Executive Committee Meeting

January 20, 2011

Meeting Materials:

Meeting Agenda

Meeting Minutes

Coordination Committee and Program Manager Update

Status of Los Lunas Silvery Minnow Refugium [presentation]

Rio Grande Silvery Minnow Augmentation Program [presentation]

Middle Rio Grande Endangered Species Collaborative Program
EXECUTIVE COMMITTEE
MEETING AGENDA
January 20, 2011
9:00 am – 3:00 pm

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

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

2. **APPROVAL OF SEPTEMBER 16, 2010 MEETING SUMMARY*** *10 minutes*

3. **APPROVAL OF NOVEMBER 18, 2010 MEETING SUMMARY*** *10 minutes*

4. **ITEMS FOR EXECUTIVE COMMITTEE CONSIDERATION** *20 minutes*
   - **A. Funding Process during Continuing Resolution**
   - **B. Revised FY2011 Planning Spreadsheet***

5. **ITEMS FOR EXECUTIVE COMMITTEE DECISION** *10 minutes*
   - **A. Use of Program Funding for Meeting Facilitation**

6. **10:00 am - USGS WEBINAR "Mapping Available Habitat for the Endangered RGSM" (Big Bend National Park area)*** *45 minutes*

BREAK

7. **USFWS RGSM AUGMENTATION PROGRAM UPDATE (J. Remshardt)** *30 minutes*
   - **A. Decision making process**
   - **B. RGSM Propagation and Genetics Workgroup**
     - **a. Roles and Function**
     - **b. Meeting Schedule**

8. **ISC UPDATE ON LOS LUNAS REFUGIUM* (G. Haggerty)** *15 minutes*

9. **USFWS UPDATE** *15 minutes*

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

11. **PHVA/Hydrology Update** *10 minutes*

WORKING LUNCH

12. **USFWS TRAINING on Endangered Species Act, Administrative Procedures Act and Analytical Framework for Consultations (J. Bachus)** *90 minutes*

13. **COORDINATION COMMITTEE/PROGRAM MANAGER REPORT** *30 minutes*
    - **A. Program Cost Share Report (through FY10)***
    - **B. LTP Update**

Members

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

C. **Adaptive Management Plan Development Revised Schedule***
D. **Contract Update**
    a. **Passive Integrated Transponder (PIT) Tag Study**
    b. **Operation &Maintenance of Propagation Facilities**
    c. **RGSM Spawning Study**
    d. **Upcoming Requests for Proposals**
E. **Workgroup Update**

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

15. **PUBLIC COMMENT** *10 minutes*

16. **NEXT SCHEDULED EC MEETING – February 17, 2011**

BREAK

17. **CLOSED SESSION – EC MEMBERS ONLY**
    A. **Contracts Discussion**

Denotes read ahead material provided for this topic

Middle Rio Grande Endangered Species Collaborative Program
Executive Committee Meeting
January 20th, 2011 9:00 am to 3:00 pm
Bureau of Reclamation, Albuquerque Area Office
555 Broadway Blvd. NE
Albuquerque, NM 87102

Decisions

- With quorum present, the EC approved the September 16th and November 18th 2010 meeting summaries for finalization with no changes.

Requests

- It was requested that Jason Remshardt provide an update to include any plans forward and a meeting summary on the Propagation and Genetics Work Group following the March 8th meeting.
- It was requested that someone from the Service please contact Aimee Roberson to request that the Program be acknowledged in recent and future presentations for all the contributions the Program has made to the Alpine, TX Office. This request was also applied to the USGS Webinar.
- It was requested that the EC be updated on the October 2010 Water Action that occurred between Reclamation, MRGCD, and the Water Utility Authority. Due to staff timing, this report out will be scheduled for the April 2011 EC meeting.

Announcements

- There will be a meeting for the San Acacia Diversion Dam Fish Passage Peer Review Phase I on January 26th from 8:00am to 12:00pm at MRGCD; the CC meeting will directly follow.
- The Propagation and Genetics Workgroup meets twice a year; the next meeting is scheduled for March 8th, 2011.
- Copies of today's presentations and presentation materials will be made available on the Program website; an email of availability will be sent once the materials have been posted.
- The Science work group is in need of a new co-chair since Jeanne Dye has to step down in order to focus on the consultation team and BA submittal; the EC expressed many thanks to Jeanne for her contributions to the ScW workgroup.
- The next PHVA/Hydrology meeting is scheduled for Monday, January 24th from 1:00pm to 4:00pm at Reclamation; the next PVA/Biology meeting is scheduled for Friday, January 28th from 8:30am to 4:00pm at Reclamation.
- The Draft Phase I Fish Passage Peer Review Report can be found at: www.middleriogrande.com under Library > San Acacia Fish Passage > Draft Peer Review Documents.
- Bob Jenks is no longer with NMDGF; Brian Gleadle is NMDGF's alternate and will be temporarily participating on the EC until their director issues other assignments.

Actions

- Tetra Tech will update the EC signatory attendance sheet to reflect Brian Gleadle temporarily replacing Bob Jenks as the NMDGF representative.
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- Grace Haggerty will research the actual time it takes from the submittal of an ISC Los Lunas Silvery Minnow Refugium Phase Report to when the official approval is received.

Next EC Meeting: February 17th, 2011 from 9:00am to 1:00pm at Reclamation.

- Tentative Future Agenda Items: (1) the possibility of Bernalillo County as an HCP; (2) suggested discussion on the conflicts between the current BiOp and Recovery Plan objective numbers; (3) salt cedar beetle presentation;
- March Agenda Items: (1) Update from the March 8th Propagation and Genetics Work Group meeting (J. Remshardt);
- April Agenda Items: (1) after action analysis of MRGCD, Reclamation, and ABCWUA October 2010 change in water operations.

January 20th, 2011 Meeting Summary

- **Introductions and Agenda Approval:** Brent Rhees brought the meeting to order and introductions were made around the room. The meeting agenda was reviewed and approved with no changes. The extended meeting agenda for today is due in part to the cancelled December meeting. For Item #5 (*Use of Program Funding for Facilitation)*, Reese Fullerton volunteered to excuse himself during this portion of the meeting in order to promote an open atmosphere for discussion; this topic will likely be continued in the Closed Session. Everyone was wished a Happy New Year and high expectations for this coming year were expressed.
- **Approval of the September 16th and November 18th Meeting Summaries:** After explaining that the September 16th Closed Session Meeting summary had been through stages of review to ensure more accurate content, the September 16th, 2010 EC meeting summary was approved for finalization with no additional changes. After clarifying that the BA/BO Update section of the November 18th meeting summary was not attributed to the Service and was actually discussed between Service Agenda Items, the November 18th, 2010 EC meeting summary was approved for finalization with no changes.
- **Items for Executive Committee Considerations**

  A. Funding Process During Continuing Resolution

  - Federal agencies are under Continuing Resolution (CR) through March 4th, 2011 at which time the expectation is that a budget will be in place or Congress will extend the Continuing Resolution indefinitely. For Reclamation, Continuing Resolution means that 43% of the FY10 funding can be expended. Reclamation can enter into contracts and move forward on projects as long as the total funds spent do not exceed the 43% cap. This will probably mean contract modifications will be needed later in the year. At this time, there are no expected delays or significant impacts to the Program.

  B. Revised FY11 Planning Spreadsheet

  - The FY11 Planning Spreadsheet has been updated with recent CC recommendations. The white line items are projects currently recommended for funding by the CC and consist of the ongoing (a.k.a. off-the-top) activities with immediate needs and open contracts; grey line items are for EC discussion and decision today; and orange line items are projects identified by the work groups that were reviewed and prioritized by the CC.
    - The use of Program funds for facilitation is one item that the EC will need to approve. The estimate was calculated based on monthly EC meetings, PVA meetings every other month, and then some

additional joint work group meetings averaged over 12 months. Facilitation was agreed to at the 2009 EC Retreat. Facilitation is considered a technical support item and will not be considered administrative. Reese Fullerton's time had been provided as cost share but he is no longer with the State so the Program will have supply the funds in order to have continued facilitation services.

- The first CC prioritized work group project is the independent peer review for genetics at an estimated cost of $100,000. The second prioritized project is the silvery minnow studies – should the Phase I peer review indicate need. There is no funding for the orange line items at this time, but should funding become available these are the top 2 projects to be initiated.

- **Items for Executive Committee Decision**
  - ***A. Use of Program Funding for Meeting Facilitation***
    - As mentioned above, Reese Fullerton is retired from the state. He was able to attend today's meeting through a small agreement with GenQuest. However, in order to continue the technical facilitation support the EC will have to approve Program funding through the administrative ID/IQ contract with GenQuest. The total estimate of $32,000 was calculated based on monthly EC meetings, day and a half meetings for the PVA every other month, and several additional joint meetings for a 12 month period. This amount is considered on the high end.
    - Concern was expressed that using the administrative contract results in overhead fees and "extraneous" costs. Some participants expressed the desire to hire Reese directly to avoid these extra costs, but it was explained that (1) Reclamation cannot sole source directly to Reese and it is extremely difficult to justify a specific person for facilitation when there are many facilitator options available; (2) the GenQuest hourly rate was very reasonable compared to other facilitation services (i.e., $120 compared to $150 or $200); and (3) the cost estimate includes pre-meeting preparation, meeting attendance, and time transfer of the flip charts to electronic format.
    - Suggestions for resolution included: (1) having a differential rate depending on the amount of services provided by the contractor or (2) request a reduced overhead rate (some EC members expressed the desire to know what that overhead is).
    - Further discussion on this topic was tabled until the Closed Session to follow the regular business.

- **USGS Webinar – Mapping Available Habitat for the Endangered Minnow (Big Bend National Park Area)**
  - *Highlights of this webinar are found below; for details, please refer to the actual presentation materials to be posted on the website.*
  - Bruce Moring and Daniel Pearson, both with the USGS Texas Water Science Center in Houston, presented a 1 hour webinar on their mapping of silvery minnow habitat at different river flow levels in the Big Bend National Park. This is the first of two presentations. Today's presentation focused on the project background and rationale with an emphasis on the approach and methods. The second presentation is expected in about a year from now and will report on the findings and results of this 3 year project.

- The mapping project objectives include: (1) determine the areas of inundation (wetted perimeter) and physical characteristics of riverine habitats over a range of flows that are important for various life stages of the minnow and (2) characterize the fish assemblage in the riverine habitats and determine how the assemblage varies in composition and distribution between low to within-bank river flows.
    - The selected river flows for mapping included: (1) winter to spring low-flow target = 200-400 cfs; (2) within-bank high pulse (bank full) = 1500-3000 cfs; and (3) overbank flooding flow = using the fall 2008 event. The within-bank was the most elusive to try to contain for the length of the study.
    - Examples of the mesohabitats used in this study include: backwaters, forewaters, glides, embayments, rapids, riffles, runs, pools, isolated pools, channel bars, and point bars.
    - Habitats were characterized on the mesohabitat scale and were then mapped using a high-performance GPS receiver in conjunction with high-resolution remotely sensing imagery at the different flows to create detailed reach maps at each targeted flow. The water's edge was mapped on both banks to create the "boundary" for each of the 4 release sites. Next, each mesohabitat was mapped by delineating its perimeter with the GPS receiver mounted in a boat or in a backpack by wading. The mesohabitat boundaries were edited and stored on a filed laptop as geo-referenced polygons using ArcGIS.
    - Seine hauls and electrofishing were used to include fish identification and counts in the data collection at each of the mesohabitat at each site.
    - The next steps are to classify the over-bank flooding habitat using the 2008 aerial imagery and to validate the preliminary results with field verification.
    - There is a Service press release that can be found at: https://www.nps.gov/bibe/parknews/rio-grande-silvery-minnow-release.htm
    - The Texas Water Science home page is: https://tx.usgs.gov

- **USFWS Minnow Augmentation Program Update**
    - *Highlights of this presentation are found below; for details, please refer to the actual presentation materials to be posted on the website.*
    - Jason Remshardt presented on the Silvery Minnow Augmentation Program. The Augmentation Plan started officially in 2001 with a focus on the Albuquerque Reach. Between 2002-2007 over 1 million minnows were released to the Middle Rio Grande (MRG).
        - The first 5 to 6 years of the program were concentrated on developing the stocking techniques, testing release methods, testing transportation methods, testing the timing of releases (day or night; different seasons), and testing the release of different ages of fish.
        - The Augmentation Plan was then revised in 2007 using the data and information collected over the previous 5 years. One significant change was to include demand (i.e., how many fish might be needed for a given year) in the planning process. The data indicated that stocking was beneficial when there was a low population density (< 1 fish/100 m^2).
        - In order to determine the effectiveness of the Augmentation Program and to see how the density of the wild population maintains, there has not been any stocking in the Albuquerque Reach since 2008; 2010 was Year 3 of the 5 year evaluation (2008-2012). Stocking continues in the Isleta and San Acacia reaches as needed for sites where population monitoring indicates a low density. Population monitoring continues in the Albuquerque Reach and

should the density drop below the low threshold of <0.1 fish/100 m^2 before 2012, the augmentation would be reinitiated immediately.
    - In 2008 the population density of the Albuquerque Reach was 4.56 fish/100 m^2; in 2009 it was 7.8 fish/ m^2; and in 2010 it was 0.35 fish/ m^2.
    - The Albuquerque Reach was selected as the "control" for the augmentation evaluation because it was the primary stocking location with the most fish; the lower reaches were not stocked regularly prior to 2005.
- Population forecasts in January of each year are used to estimate the number of fish expected to be needed for stocking that year – this is done to inform the hatcheries on how many fish need to be produced. The January numbers are rough estimates based on the previous year's stocking and are refined with information from July/August; the final targets are taken from the November numbers. For FY11, the current estimate is 138,000 fish needed.
    - Some EC members expressed interest in having the relationship of available quality habitat and the possible impacts of the drinking water diversion be considered in the evaluation.
- A new possible marking technique is being explored. Using the isotope signature of strontium, females are marked prior to spawning. The specific strontium signature is passed to the progeny in the boney-structure and allows individuals to be tracked through their lifespan. This has great possibility to inform how the stocking program is working, where stock fish end up, what habitat they use, tracking habitat connectivity, etc.
- The Augmentation Program is a part of the Propagation and Genetics Work group that meets bi-annually. The next meeting is scheduled for March 8th, 2011.
- To support the Big Bend reintroductions and stocking and the MRG stocking, the various hatcheries are producing between 600,000 and 700,000 fish per year. While the MRG is the priority, at this time, even with the reduced capacity at the BioPark and the quarantine at Dexter there has not been a request for more fish than can be produced; this means there is no concern on the supply at this time. A worst case for the MRG is 250,000 fish needed but the highest ever needed is this year at 135,000.

- **ISC Update on Los Lunas Refugium**
    - *Highlights of this presentation are found below; for details, please refer to the actual presentation materials to be posted on the website.*
    - Grace Haggerty presented an update on the Los Lunas Silvery Minnow Refugium (LLSMR). ISC committed to building and operating one of the two 'naturalized refugiums' called for in the March 2003 BiOp RPA element AA; the BioPark is the other naturalized facility. State funds were used to build the facility in Los Lunas and construction was completed in March 2008.
    - A 3 year permit to operate the facility was obtained from the Service in early 2009. The facility is currently undergoing 3 phases of testing.
        - Phase I tested the 3 indoor hatchery systems and initial test of the outdoor system. Phase II and III were for the outdoor refugium system. To date, the Service has approved all but Phase III, which was completed and the report submitted in late November 2010. Either an amendment or new permit is required to move beyond the Phase III study to holding and managing silvery minnow.

- There are many benefits to "naturalized refugiums." The designs are unique and are intended to reduce domestication (ex. fish aren't fed; there are "stream velocities" for the fish to swim against; there is some exposure to predators) and thus produce a captive-bred fish that has better chance of surviving to reproduce after being stocked in the wild.
- The LLSMR currently has a lot of native plant growth along the ~450 feet of stream. There is numerous variable mesohabitats and the facility is able to simulate flooding. The system is recirculating. There is a groundwater well that supplies the outdoor facility and municipal water is used for the indoor hatchery. The water rights for this well are being leased.
    - Since 2009, the facility has been testing the 3 indoor recirculating systems and the outdoor refugium. In all phases, the facility has successfully passed and even surpassed the criteria. Everyone involved has been pleased with the results. The Service has approved Phase I and II; Phase III approval is pending.
- Pending the acceptance of a permit amendment, ISC would like to move forward with the Spawning and Recruitment study. A sonic video camera has been purchased to observe fish movement. In addition, the facility would like to culture 25,000 minnow in 2011 and up to 50,000 minnow in 2012.
- In the question and answer session, the Service shared that the Phase III report is in the internal Service review process and a response could be expected in as early as 2 weeks. The regional office makes the official approval decision.
- It was asked if the Minnow Sanctuary or the BioPark will have to or had to go through a similar phased approval process. The Minnow Sanctuary is still undergoing operational testing but it is unknown how the BioPark permitting was handled since they already had some permitting in place. The actual lag time between submittal of a phase report and the approval was not known.
- It is thought that the full amount for the Spawning and Recruitment Study was set aside to cover the option years.

- **USFWS Update:** For the minnow, Lori Robertson reported updates on the river drying, salvage efforts, population monitoring, and reintroduction work updates.
    - There were 25.5 miles of unique dry river during the 2010 irrigation season – 17 miles in the San Acacia Reach and 8.5 miles in the Isleta Reach. The NM Conservation Office performed salvaged operations for 42 days (between June 28th and October 17th). In total, 9,672 minnow were salvaged and released alive upstream in the same reach. Total incidental take was 98 for the entire season.
    - The minnow catch rate was down in October - 1.13 minnow/100m^2 - which is down 14x from the previous year (16.2 minnow/100m^2). The Service hosted an information-sharing meeting between biologists and hydrologists in December. Eight agencies were represented. The population monitoring data, egg collection data, habitat restoration site work, and RiverEyes data was all reviewed. The Corps and Reclamation reported on the hydrograph this year. It was a successful meeting in that data was shared in an open manner. It was concluded that the cause for the minnow population decline is undetermined.
    - In an update on the reintroduction work, it was shared that Mark Brennan is preparing for formal government to government consultation with the 3 puebloes in the Cochiti Reach. He has been informally communicating with Santo Domingo and Santa Ana staff on minnow habitat issues. He is training in the developing Safe Harbor Agreements (SHA) and is working on a SHA with a private land owner in the San Acacia Reach (the Rhodes property). Mark has also researched all the historic

information between pueblos and the Service on critical habitat designations and the habitat plans submitted as part of the exemptions. He is continuing to review the hydrology and geomorphology that exists for the Cochiti Reach. The Service has submitted a proposal to expand the monitoring in Big Bend under an available recovery grant.

- In response to a question regarding the known efficacy of the salvage operations and survivorship, it was shared that with the change of protocol in 2007 any fish that are deemed weak, stressed, or sick are not even attempted in the salvage operations. Only fish with a high potential to survive are salvaged. So there is an assumed high success rate. There is some take experienced during transport during the salvage that is assigned to Dr. Tuggle's regional permit. It is unknown if any fish not salvaged could be counted as take.

- **USACE Update:** At end of the 4th quarter in FY10, the Corps provided funding to Reclamation for the high intensive monitoring. The Program had decided that there were not enough funds to cover the "intensive" monitoring for the minnow. A 5-year Interagency Agreement (IA) was created between the Corps and Reclamation to do this monitoring. The Corps has provided $528,000 into the IA to help with the monitoring of HR projects. By using the Corps' money – which is not cost-shared – to cover the monitoring, it frees up $300,000 that can now be applied to the white line-item projects. This was agreed to at the last CC meeting.

- **PHVA/Hydrology Update:** The PHVA/Hydrology work group will be meeting on Monday, January 24th; an update will be provided at the February EC meeting. There are no diversions to date from the San Juan/Chama diversion. ABCWUA has approximately 96,400 ac-ft and MRGCD has 21,203 ac-ft stored in Heron. The storage in Abiquiu is close to maximum (only 3,125 ac-ft remaining). Elephant Butte and Caballo are in Article VII. Both P&P and residual relinquished water can be stored in El Vado but the Article VII restrictions preclude storage of native water in El Vado. The allocations are based on the January streamflow forecast. Compared to 2002 and the average, the Rio Grande Basin is tracking just at or slightly above normal. The situation is looking more positive compared to the November forecast. However the irrigation districts are predicting a very difficult year. *Please refer to the "bucket" diagram and handout for specific details on reservoir levels and storage.*

  - The Rio Grande Compact Commission meeting is scheduled for March 30th in Albuquerque; the specific location is yet to be determined.

- **USFWS TRAINING on Endangered Species Act, Administrative Procedures Act and Analytical Framework for Consultations**
  - *Highlights of this presentation are found below; for details, please refer to the actual presentation materials to be posted on the website. The path to the larger presentation given at the December 15th training is: Events>Training*
  - Jennifer Bachus (FWS) presented a condensed version of the ½ day information session/training that was given to the consultation team and any interested Program members on December 15th, 2010. The intent of this presentation is to provide a refresher and to make sure everyone has access to the key background information pertaining to the consultation.
  - Four main topics were covered: (1) ESA Section 7 Consultation; (2) Information Standards – origins; (3) Administrative Procedure Act (APA) – the requirements of federal agencies and how those relate to what happens in a consultation; and (4) the analytical framework tool for consultations - what it entails and what goes into a jeopardy or no jeopardy conclusion.

- *ESA Section 7 and Consultation*: prohibits negative impacts to the species.
  - "Take" doesn't just refer to death but any incidental or intentional harm. There are several exemption processes available for known actions. Research permits are covered under Section 10(a)(1)(A).
  - Section 10(a)(1)(B) is the Habitat Conservation Plan (HCP) for actions that have no federal nexus for state actions.
  - The 2003 Biological Opinion (BO) is a Section 7 consultation.
  - Under Section 7, exemptions for take have to meet 4 criteria: (1) there is a conclusion that the action will not cause jeopardy; (2) no adverse modifications will occur; (3) the action is lawful; and (4) any harm will not be done on purpose.
  - Reasonable and Prudent Activities (RPA) alleviates the jeopardy or adverse modifications.
  - A consultation options diagram was presented. Using the if/then questions of the "flow chart", whether an action needs a formal consultation or not can be determined. For example, if there are no listed to a federal action then there is no effect so this action only requires documentation. If there are listed resources present, but take will not occur, than only an informal consultation with a concurrence letter from the Service is required. If there are listed resources present and take will occur, then a formal consultation is required.
  - The Service provides technical assistance in the case of a formal consultation.
    - The action agency(s) submits a Biological Assessment (BA) or BE to the service. The action agency requests exemption from take. Within 30 days, the Service has to review the BA (or BE) to determine completeness and request additional information if necessary. There is a total of 135 days to complete a formal consultation; this can be extended to ensure that everything is adequately covered but it takes a mutual agreement. The Service then issues a BO that provides a conclusion on incidental take.
    - Any BO issued by the Service (or National Fisheries) must contain a description of the proposed action; a description of the action area; the status of the species (and critical habitat) range-wide and not just for the area; environmental baseline – or the effects of past federal and non-federal activities in the action area up until the time of consultation including any concluded consultations that are ongoing into the future; effects of the action and the expected affects on the species including cumulative effects; future non-federal action(s) that are reasonably expected to occur; integration/conclusion; and an incidental take statement.
    - If jeopardy or adverse modification is concluded, the Service cannot exempt take until alleviated. The Service ultimately determines what is adequate as an RPA.
    - The incidental take statement is based on the Service's analysis in the BO. It is non-discretionary.
    - Conservation Recommendations (CR) are suggestions from the Service that are included in the BO document. They are suggested ideas how agencies can meet the 7.a.1.

responsibilities, how to minimize affects, how to implement plans, etc.

- With every BO there is a section with 4 standard triggers that if any of which are met will trigger a reinitiation: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action not considered in the BO; (3) the action is modified resulting in an effect not covered in the BO; or (4) a new species or critical habitat is listed.

- *Information Standards*
  - Information Standards have been put in place to ensure the quality of the biological, ecological, and any other information that is used by the Service. *Please refer to the actual presentation for Information Standards details.*

- *Administrative Procedures Act (APA)*
  - First enacted in 1946 and amended numerous times since then, the APA sets up a process for judicial review of federal agency actions and decisions.
  - One key phrase in the APA language is "arbitrary and capricious." For a BO, "arbitrary and capricious" means that the Service relied on factors that Congress did not intend to consider, failed to consider an important aspect of the issues, offered an explanation for conclusion that runs counter to the evidence, or is so implausible that it could not be ascribed to a difference in view or product of expertise, or simply failed to articulate satisfactory reasons. Therefore BOs must have an administrative record; premises must be justified, warranted, and/or believable. Determinations must be based on and consider all relevant information and have an argument that is cogent or valid.
  - The administrative documentation includes decisional records, communications records, etc. The Service retains documents and materials ranging from policies, guidelines, to communications of emails, phone calls, etc.

- *Analytical Framework for Section 7 Consultation*
  - The analytical framework is not a required, regulatory process but was developed as conceptual approach to a step-wise process for consultations. It is an approach that can be used and is particularly helpful for large, complex consultations. It focuses on jeopardy conclusions.
  - The "Chevron" Standard is a precedent through case law that gives deference to the Service for decisions made under Section 7. Procedure can still be challenged so the administrative process must be properly documented.
  - The "Benefit of Doubt to the Species" is derived from the Congressional record. During consultation, the Benefit of Doubt approach states that the "absence of evidence is NOT evidence of absence." In other words, "no effect" cannot just be assumed. There is also Type I versus Type II error. Scientific research is to avoid Type 1 error - which is avoiding false positives (i.e., to say there is an effect when there isn't one). This means the avoidance of saying there is any kind of effect unless there is direct evidence; this errs on side of saying "no affect". However, the Service has to avoid Type II error or avoid false negatives. This means the Service has to avoid saying no effect when there is an effect. In other words, there is a requirement for evidence of no effect. Based on these two different approaches, it is possible to have different conclusions based on the same scientific information.
  - There are 9 steps in the analytical framework from the action identification to a conclusion:
    - Step 1: Identify the Action;
    - Step 2: Deconstruct the Action;

        - Step 3: Identify the Action Area;
        - Step 4: Assess species' exposure – in situations of insufficient information service can determine best and worse case scenarios to determine range;
        - Step 5: Assess species' response – a continuum from no response to mortality with survival and death as the end conditions of the range of responses
        - Step 6: Assess the risk to individuals;
        - Step 7: Assess the risk to populations – steps 5, 6 and 7 establish the environmental baseline;
        - Step 8: Assess the risk to the species – given the expected responses, what is the risk to the individuals and translated to the population and then to the species; steps 7 and 8 diagnose the status of the species and assesses cumulative affects;
        - Step 9: make "jeopardy" determination – once steps 1-8 have been conducted, Service biologists draft recommendations to Service managers and decision-makers. Jeopardy is an action that reasonably would be expected either directly or indirectly to reduce appreciably the likelihood of both survival and recovery of a listed species in the wild by reducing the reproduction (ex. reduced birth rates, reduced reproduction lifespan, altered sex rations, etc), numbers (ex. dead individuals), or distribution (ex. reduced population or sub-population, shift in geographic distribution with reduced resource quality, etc).
        - This step-wise approach to determinations is a process for (1) transparent process; (2) evaluation of relevant information and explaining its use in the decision process; and (3) articulating well-reasoned logical argument behind the conclusions.
    - It was shared that this framework or something similar will be used for the upcoming consultation. The approach will depend on the available information and would have to be tailored appropriately.
    - EC members discussed the linkage between the Biological Opinion and the Recovery Plan(s) and the criteria/standards that are established in the Recovery Plan. Concerns were expressed by some members about the scientific basis for the numbers and the fact that the numbers are rounded (ex. Big Bend self-sustaining population of 500,000 or flow of 100 cfs). Some members questioned what the "real" numbers might be – 93 cfs? An actual difference of 7 or 8 cfs might make a significant difference. Some members expressed concern that the numbers seem arbitrary (ex. why not 19 out of 20 sites?). Some members also expressed concern that there is conflicting numbers between the BO and the Recovery Plan and they recommended continued discussions in the future. In response, it was explained that the recovery objections were developed over a long period of time with a team. The jeopardy standard cannot appreciably reduce the survival and/or recovery of the species. Actions that would impede recovery cannot be taken.
    - It was also explained that the environmental baseline captures the current activities on the river – including those that are not necessarily controlled by those active in the Program. Similarly, this BO will be included in future baselines.

- **Coordination Committee/Program Manager's Report:** Due to time constraints, it was agreed that only the highlights of the Program Manager's and Coordination Committee report would be discussed. Attendees were encouraged to read the full documents provided as read aheads.

- ***Program Cost Share Report (through FY10):*** Agencies have been asked to provide reports on their non-federal cost share contributions. To date, the total amount provided is within $225,000 of the requirement. It was noted that cost share contributions can be carried forward. ISC was acknowledged and thanked as the largest contributor but attendees were reminded that ISC's portion is expected to decrease over the next few years.
- ***LTP Update:*** The next phase of the LTP development is editing of the CC reviewed future activity summaries by GenQuest. The CC continues drafting, reviewing, and editing LTP narratives; another working meeting is expected to be scheduled soon. The target completion remains the end of March 2011.
- ***Announcements:*** There is a San Acacia Diversion Dam Fish Passage Peer Review Phase I report out for review and a meeting with the contractor on January 26th from 8:00am to 12:00pm at MRGCD; the CC meeting will follow directly. *NOTE: The CC meeting was subsequently cancelled; the next CC meeting is scheduled for February 9th.* Any preliminary or informal comments are due to Kathy Dickinson by tomorrow (01/21/11). (*The deadline for written agency comments was extended to February 9, 2011.)*
  - The technical work groups are being asked to self-nominate up to 5 members to participate in the technical working sessions of the Adaptive Management Plan Development sessions scheduled for February 1st, 2nd, and 3rd. The purpose is to ensure there is a good cross-section of Program participation; it is assumed that the work group participation is not "rigid" at 5 representatives.
  - There are pending task orders with GenQuest for Program administrative support and facilitation.
  - The PHVA/Hydrology work group is scheduled to meet on Monday January 24th at Reclamation; and the PVA/Biology work group is scheduled to meet all day on Friday January 28th at Reclamation.
- ***Annual report:*** The PMT has been reviewing the draft annual report and will soon provide their feedback to GenQuest.
- ***Work group Updates:*** Jeanne Dye will be stepping down from the ScW co-chair position until the BA is submitted - she is the Reclamation lead on the consultation team. The work group will need a replacement. Yvette Paroz will be attending ScW as Reclamation's representative but she cannot fill the co-chair position. The EC thanked Jeanne for her contributions and hard work. The HRW still needs a federal co-chair as well.

- **Other Business/Announcements:**
  - The Draft Phase I Fish Passage Peer Review Report can be found at: under Library > San Acacia Fish Passage > Draft Peer Review Documents
  - Bob Jenks is no longer with NMDGF; Brian Gleadle is NMDGF's alternate and will be temporarily participating on the EC until their director issues other assignments.
- **Contracting update**: The PIT Tag Study Annual Report is available; comments are due on January 28th (this is an extension from the 18th). The O&M of propagation facilities are all due for modifications for additional funds. The LLSMR RGSM Spawning Study is set to expire at end of next month (February). There are no new upcoming requests for proposals at this time.

- **Public Comment:** There was no public comment.
- **Next Meeting: February 17th, 2011 from 9:00am to 1:00pm at Reclamation**
    - Potential future agenda items:
        - February/March/April 2011: (1) salt cedar beetle presentations postponed until February or March 2011; (2) After Action report for MRGCD, Reclamation, and ABCWUA October 2010 change in water operations for March or April 2011
- **Closed Session**: The EC met in closed session directly following the regular business. Please contact an EC representative for details.

Executive Committee (EC) Meeting Attendees
January 20th, 2011, 9:00 am to 3:00 pm

Attendees:

Representative	*Organization*	*Seat*
Brent Rhees (P)	Dept. of the Interior	Federal co-chair, non-voting
Estevan López (P)	NM Interstate Stream Commission	ISC
Lisa Croft (P)	Bureau of Reclamation	Bureau of Reclamation
LeAnn Summer (A)	U.S. Army Corps of Engineers	USACE
Brian Gleadle (A)	NM Department of Game and Fish	NMDGF
Janet Jarratt (P)	Assessment Payers Association Of the MRGCD	APA
Rick Billings (A)	ABCWUA	ABCWUA
Matt Schmader (P)	City of Albuquerque	COA
Steve Farris (P)	NMAGO	NMAGO
Ann Watson (P)	Pueblo of Santo Domingo	Santo Domingo
Nathan Schroeder (A)	Pueblo of Santa Ana	Santa Ana
Frank Chavez (P)	Pueblo of Sandia	Sandia
Hilary Brinegar (P)	NM Department of Agriculture	NMDA

Others

Yvette McKenna – PM	Bureau of Reclamation
Mike Hamman	Bureau of Reclamation
Terina Perez	Bureau of Reclamation
Jeanne Dye	Bureau of Reclamation
Jericho Lewis	Bureau of Reclamation
Susan Bittick	U.S. Army Corps of Engineers
William DeRagon	U.S. Army Corps of Engineers
Lori Robertson	U.S. Fish and Wildlife Service
Jen Bachus	U.S. Fish and Wildlife Service
Stacey Kopitsch	U.S. Fish and Wildlife Service
Jim Brooks	U.S. Fish and Wildlife Service
Jason Remshardt	U.S. Fish and Wildlife Service
Thomas Archdeacon	U.S. Fish and Wildlife Service
Christopher Shaw	NM Interstate Stream Commission
Grace Haggerty	NM Interstate Stream Commission
Amy Louise	NM Interstate Stream Commission
Rolf Schmidt-Petersen	NM Interstate Stream Commission
Alan Hatch	Pueblo of Santa Ana
Brooke Wyman	MRGCD
Ann Moore	NMAGO
Matt Zidovsky	Congressman Heinrich's Office
Joe Jojola	BIA
Robert Hall	DOI Solicitor's Office
Reese Fullerton	---
Marta Wood	Tetra Tech

Coordination Committee and Program Manager Update
Middle Rio Grande Endangered Species Collaborative Program
Executive Committee Meeting
January 20, 2011

Announcements

The contractor who performed **Phase I of the Peer Review for the San Acacia Fish Passage Project** will be presenting their process and results on Wednesday, January 26, 2011 from 8:00 am to 12:00 pm in the Board Room of the Middle Rio Grande Conservancy District (MRGCD), located at 1931 Second St. SW, Albuquerque, NM. This meeting will provide you with an opportunity to ask the reviewers questions and discuss any concerns you may have with the draft report, and there will be an additional comment period after the presentation.

The **Adaptive Management (AM) Planning** contractor, ESSA, has suggested that the Science (ScW), Habitat Restoration (HR), and Population Viability Analysis (PVA)/Biology workgroups each self-select up to five members to participate in the upcoming technical working session scheduled for February 1-2, 2011. The half-day session on February 3 will be open to any participants interested in attending. Follow up issues will be addressed on April 5-7 and an AM Plan Workshop is scheduled for May 18-19.

Coordination Committee

Program Cost Share Report

On January 12, the CC was updated on the cost share as currently reported, and the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) reported for FY09 and FY10. All participating non-federal agencies were reminded that based on the state's budget forecast, the New Mexico Interstate Stream Commission (ISC) would not be able to contribute what they have in the past. Therefore, it is imperative that all non-federal signatories report cost share for all the years they have been participating in the Program.

Revised Long Term Plan Development

On December 8, the CC was given an update of the LTP development and approved the next phase of GenQuest's tasks to begin editing of CC-reviewed future activity summaries as they are concurrently revisited by the CC. The CC has also been drafting, reviewing and editing activity narratives for inclusion in the LTP.

CC meetings

The CC held a working meeting on December 8, 2010 and discussed the 2nd year of the Gear Evaluation activity, Floodplain Encroachment, HRW and previous EC HR reach prioritizations, and Southwestern willow flycatcher (SWFL) only habitat restoration. The formatting of the "FY11 Planning Budget Spreadsheet" table was approved with a heading change to reflect the change in prioritizations.

At the January 12, 2011 meeting, the CC continued working on clarifying the FY11 activities spreadsheet for planning projects. Further clarification of HR priorities was requested by the CC and the HR non-federal co-chair will inform the HRW that they are to prepare a brief synopsis of how the HRW decided on their reach prioritizations. Upon review of the FY2011 Budget Planning Spreadsheet: the ScW 2nd year Gear Evaluation was approved as a Criteria 2 project; the draft Criteria 1 projects, Draft Criteria 2 projects, and the 9 CC prioritized workgroup recommended projects were approved to be presented to the EC. The CC is recommending that an estimated $3.58M worth of ongoing projects be funded in FY11 (contingent on availability of federal funds) and has prioritized approximately $3.16M worth of proposed projects in the event that additional funding is available.

Approval of the line item "Program Meeting Facilitation" in the FY2011 Budget Planning Spreadsheet will be elevated to the EC. The federal government is in continuing resolution until March 4, 2011 and cannot exceed approximately 43% of FY10 spending amounts.

The next CC meeting is scheduled for January 26 from 1:00 – 4:00 pm at the MRGCD board room and will include discussions on the CC charter, 2010 accomplishments, 2011 work plans, the draft funding process flowchart, a FEMA floodplain encroachment presentation, the adaptive management schedule, development of scopes of work (SOWs), the HRW reach prioritizations, and term and election of non-federal CC co-chair.

Program Management Team

The PMT continues to meet frequently to follow up on action items from the CC and the EC, and to discuss and implement improvements to the Program.

The PMT liaisons [Monika Mann for the Database Management System (DBMS) ad hoc workgroup and the HRW, Amy Louise for the and the Species Water Management (SWM) workgroup, Stacey Kopitsch for the ScW and PVA/Biology ad hoc workgroup, and Terina Perez for the Population Habitat Viability Assessment (PHVA)/Hydrology, the Monitoring Plan Team (MPT), and San Acacia Reach (SAR) ad hoc workgroup] coordinated the prioritization of future activities, and drafting of 2010 accomplishments and 2011 work plans with their respective workgroups. The PMT reviewed and commented on draft submittals of the 2008 and 2009 annual reports including the report cover, the draft text, tables of past activities, and an abbreviated mock-up the annual report.

Jericho Lewis and Yvette McKenna provided two draft task orders to GenQuest staff for future Program support work related Program administrative support and meeting facilitation. Diana Herrera continues to work on: Program cost share updates, expenditure reports, water leasing obligations; and FY2012 and FY2013 Program budgets. The contract term for Jenae Maestas, GenQuest, expired on December 31, 2010. Edward McCorkindale, Lisa Freitas, and Amy Lahti, GenQuest, and Rachelle Schluep, Christine Sanchez and Marta Wood, Tetra Tech, continue to assist the Program in the revised LTP development, annual report preparation, meeting support and summaries, and other critical areas.

Habitat Restoration Workgroup

The HRW met with ScW and MPT at a joint workgroup meeting on December 14, 2010 where discussion of cross pollination of objectives between workgroups was discussed. A brief LTP overview, PVA topics and low flow habitat recruitment were major topics. As a result, a smaller team of workgroup members will be developing a SOW to put out as a Request for Proposal (RFP) to address common monitoring and research needs.

The HRW also met on January 18 where HR SOWs were discussed and the status of the Entrapment Alleviation Project was presented. Other items discussed included Peer Review of the San Acacia A&R and direction of the workgroup. The group continues to work on scopes and plans to have representation for the Adaptive Management Planning Session in February.

The next HRW meeting will be held on February 15 at 1:00 pm at ISC.

Monitoring Plan Team ad hoc Workgroup

A joint MPT/ScW/HR meeting was held on December 14. The focus on the meeting was primarily to discuss the objectives and desired outcomes of the high intensity portion of Habitat Restoration Effectiveness Monitoring. The workgroups determined that a focus on more specific questions related to how Rio Grande silvery minnow (RGSM) use restored or improved habitat will better meet the Program's needs than general monitoring, which is satisfied by the low intensity SOW. Subsequent to the meeting, the co-chairs and a small group of volunteers developed a draft generalized RFP for a project focusing on comparing the difference between rearing habitat provided on HR sites and the main channel for larval RGSM (to be funded in FY11). The draft SOW will be completed and available for review by the end of January. The workgroup plans to discuss this as well as the plan for this year's low intensity monitoring with the CC in early February.

An updated version of the 2010 Effectiveness Monitoring Report was distributed to the workgroup for review. The report will be completed by February, and the workgroup plans to present the results at the February 9 CC meeting.

The Pilot Habitat Restoration Effectiveness Monitoring Plan Report prepared by Intermountain Aquatics, Inc. was distributed to the MPT workgroup in September 2010. This report, in addition to the results of the aforementioned monitoring will later be incorporated into an Effectiveness Monitoring Plan.

The draft 2011 Annual Work Plan and 2010 Workgroup Accomplishments have been prepared and were distributed to the workgroup for review.

The next regularly scheduled MPT meeting will be on February 15 at 11:00 am at the ISC.

Science Workgroup

Prior to having a joint ScW/MPT/HRW meeting on December 14, the ScW members met briefly to conduct some standard workgroup business. A presentation was given by ISC staff on the status of the Los Lunas Silvery Minnow Refugium, including an update on the three trials conducted under their current Endangered Species Act (ESA) permit. The workgroup also discussed the status of the Fish Community Sampling Methodology Evaluation study and recommended funding it for an additional year.

The ScW also held a regular meeting on January 18. The group was given an update on the RGSM PIT Tag study which will continue this year with additional fish tagged and released. Proposed alternatives to hatchery spawning methods were also presented by a ScW member. Follow up to this discussion will occur at the next Captive Propagation and Genetics Work Group meeting in March. The ScW also discussed moving ahead with developing SOWs for potential FY11 projects.

The next regularly scheduled ScW meeting will be held February 15 at 9:00 am at the ISC.

Species Water Management Workgroup

The SWM workgroup met on December 1, 2010 and January 5, 2011 and discussed 2010 Workgroup Accomplishments, the 2011 Work Plan and the *USGS Groundwater/Surface Water-Transect* project. The Workgroup Accomplishments and Work Plan were approved by the attendees.

The SWM workgroup recommends the *Groundwater/Surface Water – Transects* project continue for a year; however, SWM would like to pursue an RFP. SWM is still waiting on two reports from USGS that were supposed to be submitted months ago. After receiving and reviewing the reports, a decision will be made whether to continue the project.

The *Recruitment Overbank Flows* activity summary will no longer be a potential LTP activity summary. This activity will be dealt with by the U.S. Army Corps of Engineers (USACE) on a year-to-year basis. Until a joint workgroup meeting can discuss the SWFL activity, this summary is on hold. The *Decision Tree Hydrologic Conditions* activity summary will be sent to the adaptive management contractors, so it will no longer be a potential LTP activity summary for SWM. The *Application of Rio Grande Riparian Groundwater Models to Support the Program and Water Operations Assessments* and *Use FLO-2D Modeling tools to estimate frequency and extent of overbank inundation* are currently being revised.

The next SWM meeting is scheduled for February 2 at BIA from 10:00 am – 12:00 pm.

San Acacia Reach ad hoc Workgroup

A Floodplain Encroachment study was identified by the workgroup as the funding priority for FY11, and in December the workgroup submitted a clarification letter in response to questions raised by the CC regarding the intent of the proposed project. The purpose of this project is to assess the risks and explore possible land use scenarios at varying levels of encroachment. Anything that further threatens the ability to move water, restricts or redirects the flow has great potential for damage. There are also several issues in this reach that could compound the situation: sediment, sediment plugs, the railroad bridge, levees, etc.

The general steps of the project would include: (1) information gathering (who owns what); (2) analysis of recent hydrology work (FEMA, USACE's levee project, Reclamation's FLO2D work) for a sense of the flooding "characteristics" in this reach (ex. directional flow, where the constraints are now in terms of overbanking, and potential locations where building would restrict releases even more); (3) land use scenarios: (a) if encroachment remains at the same level now (minimal), determine the impacts on water management (minnow flows, flood flows, etc.) and impacts on the species; (b) if encroachment increased to moderate (ex. 20%); and finally (c) the potential impacts of extreme encroachment. The intent is a risk assessment for the impacts of floodplain encroachment on the ecosystem, water deliveries, etc. The SAR workgroup would like the Program to consider the value of the project especially since this work is critical to SAR being able to make sufficient progress toward their objectives within the 2 year term limit. The workgroup would consider a phased approach if there is a possibility of getting the project on the ground. Susan Bittick is in the process trying to determine if USACE could assist in funding a portion of the project.

The workgroup also began working on the development of a series of White Papers intended to identify the concerns of different agencies/entities involved in resource management issues within the reach. The papers will consider the current ability to sustain the reach from an ecological, economic and cultural perspective, and will examine each entity's current authorizations and strategies to address these issues. Based on feedback from the 2009 SAR workshop, several categories were chosen, including agricultural sustainability, land use and zoning, the Low Flow Conveyance Channel (LFCC) and Levee system, sediment transport, habitat restoration, and adjudications/water rights. This project was originally identified as a priority for funding in FY11, but the workgroup decided to do it themselves so that the funding allocated to it ($5,000) could be applied to the Floodplain Encroachment study to increase the chances of it being funded this year.

Beginning in December, Terina Perez became the new PMT liaison for the workgroup. The next regularly scheduled SAR meeting will be on January 27 at 12:30 pm at Reclamation.

Population Viability Analysis (PVA)/Biology ad hoc Workgroup

The PVA/Biology workgroup met for a full day on December 6 and a half day on December 7, during which both modelers presented on the status of their models. Other topics of discussion included integration of the PVA and

URGWOM models, observed climate cycle data, the development of a habitat inventory project, the relationship between the PVAs and adaptive management, and outstanding data needs.

The workgroup will meet for a full day on January 28 at Reclamation and then again on March 28, at which time PVA model output from both models using a pre-ESA water management scenario should be available. The PVA workgroup is also anticipating a presentation to the EC on preliminary model results at the April 21 EC meeting.

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

The workgroup will put together a short (1 hour) PHVA/Hydrology refresher presentation in order to facilitate understanding of the URGWOM model and process. The refresher will be presented during a regular PHVA meeting. The URGWOM model run results were presented by sequence for the pre-ESA water management run and the 2003 Biological Opinion (BiOp) with all flow tools. A summary highlighting the key points will be prepared in February.

The next PHVA meeting is scheduled for Monday, January 24 from 1:00 – 4:00 pm at Reclamation. Discussion items will include a summary of the model results, the PVA's letter of needs, and the USACE update on their consultation schedule.

Database Management System ad hoc Workgroup

The DBMS workgroup met on December 13 to discuss finishing up the Needs Assessment efforts as well as following up on various action items. General clarification has been raised up to the PMT on a few topics such as data management and updates in the data base.

The DBMS workgroup also met on January 10 to discuss finishing up the Needs Assessment efforts as well as following up on various action items. The next milestone for the workgroup will be the Data Standardization scheduled for April 2011.

The next DBMS meeting is February 14 from 1:00 - 2:30 pm at USACE where action items and next steps from the last meeting will be discussed.

Public Information and Outreach Workgroup

The next regularly scheduled PIO meeting will be on January 20 from 9:00 – 11:00 am at Reclamation where they will discuss: 1000 Acres Restored Event planning; an update from the November 4 SAR field trip; and potential upcoming work (i.e. new Biological Assessment media announcements, press releases, and SAR workgroup needs).

Status of
Los Lunas Silvery Minnow Refugium

presented to MRGESCP EXECUTIVE COMMITEE

January 20, 2011

Office of the State Engineer

nm

Interstate Stream Commission

LLSMR History

- New Mexico Interstate Stream Commission committed to building and operating one of the two 'naturalized refugiums' called for in the March 2003 BiOp RPA element AA.
- Groundbreaking for Los Lunas Silvery Minnow Refugium was May 2007. State funds used to build.
- Construction completed in March 2008; facility tested w/o fish
- Refugium Managers:Alison Hutson, PhD and Douglas Tave, PhD
- Federal + state funds provide operation and maintenance.

USFWS Permit

- USFWS permit #TE-169770-3 was obtained in early 2009.
  - LLSMR fish rearing systems must be tested in phased approach.
  - Phase I tested the 3 indoor hatchery systems and initial test of outdoor system.
  - Phase II and III were for the outdoor refugium system.
  - Amendment or new permit required to move beyond Phase III study to hold and manage silvery minnow.
- To date USFWS has approved all but Phase III, which was completed and report submitted in late November 2010.

Benefits of new 'refugium' facilities

- Naturalized refugiums or conservation hatcheries are designed to reduce domestication and thus produce a captive-bred fish that has better chance of surviving to reproduce after being stocked in the wild.
- Three facilities built since 2000 for RGSM have features that are nearer to the RGSM natural environment: Biopark Naturalized Refugium, Los Lunas Silvery Minnow Refugium, Minnow Sanctuary
- Los Lunas facility is a constructed as a stream that flows past pools and banklines. Flooding of the pools and banks are possible to simulate spring runoff. Various habitats exist within the outdoor facility.

Results for the Indoor Hatchery

- Three indoor recirculating systems (A, B, Aquaria)
- All systems had one-month duration survival trials
- 60% survival deemed successful
  - A: 96% survival
  - B: 98% survival
  - Aquaria: 95% survival

USFWS approved Phase I

Results for the Outdoor Refugium

Phase I Study– Hapa Study

60% survival = success

100 fish placed in 2 hapas (50 per hapa) for 1 month period.

Result

99% survival (99 fish)

USFWS approved report

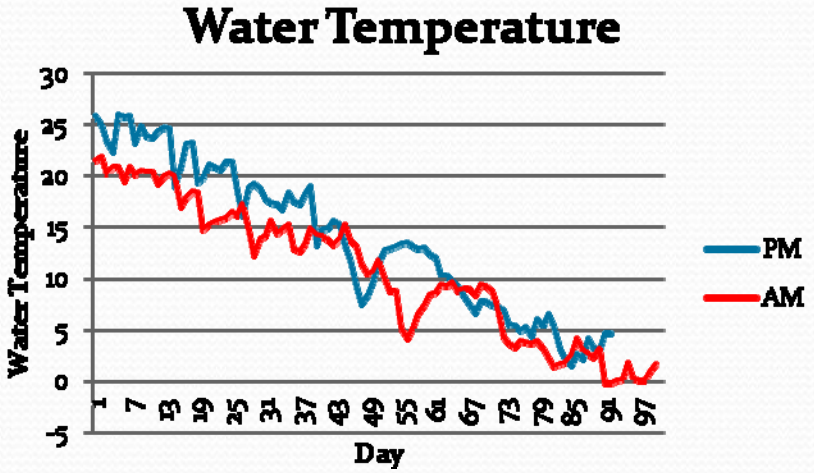
Outdoor Refugium - Phase II Study

- Survival and growth assessed on approximately 1000 minnow stocked in September through December 2009.
- 40% survival + growth = success
  - 68.2% survival on harvest
  - 61.4% survival post-harvest
- Harvest lengths and weights not statistically different from those at stocking. This is likely due to cold temperatures and combined year classes.
- Phase II study was approved by USFWS

Phase II Results

Stocking	Mean	Standard Deviation	Maximum	Minimum
Standard Length (mm)	43.87	13.7	75.40	20.00
Weight (g)	2.00	2.23	10.09	0.15
1 Month Sampling				
Standard Length (mm)	44.68	4.21	55.00	36.00
Weight (g)	1.34	0.38	2.32	0.49
Harvest				
Standard Length (mm)	46.73	9.07	85.00	33.00
Weight (g)	1.81	1.50	9.67	0.51

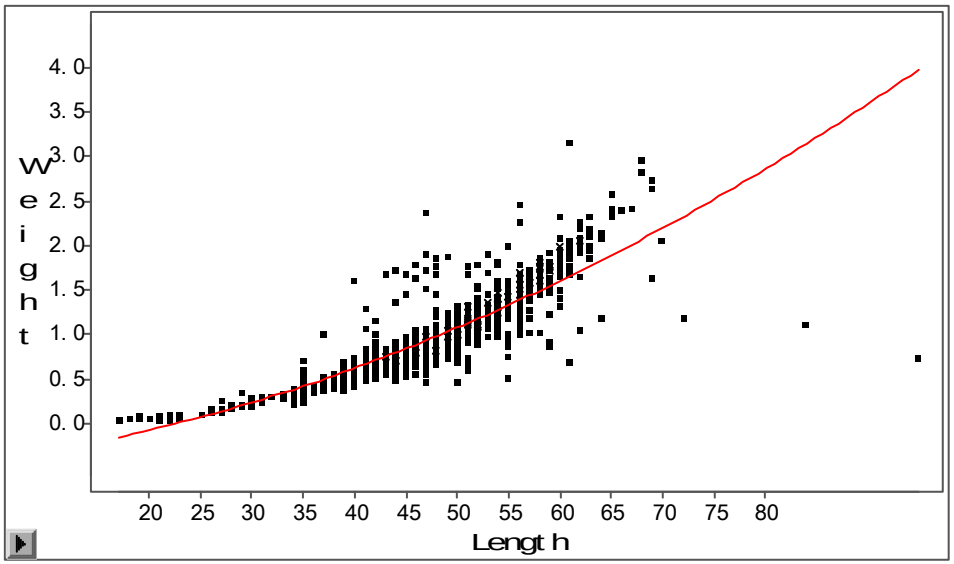
Water temperature from 9/2/2009 (day 1) to 12/13/2009 (day 101) in the outdoor refugium.



Outdoor Refugium - Phase III Study

- Survival and growth were assessed on 10,000 fish from June to October, 2010.
- Monitoring of fish growth and water quality was performed during the test period.
- 20% survival = success; 35% survival = high success
- Survival was 58.9% over the 4 month period
- USFWS stocked fish in MRG after harvest and tagging.
- Phase III results were reported to USFWS on November 23, 2010. Awaiting comments and/or approval.

Phase III Results: Growth Curve



The curvilinear regression growth curve from stocking to harvest of fish raised in Phase III. Length (mm) is TL and weight is in grams.

Phase III Results: Growth

Sampling Time	Mean Total Length (mm)	Standard Deviation	Mean Weight (g)	Standard Deviation
Stocking	21.74^{E}	1.54	0.10^{E}	0.01
July 22	30.80^{D}	3.62	0.28^{D}	0.09
Aug 23	41.98^{C}	3.73	0.72^{C}	0.20
Sep 22	46.35^{B}	4.96	0.93^{B}	0.31
Harvest	48.98^{A}	5.25	1.12^{A}	0.37

Duncan Grouping (Different Letters are Significantly Different P = 0.05)

Mean lengths and weights and standard deviations of the fish at stocking, at the three monthly samples and at harvest. Means followed by a different letter were significantly different (P = 0.05).

Future Proposed Plans Pending Permit Amendment Acceptance

- Conduct Spawning and Recruitment Study under contract to Collaborative Program
  - See next slide for summary
- In 2011, Culture 25,000 fish at facility
- In 2012, Culture up to 50,000 fish at facility
- Conduct studies and research for Collaborative Program and USFWS as needed

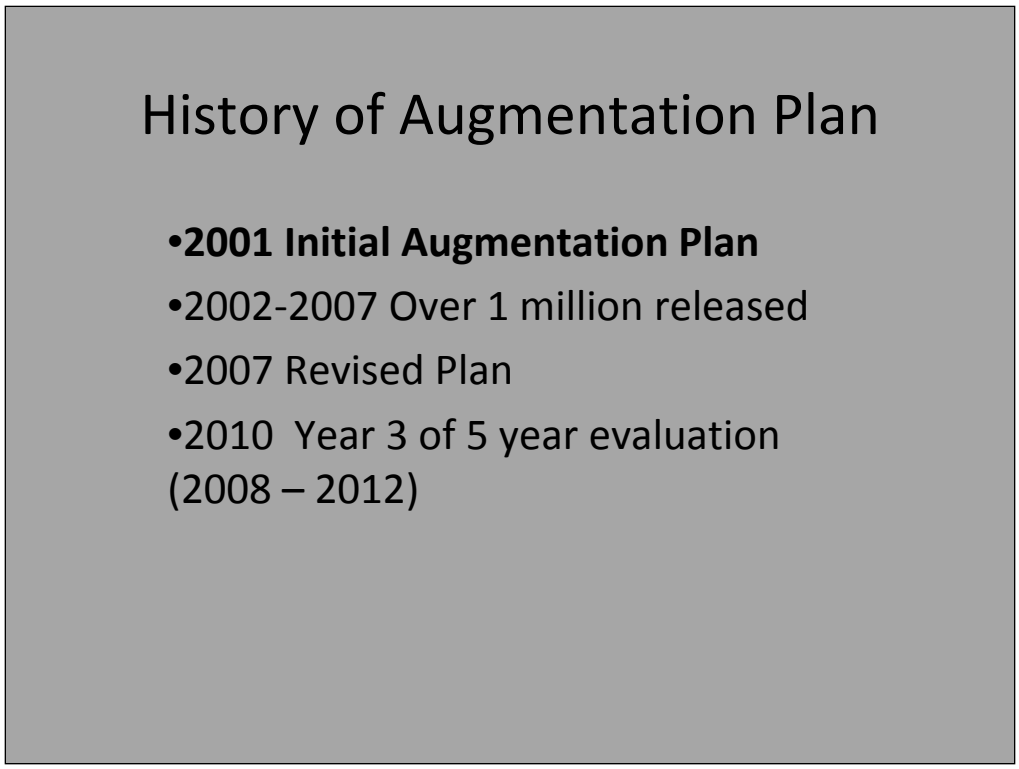
Summary of Spawning Study

- Research RFP was competitively bid and NMISC received contract in September 2009
- Hypothesis testing: Do RGSM preferentially spawn in river channel or inundated floodplain or opportunistic
- Study will be done through direct observation, pit tagging, sonar graphing, and direct monitoring
- 750 one-year-old RGSM
- Three year research
- Year 1: $199,000; Years 2 & 3: $77,200
- To be accomplished: resubmit permit amendment

Rio Grande silvery minnow Augmentation Program

20 January 2011
Presentation to Executive Committee
Middle Rio Grande Endangered Species Collaborative Program

Review of Past Efforts
Current Strategy
Future research



In 2001, the "Rio Grande silvery minnow augmentation plan" was created. Since that time, over 1,000,000 hatchery-raised Rio Grande silvery minnow have been released into the Middle Rio Grande, New Mexico. Initially the goal was to produce 400,000 annually for release based primarily on the expected capacities of propagation facilities, along with knowledge about current population status and suggestions from geneticists. Our stocking and monitoring efforts were initially focused in the Angostura Reach (Albuquerque) where catch rates of wild Rio Grande silvery minnow were extremely low and the expected benefit of augmentation could be maximized (Remshardt and Davenport 2003). Between 2002 and 2004, 100,000 to 200,000 Rio Grande silvery minnow were released annually in the Angostura Reach.

History of Augmentation Plan

- 2001 Initial Augmentation Plan
- **2002-2007 Over 1 million released**
- 2007 Revised Plan
- 2010 Year 3 of 5 year evaluation (2008 – 2012)

Rep. Heather Wilson, Rep. Tom Udall, and Sen. Pete Dominici. Starting in 2005, augmentation was expanded to include the Isleta and San Acacia Reaches. Between 2005 and 2007, 100,000 to 400,000 Rio Grande silvery minnow were released annually throughout all reaches.

VIE tagging perfected for RGSM (over 97% for 3 months), soft release and hauling techniques developed, stocking strategies for fall release of fish over 40 mm. Most remain within 10 km of release sites. Similar survival estimates. 66.2% monthly survival estimate for hatchery, versus 64.7% for unmarked wild fish. Hatchery fish collected with wild fish in same seine hauls, observed sexually mature hatchery fish. In addition, genetic monitoring has suggested that hatchery stockings have contributed to genetic mixing of population.

History of Augmentation Plan

- 2001 Initial Augmentation Plan
- 2002-2007 Over 1 million released
- **2007 Revised Plan**
- 2010 Year 3 of 5 year evaluation (2008 – 2012)

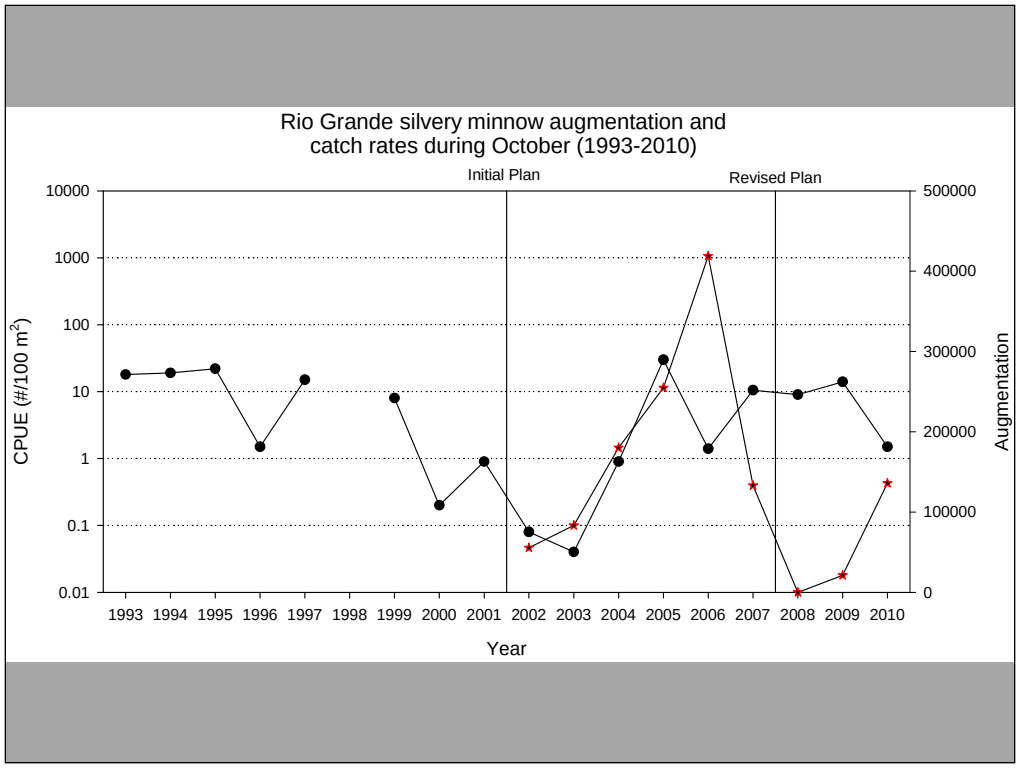
In 2007 Revised plan was created to direct augmentation strategy. The fall stocking period has proven to provide the highest recapture rates. Stocking in the fall will allow captive-reared individuals to reach maximum size while avoiding predation, competition, and habitat degradation (intermittency) during summer low-flow periods when age-0 fish are most susceptible. Also, fall release allows the stocked fish several months to acclimate to the river before higher flows (and spawning) occur the following spring.

Evaluation of Stocking Strategy

STANDING DENSITY of RGSM	OBSERVED/ ESTIMATED DENSITY	OBSERVED DENSITY
Low Density (< 1/100 m^2)	61% of Expected	0.08 - 0.23 Added (50%)
High Density (> 1/100 m^2)	27% of Expected	0.02 - 0.05 Added (1%)

During the initial augmentation in the fall/winter of 2002/2003, standing catch rates of wild Rio Grande silvery minnow in the Angostura Reach was between 0.04 and 0.60 fish/100 m^2. Over 120,000 were stocked that winter in this reach (~1/100 m^2) and these additional fish resulted in increased catch rates of 0.08 to 0.23/100 m^2 and typically represented over 50% of the collections that winter (Dudley and Platania 2004). Based on calculated densities from average river area, overwinter catch rates were 61.0% of expected. This expected value take into consideration calculated monthly survival rates (0.64) from previous augmentation studies.

As augmentation efforts expanded between 2003 and 2005, population numbers increased accordingly. In the winter of 2005/2006, catch rates of unmarked Rio Grande silvery minnow were between 5 and 40/100 m^2. Over 325,000 fish were released that winter river-wide (0.77/100 m^2) and resulted in increased catch rates of 0.02 to 0.05/100 m^2 and typically represented less than 1% of the collections than winter. Based on calculated densities from average river area, overwinter catch rates were 27.0% of expected, or 44% of that observed at lower base catch rates reported above.


Rio Grande silvery minnow augmentation and
catch rates during October (1993-2010)
Initial Plan
Revised Plan
CPUE (#/100 m2)
Augmentation
Year
10000
1000
100
10
1
0.1
0.01
500000
400000
300000
200000
100000
0
1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

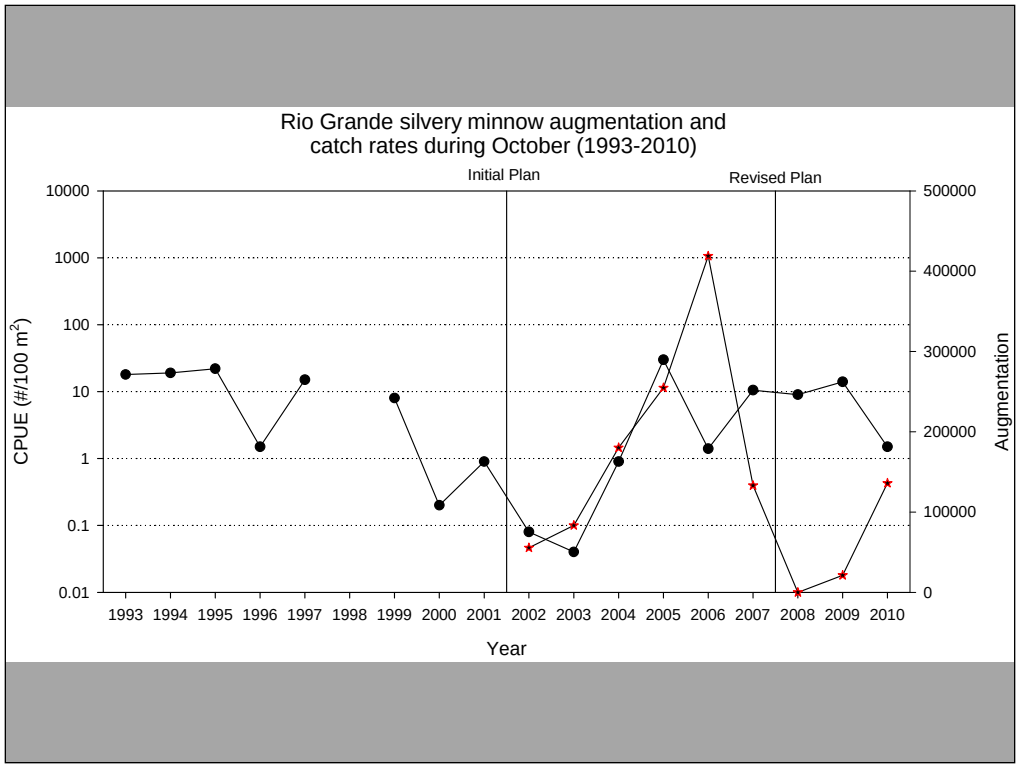
All reaches

Evaluation of Stocking Strategy

STANDING DENSITY of RGSM	OBSERVED/ ESTIMATED DENSITY	OBSERVED DENSITY
(< 1/100 m^2)	61% of Expected	0.08 - 0.23 Added (50%)
(> 1/100 m^2)	27% of Expected	0.02 - 0.05 Added (1%)

During the initial augmentation in the fall/winter of 2002/2003, standing catch rates of wild Rio Grande silvery minnow in the Angostura Reach was between 0.04 and 0.60 fish/100 m^2. Over 120,000 were stocked that winter in this reach (~1/100 m^2) and these additional fish resulted in increased catch rates of 0.08 to 0.23/100 m^2 and typically represented over 50% of the collections that winter (Dudley and Platania 2004). Based on calculated densities from average river area, overwinter catch rates were 61.0% of expected. This expected value take into consideration calculated monthly survival rates (0.64) from previous augmentation studies.

As augmentation efforts expanded between 2003 and 2005, population numbers increased accordingly. In the winter of 2005/2006, catch rates of unmarked Rio Grande silvery minnow were between 5 and 40/100 m^2. Over 325,000 fish were released that winter river-wide (0.77/100 m^2) and resulted in increased catch rates of 0.02 to 0.05/100 m^2 and typically represented less than 1% of the collections than winter. Based on calculated densities from average river area, overwinter catch rates were 27.0% of expected, or 44% of that observed at lower base catch rates reported above.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All reaches

History of Augmentation Plan

- 2001 Initial Augmentation Plan
- 2002-2007 Over 1 million released
- 2007 Revised Plan
- **2010 Year 3 of 5 year evaluation (2008 – 2012)**

2010

Decision Making Process for Augmentation Plan (2007)

- Jan. 15th Initial Target
- Nov. 1st Final Target

Total Release = Previous year's release * Spring runoff factor.

Where Spring runoff is defined as follows:

Spring runoff = 1.5 in Dry years

Spring runoff = 1 in Average years

Spring runoff = 0.5 in Wet years

2011 Jan 1 Forecast is 90% of average

For the purposed of this calculation, dry, average, and wet years are defined as follows based on the Natural Resources Conservation Service's (NRCS) January 1 "Most Probable" Streamflow Forecast (generally available by January 7) available at http://www.wcc.nrcs.usda.gov/cgibin/bor.pl. For each scenario, the definitions are as follows:

Dry year: NRCS January 1 Streamflow Forecast at Otowi Gage is less than 80 percent of average*,
Average year: NRCS January 1 Streamflow Forecast at Otowi Gage is 80 to 120 percent of average*,
Wet year: NRCS January 1 Streamflow Forecast at Otowi Gage is 120 percent or higher of average*,

*Average is defined by NRCS as being the average streamflow at the point of reference (Otowi Gage for the 30-year period from 1971 through 2000.

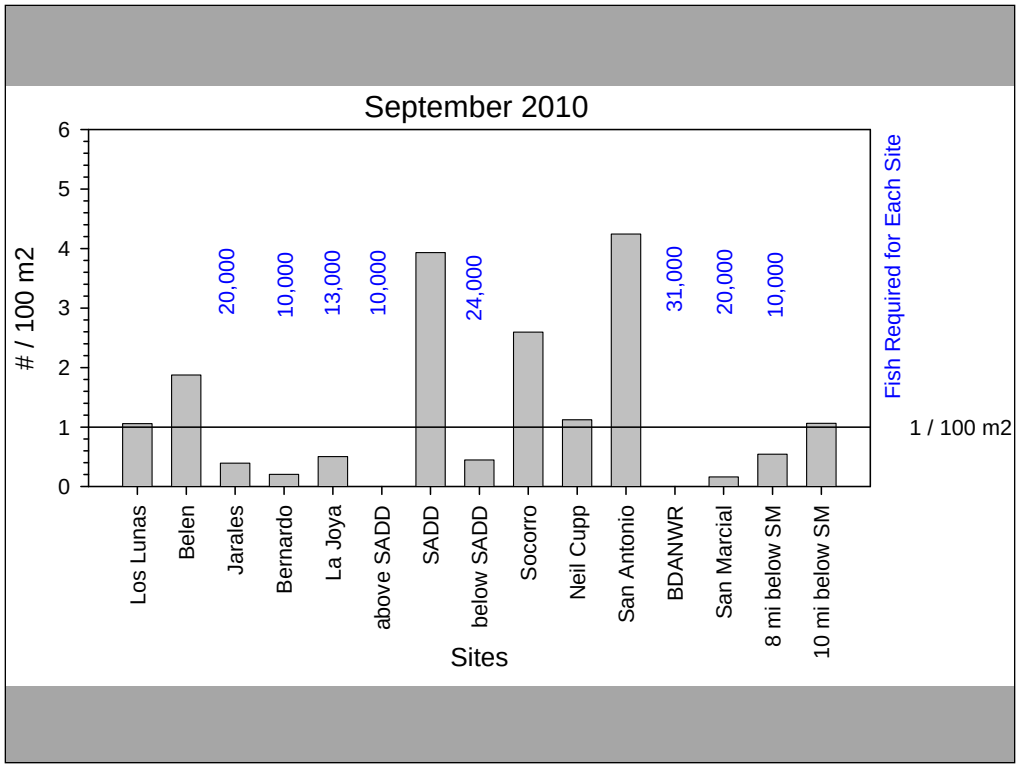
Jan 1 forecast for Otowi gage is 90% of average. That equates to an "average" water year and therefore we are predicting to need approximately the same number of fish for 2011 as we did in 2010, or around 135K. For those of you familiar with FWS water management forecasts, this term is not the same as that one, based strictly on flow predictions for the year. Reality is I continually watch the streamflow and pop. Monitoring numbers and am continuously updating propagation facilities for potential changes.

Decision Making Process for Augmentation Plan (2007)

- Spring (March) Meeting of P&G
- Fall (August) Meeting of P&G

October –Review Sep. data

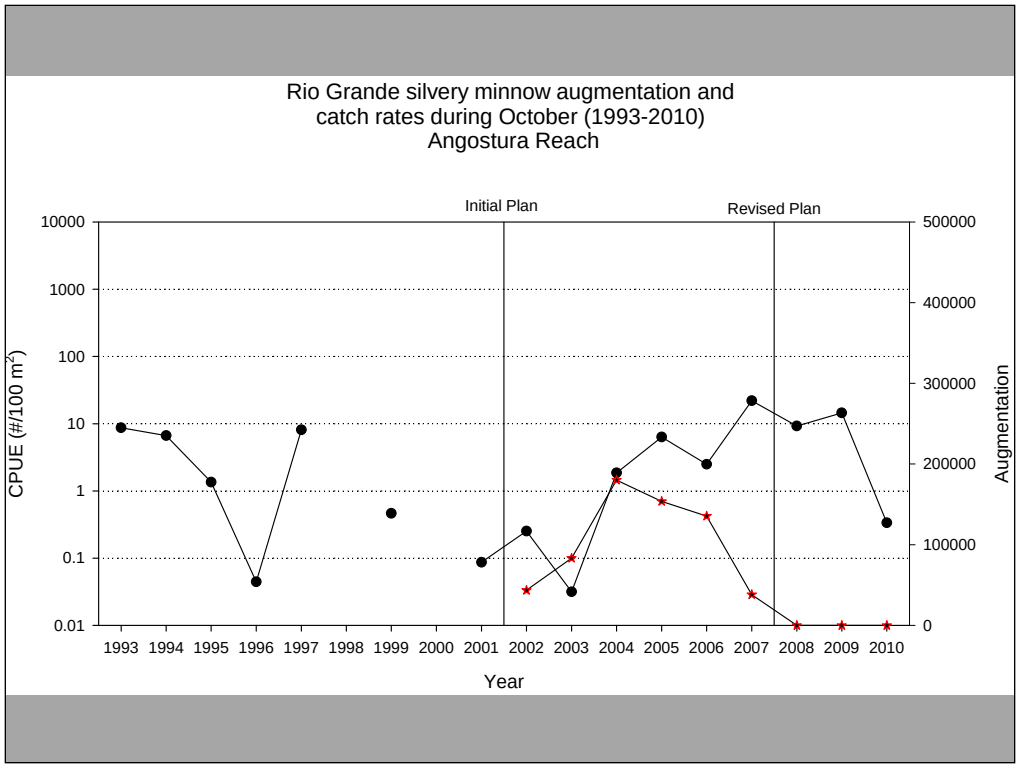
We meet twice a year to discuss issues related to Propagation and Genetics needs for RGSM. As lead for augmentation, I advise the propagation facilities of FWS-Fisheries requests for upcoming year. The spring meeting estimates for augmentation (usually in march), although a rough estimate, is critical for the facilities so they can prepare for spawning needs. I also update facilities in August (fall meeting) on current estimates and needs for augmentation. By mid-october, I have available the pop. Monitoring data from september and can calculate how many fish we need for augmentation.


September 2010
/ 100 m2
Fish Required for Each Site
1 / 100 m2
Sites
Los Lunas
Belen
Jarales
Bernardo
La Joya
above SADD
SADD
below SADD
Socorro
Neil Cupp
San Antonio
BDANWR
San Marcial
8 mi below SM
10 mi below SM
20,000
10,000
13,000
10,000
24,000
31,000
20,000
10,000

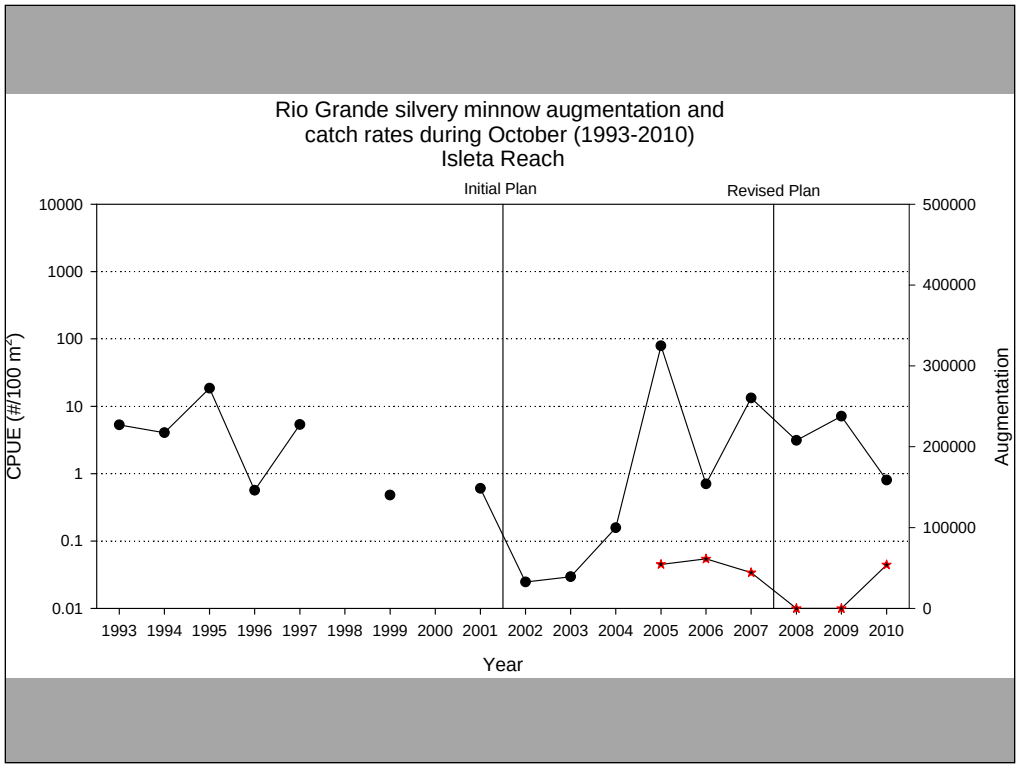
September Catch Rates for Angostura Reach

- 2008 4.56 fish/100 m^2
- 2009 7.80 fish/100 m^2
- 2010 0.35 fish/100 m^2

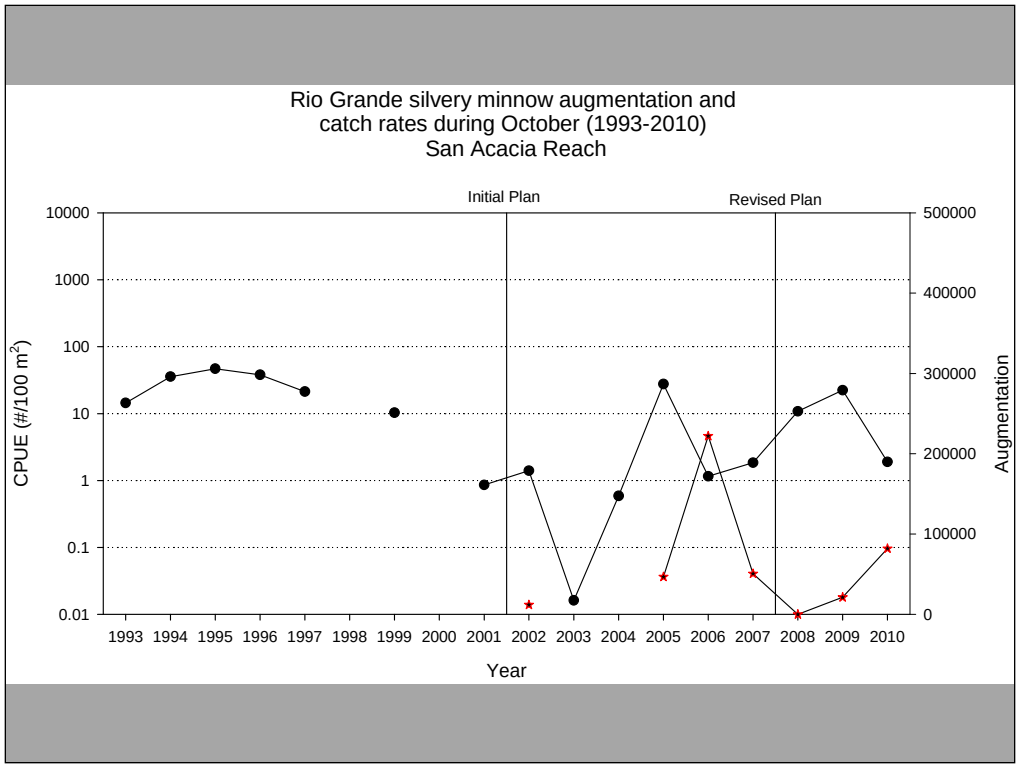
If the overall catch rate for Angostura Reach drops to below 0.1 fish / 100 m^2 during October, then augmentation will be re-initiated for this reach the following year. (This is going to be revised to read “immediately)



Angostura 2002 – 2007 . Quantify the effect



Isleta 2005-2007, then 2010



2002, 2005-2010 (not 2008).

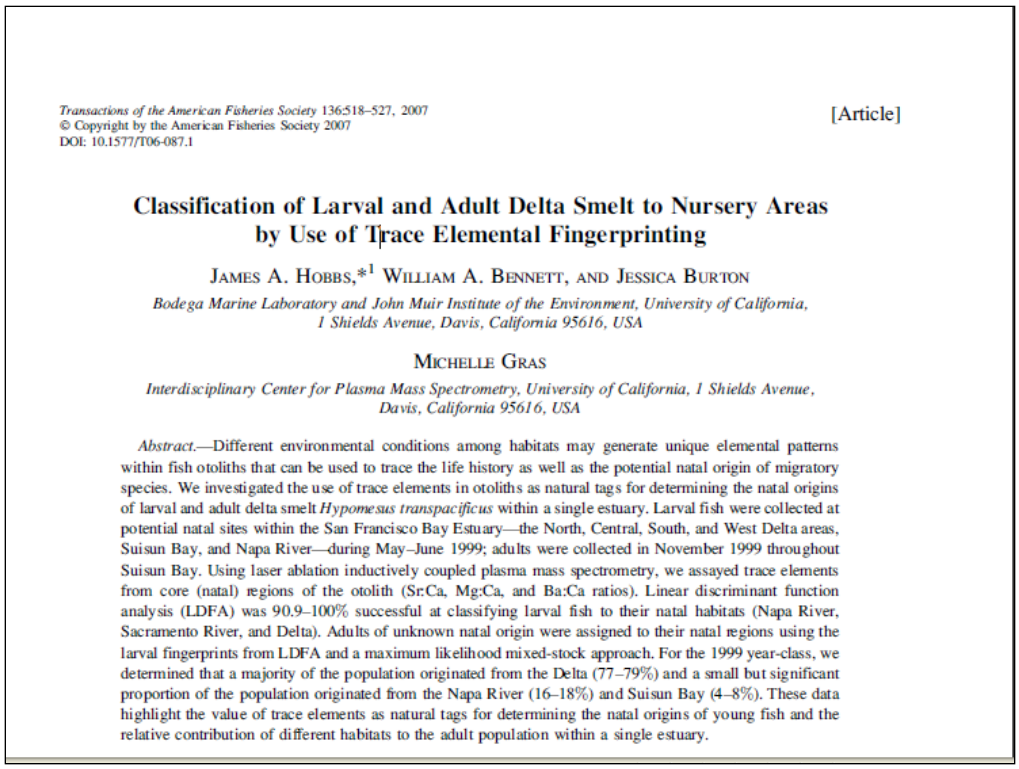
Future Augmentation Study

- Evaluation of transgenerational mark to determine stocking effectiveness.
- **Water and Otolith Micro-Chemistry (Strontium)**

Investigating new tagging techniques is a main recovery action for the RGSM augmentation program.

In short, this technique involves the tagging of pre-spawn females with one of several isotopes and following that isotopic signal through the population. This technique has been used on a variety of other fishes, but must be tested on Rio Grande silvery minnow in a laboratory environment before use in the field. The initial phase of this project will occur in 2011 involving the measurement of isotopic signatures of strontium in the river at various locations and times during the year and a laboratory analysis to determine effective isotope injections in RGSM.

If successful, future years would include tagging and releasing RGSM females at specific locations and attempting to locate their offspring throughout their life to document egg, larvae, juvenile, and even subsequent adult dispersal patterns related to augmented RGSM. It may be possibly to answer significant questions that could be applicable to wild fish as well on the importance of habitat connectivity.



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[Article]

Classification of Larval and Adult Delta Smelt to Nursery Areas by Use of Trace Elemental Fingerprinting

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Abstract.—Different environmental conditions among habitats may generate unique elemental patterns within fish otoliths that can be used to trace the life history as well as the potential natal origin of migratory species. We investigated the use of trace elements in otoliths as natural tags for determining the natal origins of larval and adult delta smelt *Hypomesus transpacificus* within a single estuary. Larval fish were collected at potential natal sites within the San Francisco Bay Estuary—the North, Central, South, and West Delta areas, Suisun Bay, and Napa River—during May–June 1999; adults were collected in November 1999 throughout Suisun Bay. Using laser ablation inductively coupled plasma mass spectrometry, we assayed trace elements from core (natal) regions of the otolith (Sr:Ca, Mg:Ca, and Ba:Ca ratios). Linear discriminant function analysis (LDFA) was 90.9–100% successful at classifying larval fish to their natal habitats (Napa River, Sacramento River, and Delta). Adults of unknown natal origin were assigned to their natal regions using the larval fingerprints from LDFA and a maximum likelihood mixed-stock approach. For the 1999 year-class, we determined that a majority of the population originated from the Delta (77–79%) and a small but significant proportion of the population originated from the Napa River (16–18%) and Suisun Bay (4–8%). These data highlight the value of trace elements as natural tags for determining the natal origins of young fish and the relative contribution of different habitats to the adult population within a single estuary.

Initially, this technique was used to assign natal origins for wild-spawned fish such as pacific salmon and delta smelt. Since, this technique has been used as a surrogate for following stocked fish and their progeny.