting larval fish on the floodplain; and (2) sediment management to produce sand bars.
 - *Population Simulation Model*: is an age-stage structured population model to look at the effect of stage changes on the population. This project through NMSU is focused on simulating the Isleta Reach dynamics (including drying as a reoccurring environmental parameter) and associated minnow response. Once that reach is done, then the model could be replicated for the other reaches.
 - *Egg and Larval Transport Monitoring*: is a pilot study to test techniques and vertical collection.
 - *Depth and Velocity Preference 3D Study*: building on the previous mesohabitat study, plains minnow will be used as a surrogate to see how they select depths and velocities in a raceway, how much time is spent in pools versus run versus other mesohabitats. Results on the fish practices could inform where the minnow are spawning, what adjustments could be made to the population monitoring, etc.
 - *Comprehensive Sampling Methodologies*: the ERDC folks will be looking at barriers for comprehensive sampling methodologies to address size, survival, and catchability issues.
 - *High Resolution 2D Model*: the ERDC folks will also be working on a high resolution 2D model for eggs, larvae, drift, sediment, etc. for the Albuquerque area. The effort will expand on the linkages set up last year.
 - *Isolated Pool Study*: in cooperation with the Service, there will be an intensive intermittency study on isolated pools to better understand pool persistence, depth, water quality, hydrologic flow paths, etc. The intent is to better understand the variability with the “string of pearls” and how the changes (repeated drying and rewetting) stress the fish and impact health and survival.

- *Sediment Transport Model*: Tetra Tech is working on a sediment transport model covering the river from Cochiti to Elephant Butte.
- *Arroyo Sediment Detection System*: the Corps is working with Reclamation and New Mexico Tech to develop a detection system for sediment input from arroyos.
- *Ongoing Monitoring*: the Corps continues to fund some of the flycatcher monitoring, some BEMP monitoring, and some of the USGS gages.
- *Adaptive Management*: GeoSystems Analysis is continuing their work on the adaptive management contract which will eventually be used to update the Adaptive Management Plan.
- A brief Program Update was shared:
 - The EC retreat is scheduled April 26 and 27 at the Sagebrush Inn in Taos. The agenda is still being refined.
 - The CC meets tomorrow to discuss retreat planning and preparations.
- Attendees reviewed the March Action Items. All but six (6) were completed as assigned. Ongoing actions will be carried over as appropriate.
- Contractors were asked to leave the room and the workgroup reviewed the draft scopes of work in a closed session. Please contact a ScW or HRW member for details on this discussion.

Full Meeting Notes

Introductions and Agenda Review: Rick Billings brought the meeting to order and introductions were made. The agenda was approved with the addition of an Army Corps of Engineers (Corps) project synopsis to occur in the Announcements.

2017 High Flow Monitoring and Spring Water Operations for the Corps

- Mr. Jeremy Branch, with the Corps, was introduced. He presented “*April 2017 Projected Water Operations*.” This is an abbreviation of the same presentation given to the Minnow Action Team (MAT) at their April meeting and with a focus on the Corps’ high flow monitoring and inundation mapping work.
 - *Projected 2017 Volumes*
 - The updated April NRCS forecasted volume was run through the hydrology models to predict flow and possible operations along the Rio Grande.
 - The spring runoff is predicted to be good this year. The most probable forecast from NRCS predicts 560,000 ac-ft total volume from April through September. However, the Colorado Water Sources Division (in Alamosa) is expecting closer to 645,000 ac-ft in this time period and they have been more accurate in recent years. If the higher volumes are realized, then the water levels could fall between the 50% (most probable) and 30% (wetter) exceedance probabilities.
 - Flows in 2017 are predicted to be the highest they have been since 2005. Last week, Cochiti releases were at 2,500 cfs but have already increased to 4,200 cfs. And flows could reach as high as 5,000 cfs within the next few weeks. Otowi gage is expected to reach or exceed 4,000 cfs and the Central Gage (Albuquerque) is expected to be above 3,000 cfs for at least 1 month.
 - It is assumed that Abiquiu and Cochiti will be in flood control operations for quite a long period (but the duration of flood ops depends on the timing and duration for high flows). The safe channel capacity below Abiquiu Reservoir is 1,800 cfs.
 - Any additional precipitation could extend these timeframes.
 - *Corps’ 2017 Projects and Monitoring*
 - *Los Lunas Bridge*: The Corps is closely the watching the Highway 6 bridge in Los Lunas. In previous high-flow years, the levees here reached toe-to-toe during overbanking at 5,000 cfs. But reduction in channel capacity means that the levees are already toe-to-toe at 3,000 cfs.

- *ERDC Deposition Model:* The Corps' Engineering Research and Development Center is working on a deposition and degradation model to assist with accurate representations of what is occurring in the river.
 - There are five (5) currently prioritized sites ranging from the oxbow in the north down to the Bosque Farms area.
 - As part of the ERDC modeling, more staff gages are needed to collect data on water level for different stages of flow – for both restoration sites, infrastructure sites (levees, bridges), and flood management.
 - One attendee suggested expanding the modeling area farther south into Los Lunas or even Reinken Street in Belen.
 - Another attendee pointed out that the annual flycatcher surveys include staff gage information. There are permanent gages related to the “core” flycatcher territories but more staff gages are added as the territories expand. The gage location has a shape file but the actual data values are in an Excel format. A coordinated effort with the Service during the flycatcher surveys could provide additional flow level information in the future. The flycatcher surveys usually begin in June. And the past data is available in the annual reports.
 - BEMP (Bosque Ecological Monitoring Program) has wells with pressure transducers that are ready by GSA.
 - River surface elevation is another feature that would be good to track.
- *Aerial Imagery:* there is an effort with the Reservoir Control and GIS folks to get aerial imagery, elevation data, and 3D data for inundation boundaries during high flows. The Civil Air Patrol will also be taking high resolution imaging for certain sites of interest. The contact boundaries between land and water should be easily observed. Several of the sites will also have hydrologic data collected for 2D modeling.
 - The entire length of the river from Cochiti to Elephant Butte is on the “radar” but funds will determine what can be accomplished. Currently, the Albuquerque Reach is the top priority since there are a lot of restoration projects. However, the reduced channel capacity and flood risk may result in Bosque Farms/Los Lunas becoming the higher priority area.
 - There are no current plans to complete in-depth ground work. However, since the vegetation overstory might interfere with the aerial imagery, the Corps team could be on-the-ground in certain locations.
- *High Flow Channel Monitoring:* The high flow channels at the Rio Grande Nature Center, Route 66 A and Route 66 C are priority projects for sampling, monitoring, cross sections and profile surveys, flow rates and velocity measurements, etc. Part of the project is to assess changes in channel geomorphology and determine areas where channels are filling in and are becoming narrower, etc. The goal is to track changes and try to determine patterns and whether or not the site is moving to or away from an “ideal” species habitat. The project could be expanded to include other sites.
 - Understanding these changes could lead to improvements with habitat restoration. What is “too much” water for the minnow? What is too fast? What is not enough water? Are more willows needed? How is local sedimentation affecting the minnow? Etc.
 - Different channels were designed to flow at different rates. The purpose and success of each site depends on location, connectivity to the river, restoration features, etc.
 - Attendees briefly discussed how habitat (and restoration sites specifically) can change over time. There could be benefit to allow a site to “transition” from minnow habitat to flycatcher habitat instead of investing time/energy/effort to dredging out channels to maintain the minnow habitat indefinitely.

- However, it can be easier to maintain a site instead of constructing a new one.
- Ideally, restoration sites would be able to address habitat needs for both species (minnow and flycatcher, willow seedlings, etc.). This is accomplished more easily in wet years when overbanking can back up into the bosque.
- Habitat can take 5 years to mature for the flycatcher – it is not instantly gratifying. But anything that supports the ecosystem as a whole and simulates the historical processes with a meandering and dynamic river is a huge benefit.
- *Questions*
 - In response to a question on any field mapping this year, it was shared that there may be some ground-truthing because the overstory could interfere with the aerial imagery work. GSA isn't planning on ground work so it will be up to the Corps' team.
 - In response to a question on how often the elevation data needs to be updated (given the geomorphological changes the river experiences), it was shared that the Corps does some of their channel surveys every year. But LiDAR is only updated every few years for the main stem. Reclamation completes range line surveys (from Cochiti to Elephant Butte) every 10 years. Sometimes elevation data is gathered for specific projects.
 - In response to a question on the spring spawn, it was shared that no eggs have been observed yet. The water appears to be too cold still. There are plans for contractors to begin systematic egg surveys in early May.
 - Attendees briefly discussed that some restoration sites are nicely inundated now. Although it makes them harder to access.

Projected Spawning Dates and Temperature Degree Days

- Justin Reale provided a brief explanation of the analysis that the Corps and SWCA are working on to better understand the complexities of the physical and temporal relationships influencing minnow spawning.
- Using 10 years' worth of hydrology modeling, egg data, and air and water temperatures, there is an attempt to calculate the Temperature Degree Days (TDD) and back-calculate the estimated peak spawning and hatching dates.
 - The Platania egg data is being used in these estimates and calculations. The cumulative sum of mean temperature is added and compared to the histogram of egg and larval fish data to arrive at hatch dates. For 2016, the bulk of eggs hatched between May 15 and May 29.
 - Hopefully this analysis will provide a better understanding of spawning response to peak flows in terms of TDD and allow for more accurate projection of spawning dates in subsequent years.
 - The analysis basically uses a temperature regression model and length of larvae to estimate spawning and hatch dates. However, it only considers a single year – 2016. This means that the data is “noisy” with only one year of larval data. And there is no confidence that the first spawns are being accurately “caught” (sampled) in any of the reaches.
 - The researchers would like to: (1) begin examining the daily rings on the otoliths to validate and/or refine the regression model and thus get to more reliable spawn dates; and (2) to develop better field techniques for egg detection in the Albuquerque Reach because the flow is generally higher (i.e. deeper) and eggs may be distributed throughout a column of water. Eggs located deeper in the water could be missed during sampling.

Other 2017 Spring Efforts

- As previously mentioned, the Corps is working on the Projected Spawning Dates/TDD analysis and the pilot project to explore the vertical stacking of eggs and larvae within the water column to determine vertical distribution.
- Because higher flows are likely to be sustained for a significant amount of time, agencies (ex. ISC, COA, the Corps, Reclamation) will be completing monitoring work at specific sites.

- ISC has two studies planned for this spring. The first is a higher-intensity monitoring for 4 restoration sites in the Albuquerque Reach and includes fish movement on/off the floodplain, evidence of spawning, eggs, and larval fish. This effort will repeat and expand upon the 2016 monitoring efforts. The second is a random sampling of larval fish accomplished by boat (drifting the river) and collecting larval fish at 10 random locations per reach. The intent is to get a better idea of the distribution of larval fish along the channel and in the vegetated and floodplain habitat.
- Many agencies are hoping that there will be a lot of data and information documented this year during the high flow opportunities.
- Attendees briefly discussed permitting this year. The BO consultation partners (Reclamation, MRGCD, ISC, BIA) are essentially permitted through the 21016 BO – they have to provide documentation on the work but have a “fast track” avenue.
 - Contractors for these agencies have to make sure their people in the field are permitted and they have the take assignment in case of mortality or harassment during their work.
 - This is the first year under the Reclamation’s new BO so there are still many questions and no protocols or precedents yet.
 - It was shared that the Service’s Ecological Services (ES) office is working on protocols for the minnow and determining how the activities of the four (4) BO partners might be covered under the BO. The specifics of that coordination haven’t been described in the BO so there are components that need to be outlined/determined/etc. The accounting for take is based on the fish density in the fall.
 - The Los Lunas Silvery Minnow Refugium (LLSMR) has all their fish permitting for the facility through the Service but their river collection permit is through the NM Department of Game and Fish.
 - There are many contracts and associated permitting needs for handling and sampling the minnow:
 - UNM – genetic work, fin clipping, etc.;
 - ASIR – population monitoring sampling and surveying;
 - SWCA – for ISC, overbanking and habitat monitoring;
 - Corps – habitat monitoring;
 - ABCWUA – contracted with SWCA as well to do egg monitoring work;
 - BioPark - egg monitoring and collection.
 - The Service itself also does monitoring and sampling, salvage and rescue, augmentation and propagation activities, etc.
 - The workgroups were updated that the Service has a new permit specialist so there could be some impacts associated with the transition.

Approval of March 2017 Meeting Notes

- The March 2017 ScW/HRW Joint Meeting notes were approved for finalization with no changes.

Announcements

- The Corps shared a synopsis of their projects and funding for 2018 with a rough funding estimate of several million dollars. Please note that some of these are duplicates of projects discussed in the Corps presentation for 2017. Although this information is presented in the Corps’ annual brochure, it was requested that a one or two page handout listing the Corps’ projects and estimated costs for 2018 be developed and provided to the EC as some point in the future.
 - *Literature Reviews:* (1) eDNA for detecting larval fish on the floodplain and possible applications; and (2) sediment management to produce sand bars.
 - Some of the Corps’ district offices work on the Missouri River and they have some techniques for creating sand bars with the surplus of sediment. There is interest in determining if these techniques are applicable here for creation of habitat features. This literature review is expected in September 2017.
 - *Population Simulation Model:* this is an age-stage structured population model to look at the effect of stage changes on the population. This project through NMSU (Dr. David Cowley and Mr. Michael Hatch) is focused on simulating the Isleta Reach dynamics (including drying as a

reoccurring environmental parameter) and associated minnow response. Once that reach is done, then the model could be replicated for the other reaches.

- This team was involved with the Adaptive Management minnow workshop technical panel and they will be attempting to address some of the issues raised in that discussion.
 - There is a lot of work to be done in terms of ageing the fish and confirming that we are collecting representative age classes (ex. sampling issues), understanding reach-specific survival, etc.
- *Egg and Larval Transport Monitoring*: is a pilot study to test techniques and gathering information on the possible vertical distribution of eggs and larvae in the water column. The high water levels may interfere with this study this year.
 - *Depth and Velocity Preference 3D Study*: building on the previous mesohabitat study, plains minnow will be used as a surrogate to see how they select depths and velocities in a raceway and how much time is spent in pools versus run versus other mesohabitats. Results on the fish practices could inform where the minnow are spawning, what adjustments could be made to the population monitoring, etc.
 - *Comprehensive Sampling Methodologies*: the ERDC folks will be looking at barriers for comprehensive sampling methodologies to address size, survival, and catchability issues. Small portions of the river will be sampled to determine what fish are in that particular area. This project will help support calibration of the monitoring and will provide information on the size, survival, age structure, of the minnows sampled.
 - *High Resolution 2D Model*: the ERDC folks will also be working on a high resolution 2D model for eggs, larvae, drift, sediment, etc. for the Albuquerque area. The effort will expand on the linkages set up last year.
 - *Isolated Pool Study*: in cooperation with the Service, there will be an intensive intermittency study on isolated pools to better understand pool persistence, depth, water quality, hydrologic flow paths, etc. The intent is to better understand the variability with the “string of pearls” and how the changes (repeated drying and rewetting) stress the fish and impact health and survival. This study will incorporate the pool data collected last year throughout the season and additional data will be collected this year. Understanding the basic characteristics of the pools and the associated stresses could inform salvage and rescue operations.
 - *Sediment Transport Model*: Tetra Tech is working on a sediment transport model covering the river from Cochiti to Elephant Butte. The finished product is expected by the end of the year.
 - *Arroyo Sediment Detection System*: the Corps is working with Reclamation and New Mexico Tech to develop a detection system for sediment input from arroyos.
 - *Ongoing Monitoring*: the Corps continues to fund some of the flycatcher monitoring, some BEMP monitoring, and some of the USGS gages.
 - *Adaptive Management*: GeoSystems Analysis is continuing their work on the adaptive management contract which will eventually be used to update the Adaptive Management Plan.

Program Updates

- The EC retreat is scheduled April 26 and 27 at the Sagebrush Inn in Taos. The agenda is still being refined.
- The CC meets tomorrow to discuss retreat planning and preparations.
- After a brief period shut down, the Program’s Database Management System (DBMS) is currently accessible again. Documents can be accessed and the calendar is updated, but no new documents can be uploaded. Reclamation and the Corps are exploring options.

Action Item Review

- Matt Johnson will email the ScW/HRW co-chairs with the USGS climate change report website links. – *ongoing*;

- Matt Johnson offered to provide information on which bird species experienced significant impact (“dropped out”) due to tamarisk habitat changes and whether or not they “rebounded” with restoration efforts (for the Virgin River). – *ongoing*;
- ✓ Mick Porter will email a reminder to ScW/HRW members for agency volunteers to review the GIS data tables (populate fields, review for accuracy, etc.). A “focus group” of agency representatives (and/or ScW/HRW members) to review the GIS/geodatabase and discuss restoration site name standardization may be convened. – *completed*;
 - Only one response has been received. This action will be revised and revisited after the spring activity.
- Debbie Lee will contact Ann Demint for updates on the DBMS and Program Website needs. Reclamation and the Corps are in the process of determining what options are available. – *ongoing*;
- ✓ Debbie Lee will add the discussion on how all groups will “tie” into the Program to the EC Retreat agenda. The Genetics & Propagation Workgroup will be used as a specific example. (*modified from 02/21/17*) . – *completed*;
- Ken Richard will develop examples of his proposed site naming convention and present them to the workgroup at the April meeting. – *ongoing*;
 - Mike Marcus shared that Habitat Restoration Plan for the Middle Rio Grande report (completed by Tetra Tech EM Inc., 2004) contains information on both the reach naming convention (by Paul Tashjian) and the HR committee’s naming of restoration features.
 - (*Note: the official citation for this work is: Habitat Restoration Plan for the Middle Rio Grande. Final Report for the Middle Rio Grande Endangered Species Act Collaborative Program. Albuquerque, NM.*)
- ✓ Dana Price will track down the Scopes of Work/RFP documents developed for the previously identified projects. – *completed 03/24/17*
- ✓ Mike Marcus will write up a general Scope of Work/project description based on the Tetra Tech report for the Corps that identified potential restoration sites for confirming through groundtruthing. – *completed*;
- ✓ Dana Price will work with Kathy Lang, Alison Hutson, and Wade Wilson to develop the Paired Mating Pilot Study Scope of Work document. – *in progress; to be discussed today*
- ✓ Mike Marcus will develop a Scope of Work for the Population Monitoring Workgroup projects. – *completed; to be discussed today*
- ✓ Mike Marcus to find the written project description for the Restoration Regrowth Comparative Study (looking at historical vegetation development on sites to determine where active restoration might be needed versus a more passive, natural regeneration could be expected) and provide it to the workgroup. – *completed*;
- Draft FY2018 Project Scopes of Work will be circulated to the workgroups by end of this month for feedback before the April 30 deadline. – *in progress; to be reviewed and discussed at today’s meeting*;
- ✓ Dana Price will poll workgroup members for the April meeting date (proposed for the week of April 10). – *completed*;
- ✓ Brian Hobbs will send the Genetics Project contract tasks to workgroup members for a review of what is currently being done and what changes have been included. – *completed*;
- ✓ Dana Price will contact Wade Wilson to get clarification on (1) his specific concerns with paired mating and (2) which pieces from the genetics recommendations are being incorporated into the Propagation Plan. – *completed*;
- ✓ Mick Porter will coordinate and schedule a presentation on the Corps’ 2017 Inundation Monitoring and Activities for the April meeting. – *completed*;
- Debbie Lee will discuss the potential for WEST to host the ScW/HRW geo-database/GIS. Contractual and hardware limitations need to be considered. (*continued from 02/21/17*) – *ongoing*;

- Mick Porter will contact the State Forestry in an attempt to incorporate fire location data into the geo-database/GIS. *(continued from 02/21/17) – ongoing;*
- ✓ Mick Porter will contact Paul Tashjian to find the “naming convention” references. *(continued from 02/21/17) – completed;*
 - The naming convention from Paul Tashjian and the HRW restoration features naming convention are all referenced in the 2004 report (see details above).
- ✓ Mick Porter will update the geo-database/GIS with the suggested revisions from today’s discussion and will distribute the data tables (sites and associated data) to meeting attendees upon completion. *(continued from 02/21/17) – completed;*

FY2018 Projects and Scope of Works (SOWs)

- FY2018 project proposals have to be entered into the Reclamation acquisition plan spreadsheet by April 30. At a minimum, the proposals should include a project title, short description, and funding need estimate.
- At the March meeting, several members were tasked with developing draft project proposals. These draft project proposals will be reviewed by the workgroups today.
- Contractors were asked to leave the room to avoid potential disclosure of any detailed information that might lead to an unfair bidding advantage. Workgroup review of the draft scopes of work was conducted in closed session.
- Please contact a ScW or HRW member for details on this discussion.

Next Meeting: May 16, 2017 from 1:00pm to 3:00pm at ISC

- Attendees briefly considered cancelling the May meeting due to expected field work during spring runoff. However, others would like a report out from the EC Retreat to occur as soon as possible. It was agreed to keep the regularly scheduled May meeting for now.
- Tentative May meeting agenda items: (1) EC Retreat Report Out – implications for workgroups, next steps, etc.; (2) Spring Runoff Updates – flows, overbanking, egg collection, etc.;
- Potential Future Agenda Items: (1) after April, workgroup to develop a catalog and timelines (make the queue) for future projects and work; (2) Overview of Tetra Tech identified restoration sites in need of groundtruthing – Mike Marcus;

Science and Habitat Restoration Joint Meeting April 18, 2017 Meeting Attendees

	NAME	AFFILIATION	PHONE NUMBER	EMAIL ADDRESS	Primary, Alternate, Other
1	Dana Price	Corps	505-342-3378	dana.m.price@usace.army.mil	P – ScW Co-Chair
2	Rick Billings	ABCWUA	505-259-0535	rbillings@abcwua.org	P – HRW Co-Chair
3	Grace Haggerty	ISC	505-383-4042	grace.haggerty@state.nm.us	P - HRW
4	Alison Hutson	ISC/LLSMR	505-841-5201	alison.hutson@state.nm.us	P - ScW
5	Michael Porter	Corps	505-342-3264	michael.d.porter@usace.arm.mil	A - ScW
6	Justin Reale	Corps	505-342-3138	justin.k.reale@usace.army.mil	A - HRW
7	Jeremy Branch	Corps	---	jeremy.Branch@usace.army.mil	O
8	Malia Volke	NMDGF	505-476-8160	malia.volke@state.nm.us	P - ScW
9	Vicki Ryan	FWS	505-761-4738	vicky_ryan@fws.gov	A – ScW/HRW

10	Yasmeen Najmi	MRGCD	505-247-0234	yasmeen@mrgcd.us	P - HRW
11	Mike Marcus	For APA	505-379-6891	mdmenv@gmail.com	P - ScW
12	Ondrea Hummel	Tetra Tech	505-881-3188 xt 124	ondrea.hummel@tetrattech.com	O
13	Jean-Luc Cartron	DBS&A	977-7716	jcartron@dbstephens.com	O
14	Marta Wood	Alliant Env.	505-259-6098	mwood@alliantenv.com	O – note taker