Middle Rio Grande Endangered Species

COLLABORATIVE PROGRAM BIENNIAL REPORT

Middle Rio Grande Endangered Species Collaborative Program (MRGESCP)

FY2010 and FY2011 Biennial Report

Prepared by

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On behalf of the MRGESCP Program Management Team

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ACRONYMS AND ABBREVIATIONS

ABCWUA	Albuquerque Bernalillo County Water Utility Authority
AF	Acre-Feet
APA	Assessment Payers Association
A&R	Analysis and Recommendations
BA	Biological Assessment
BiOp	2003 Biological Opinion
CC	Coordination Committee
COA	City of Albuquerque
Collaborative Program (also MRGESCP)	Middle Rio Grande Endangered Species Collaborative Program
CPE	Carp Pituitary Gland Extract
DEC	Design, Engineering, and Construction
Dexter	National Fish Hatchery and Technology Center (U.S. Fish and Wildlife Service)
EC	Executive Committee
EMP	Effectiveness Monitoring Plan
ESA	Endangered Species Act
FY	Fiscal Year
HR	Habitat Restoration
HRW	Habitat Restoration Work Group
LFCC	Low-Flow Conveyance Channel (Reclamation)
LTP	Long Term Plan
MOA	Memorandum of Agreement for the Middle Rio Grande Endangered Species Collaborative Program
MOU	Memorandum of Understanding
MRG	Middle Rio Grande
MRGCD	Middle Rio Grande Conservancy District
mtDNA	Mitochondrial DNA
NEPA	National Environmental Policy Act
NMAGO	New Mexico Attorney General's Office
NMDA	New Mexico Department of Agriculture
NMESFO	New Mexico Ecological Services Field Office
NMGF	New Mexico Department of Game and Fish
NMISC (also ISC)	New Mexico Interstate Stream Commission
PHVA	Population and Habitat Viability Assessment

ACRONYMS AND ABBREVIATIONS

PIO	Public Information Outreach Work Group
PIT	Passive Implantable Transmitter
PMT	Program Management Team
PVA	Population Viability Analysis
Reclamation (also BOR)	Bureau of Reclamation
RGSM	Rio Grande Silvery Minnow
RIP	Recovery Implementation Program
RPA	Reasonable and Prudent Alternative
RPM	Reasonable and Prudent Measure
SADD	San Acacia Diversion Dam
SAR	San Acacia Reach
ScW	Science Work Group
Service (also USFWS or FWS)	U.S. Fish and Wildlife Service
SNARRC	Southwestern Native Aquatic Resources and Recovery Center (U.S. Fish and Wildlife Service; formerly Dexter)
SWFL	Southwestern Willow Flycatcher
SWM	Species Water Management Work Group
UNM	University of New Mexico
URGWOM	Upper Rio Grande Water Operations Model
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
YOY	Young Of Year

DEFINITIONS

Coordination Committee: A committee established by the Executive Committee (EC) to identify concerns associated with Collaborative Program activities, work to resolve those concerns, and develop consensus recommendations to the EC.

Executive Committee: The Collaborative Program's governing body which is made up of signatory representatives. The EC provides policy, budget approval, and decision-making on all issues, unless specifically delegated to the Program Management Team (PMT), Coordination Committee (CC), or work groups.

Lead Agency: The agency responsible for ensuring that the project work is completed.

Listed Species: Federally listed species under the Endangered Species Act (ESA) with special emphasis on the Rio Grande silvery minnow (RGSM) and Southwestern willow flycatcher (SWFL).

Middle Rio Grande: An area from the headwaters of the Rio Chama watershed and the Rio Grande, including all tributaries from the Colorado/New Mexico state line downstream to the headwaters of Elephant Butte Reservoir.

Program Management Team: A team that provides management technical support to the EC, CC, and work groups, and consists of a Program Manager and management staff employed by Reclamation, U.S. Fish and Wildlife Service (Service), U.S. Army Corps of Engineers (USACE), and New Mexico Interstate Stream Commission (NMISC), administrative and clerical staff, federal employees and contractors, and signatory representatives.

Recovery Implementation Program: A planned collaborative, multi-stakeholder initiative that seeks to balance water use and development with the recovery of federally listed RGSM and SWFL.

Work Group: Established by the EC, as needed, to provide assistance and expertise to address specific Collaborative Program tasks. Members of a work group may consist of professionals, signatories, contractors, and other parties who have expertise related to the assignment given to the work group.

EXECUTIVE SUMMARY

The Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) brings diverse groups together to address serious environmental issues along the Middle Rio Grande (MRG). These groups include federal, state, and local governmental entities, Indian Tribes and Pueblos, and non-governmental organizations. Through this collaborative effort, these entities seek to simultaneously protect and improve the status of listed endangered species along the MRG, protect existing and future regional water uses, and comply with state and federal laws, including Rio Grande Compact delivery obligations.

The Collaborative Program was established in April 2002 under a Memorandum of Understanding (MOU), and continued through a Memorandum of Agreement (MOA) signed on May 15, 2008. The intent of Collaborative Program participants is two-fold:

- First, to prevent extinction, preserve reproductive integrity, improve habitat, support scientific analysis, and promote recovery of the listed species within the Collaborative Program area in a manner that benefits the ecological integrity, where feasible, of the MRG riverine and riparian ecosystem; and,
- Second, to exercise creative and flexible options so that existing water uses continue and future water development proceeds in compliance with applicable federal and state laws.

As of July 7, 2010, the signatories to the Collaborative Program MOA include:

- Bureau of Reclamation (Reclamation)
- U.S. Fish and Wildlife Service (Service)
- U.S. Army Corps of Engineers (USACE)
- New Mexico Interstate Stream Commission (NMISC)
- New Mexico Department of Game and Fish (NMGF)
- New Mexico Attorney General's Office (NMAGO)
- New Mexico Department of Agriculture (NMDA)
- Santo Domingo Tribe
- Pueblo of Sandia
- Pueblo of Isleta
- Pueblo of Santa Ana
- Middle Rio Grande Conservancy District (MRGCD)
- City of Albuquerque (COA)
- Albuquerque Bernalillo County Water Utility Authority (ABCWUA)
- Assessment Payers Association of the Middle Rio Grande Conservancy District (APA)
- University of New Mexico (UNM)

This report describes the Collaborative Program, summarizes the Collaborative Program's expenditures in federal Fiscal Year (FY) 2010 and FY 2011, and highlights accomplishments using funds allocated during FY 2010 and 2011.

COLLABORATIVE PROGRAM CONTACTS

Program Management

Rhea Graham
Bureau of Reclamation

Rhea Graham was named the Interim Program Manager for the Collaborative Program while it completes the transformation in 2013 to becoming a Recovery Implementation Program (RIP). Her career focus in water resources in New Mexico began in 1997. From 2008-2012, she gained experience in California river restoration and environmental issues, transferring with Reclamation to the Albuquerque Area Office in November 2012. Rhea has a Bachelor's degree in Geology from Bryn Mawr College and a Master's degree in Geological Oceanography from Oregon State University.

Diana Herrera
Bureau of Reclamation

Diana Herrera is a Program Specialist with Reclamation. She began her career with Reclamation in 1984, and started working with the Collaborative Program in 2003. Her work with the Collaborative Program consists of budget and contract administration. Diana started her federal career at the Veteran's Administration Regional Office in Albuquerque and then worked for the Atomic Energy Commission (now known as the U.S. Department of Energy). She has over 33 years of federal service.

Alighieri Saenz
Bureau of Reclamation

Alighieri (Ali) Saenz is the Collaborative Program Assistant and joined Reclamation in March 2011 from the City of Albuquerque's (COA) Economic Development Department. Formerly, Ali served for 8 years in the United States Army Reserve as a specialist during Operation Enduring Freedom, which included a tour in Kandahar, Afghanistan. Ali is working on completing her Bachelor's degree in Business Administration and Management.

Susan Bittick
U.S. Army Corps of Engineers

Susan Bittick is the MRGESCP Program Manager with USACE managing USACE's Program authority and appropriations. She began her career with USACE in 1992 and has worked for Fort Worth, Europe and Albuquerque Districts. While with Europe District, she was responsible for environmental projects and programs in eight countries. Prior to her employment with USACE she spent a total of 13 years as an educator. Susan has a Bachelor of Arts from Texas Tech University and a Master of Science in Environmental Science from Texas Christian University.

Program Management Team

Michelle Mann
U.S. Army Corps of Engineers

Michelle Mann is a Biologist with the U.S. Army Corps of Engineers (USACE), and has been involved with the Program Management Team (PMT) since 2011. Michelle started working with USACE in 2008 as a Stay-in-School for Civil Project Management. In 2011, she moved to the Planning Department to work specifically with the Collaborative Program. Michelle received her Bachelor's degree in Biology with a minor in Spanish through the School of Arts and Sciences at the University of New Mexico (UNM) in December 2011, and is currently working toward a Master's degree in Public Administration.

Stacey Kopitsch
U.S. Fish and Wildlife Service

Stacey Kopitsch is a Biologist with the U.S. Fish and Wildlife Service's (Service) New Mexico Ecological Services Field Office (NMESFO). She began her career with the Service over 8 years ago as a Wildlife Inspector (Law Enforcement) at the port of New York, and she has been in her current position with the NMESFO since February 2010. Prior to her employment with the Service, Stacey worked for the National Park Service as a Biological Science Technician at the Fire Island National Seashore. Stacey has a Bachelor's degree in Biology from the University of Richmond and a Master's degree in Ecology from Fordham University.

COLLABORATIVE PROGRAM CONTACTS

Former PMT Members

Yvette McKenna

Bureau of Reclamation

Yvette McKenna served as the Program Manager for the Collaborative Program from 2009 to 2012. Yvette has 18 years of federal government experience including positions with the U.S. Environmental Protection Agency, the Department of Defense, the International Boundary and Water Commission, and Western Area Power Administration. Yvette has a Bachelor of Science degree in Microbiology from New Mexico State University.

Terina Perez

Bureau of Reclamation

Terina Perez is a Biologist with Reclamation, and became involved with the PMT in 2010. From 1998 until July 2010 she served as a Hatchery Manager at the City of Albuquerque's (COA) Aquatic Conservation Facility. Terina received her Bachelor's degree in Biology from the University of Missouri at St. Louis and is currently working toward a Master's degree in Water Resources at UNM.

Monika Mann

U.S. Army Corps of Engineers

Monika Mann is an Environmental Planner with USACE, and was involved with the PMT between 2009 and 2011. Monika started working with USACE in 2005 as a Stay-in-School for Civil Project Management. In 2007, she moved to General Engineering for a year, and received a position in Plan Formulation in 2008. She was promoted to Environmental Planner in the spring of 2010. Monika received her Bachelor's degree in Environmental Planning and Design through the School of Architecture and Planning at UNM in December 2009.

Amy Louise

U.S. Army Corps of Engineers

Amy Louise is the Project Manager for the Upper Rio Grande Water Operations Model (URGWOM) with USACE, previously served as a hydrologist with the NM Interstate Stream Com- mission (NMISC), and was a PMT member from August 2006 through February 2011. She was also the non-federal co-chair for the Collaborative Program Species Water Management (SWM) work group. She started working at the Office of the State Engineer in June 1997 after she obtained her Bachelor of Science degree in Civil Engineering. Amy obtained her Master's degree in Water Resources in December 2004.

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1 INTRODUCTION

Our goal is to alleviate jeopardy to the endangered species, conserve and contribute to their recovery, protect existing and future water uses, and provide public outreach and education.

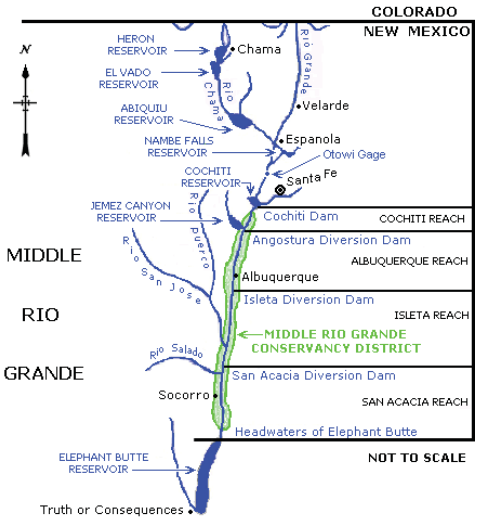


Figure 1.1
Collaborative Program Area: New Mexico - Colorado Border to Headwaters of Elephant Butte

The Collaborative Program, consisting of governmental entities, Indian Tribes and Pueblos, and non-governmental organizations, focuses on improving the status of the listed endangered species in the Middle Rio Grande (MRG) region. These species include the Rio Grande silvery minnow (*Hybognathus amarus*) (RGSM) and the Southwestern willow flycatcher (*Empidonax traillii extimus*) (SWFL). The MRG encompasses an area that includes the headwaters of the Rio Chama watershed, and the Rio Grande and all of its tributaries from the Colorado/New Mexico state line downstream to the headwaters of Elephant Butte Reservoir (Figure 1.1).

The Collaborative Program receives funding through Congressional appropriations to implement projects designed to benefit the federally listed endangered RGSM and the SWFL. The Collaborative Program implements activities required by the 2003 Biological Opinion (BiOp) issued by the U.S. Fish and Wildlife Service (Service) titled, "Biological and Conference Opinions on the Effects of Actions Associated with the Programmatic Biological Assessment of Bureau of Reclamation's Water and River Maintenance Operations, Army Corps of Engineers' Flood Control Operation, and Related Non-Federal Actions on the Middle Rio Grande, Albuquerque, New Mexico" (Service 2003, 2005, 2006). The BiOp, as amended, provides requirements for alleviating jeopardy to listed species and adverse modification of designated critical habitat. The BiOp is a product of Endangered Species Act (ESA) Section 7 consultation. When its requirements are implemented, it serves as a tool to conserve listed species, assist with species recovery, and help protect critical habitat. Compliance with the 2003 BiOp provides ESA coverage for the two action agencies, the Bureau of Reclamation (Reclamation) and the U.S. Army Corps of Engineers (USACE) to carry

out specific actions as described, and broad coverage for participating non-federal entities.

To help identify and guide species' recovery needs, Section 4(f) of the ESA directs the Secretary of the Interior to develop and implement recovery plans for listed species or populations. Recovery plans developed by the Service for the RGSM and SWFL include: 1) a description of management actions necessary to conserve the species or population; 2) objective, measurable criteria that, when met, will allow the species or population to be removed from the List of Endangered and Threatened Wildlife; and, 3) estimates of the time and funding needed to achieve the plan's goals and intermediate steps. Recovery recommendations identified in these plans are advisories aimed at lessening or alleviating the threats to the species and ensuring self-sustaining populations in the wild.

As defined in recovery plans for the RGSM and SWFL (Service 2010 and 2002, respectively), species recovery criteria aim to support the goals of the ESA and provide a measurable, supportable basis for determination of ESA compliance by the Service. The general Collaborative Program goals consistent with these recovery plan recommendations are:

- Alleviate jeopardy to the listed species within the scope of the Collaborative Program;
- Conserve and contribute to the recovery of the listed species:
  - o Stabilize existing populations; and,
  - o Develop self-sustaining populations.
- Protect existing and future water uses; and,
- Provide public outreach and education to communities within the scope of the Collaborative Program.

In November 2006, the Collaborative Program adopted a Long Term Plan (LTP) (MRGESCP 2006) with the following objectives:

- To serve as a road map for implementing activities within the scope of the Collaborative Program;
- To provide accountability through measurable objectives and an annual Collaborative Program assessment process; and,
- To help integrate federal and non-federal budget processes for providing funding for future activities.

In August of 2009, the Executive Committee (EC) of the Collaborative Program decided to try to move beyond "alleviating jeopardy" and transition into a recovery program. One of the first tasks was to begin drafting a new LTP to include activities that are linked to the RGSM and SWFL recovery plans and that are within the scope of the Collaborative Program. In the new draft LTP, the Collaborative Program's activities and projects will be organized by LTP elements, linking specific efforts to recommended recovery activities.

The following sections describe the Collaborative Program associated responsibilities for species recovery.

1.1 Collaborative Program Governance

Reclamation is the lead agency for ensuring that Collaborative Program activities comply with federal and state environmental laws, improve the status of the species, and attain and maintain ESA compliance. This responsibility includes compliance for existing, ongoing, and future activities associated with the Collaborative Program.

The Collaborative Program's By-Laws, adopted in October 2006, describe the governance structure, decision-making processes, and roles and responsibilities. The Collaborative Program By-Laws were amended three times (July 2008, January 2009, September 2009) to update or clarify roles, responsibilities, and/or protocol. Documents related to governance, by-laws, authorities, charters, and code-of-conduct are maintained on the Collaborative Program's website at http://www.middleriogrande.com.

1.2 Collaborative Program Organization

The organizational structure of the Collaborative Program consists of: the EC, the Coordination Committee (CC), technical work groups (there is currently a combination of 7 standing and ad hoc work groups), and the Program Management Team (PMT). This section provides general information about these groups; more specific information, including work group documents, is available on the Collaborative Program website.

Executive Committee

The EC is the governing body of the Collaborative Program.

The EC is comprised of representatives of the signatories listed in the Executive Summary of this report. The EC provides

policy, budget oversight, and decision-making on all issues, unless specifically delegated to the PMT, CC, or work groups.

The EC is responsible for:

- Setting Collaborative Program priorities;
- Providing direction, assigning tasks to, and overseeing the work of the PMT, CC, and work groups;
- Ensuring development and implementation of the LTP to achieve the purposes of the Collaborative Program;
- Coordinating Collaborative Program activities with other federal and non-federal activities in the Collaborative Program area to achieve the greatest effect and limit unnecessary duplication of other efforts;
- Authorizing work groups;
- Developing multi-year budget recommendations to USACE, Reclamation, Service, other federal agencies, Tribes and Pueblos, and non-federal entities;
- Reviewing and approving annual reports and work plans, budgets, and policy or position papers on behalf of the Collaborative Program;
- Establishing operating procedures for the Collaborative Program;
- Representing the Collaborative Program to executive agencies, legislative bodies, and other third parties;
- Monitoring progress in achieving Collaborative Program goals;
- Ensuring implementation of a quality assurance/quality control program;
- Coordinating requests for funding and resources to Congress, the New Mexico State Legislature, and other sources;
- Ensuring sound financial management of Collaborative Program resources and timely reporting of the financial status of the Collaborative Program;
- Ensuring coordination among participants in carrying out Collaborative Program actions and policies;
- Providing periodic reports to Congress, the New Mexico State Legislature, interest groups, and the public regarding the Collaborative Program; and,
- Conducting other activities necessary or advisable to achieving the goals of the Collaborative Program.

Coordination Committee

Each member of the EC appoints one member to the CC and may appoint one or more alternate members. The CC was established for the purpose of identifying concerns associated with Collaborative Program activities, working to resolve those concerns, and developing consensus recommendations to and information for the EC. More specifically, the CC is responsible for:

- Carrying out the directives of the EC;
- Reviewing and providing comments and recommendations on the formation of work groups, the LTP, annual reports, work plans, budgets, operating procedures, congressional reports, work group deliverables, and other documents prior to submittal to the EC by the PMT;
- Working to achieve consensus recommendations for the EC on unresolved issues;
- Consulting regularly with EC representatives on issues of concern to ensure that recommendations reflect the viewpoints of organizations participating in the EC and of EC members; and,
- Ensuring that EC members are informed on matters coming before the EC.

WORK GROUPS

The EC establishes work groups, as needed, to provide assistance and expertise to address specific Collaborative Program tasks. Members of a work group may consist of professionals, signatories, contractors, and other parties who have expertise related to the assignment given to the work group. Work groups provide technical assistance, expertise, leadership, technical review, and coordination to address specific tasks to accomplish the goals of the Collaborative Program, and primarily for implementation of the LTP. Work groups meet regularly, providing a forum for discussing Collaborative Program-related topics and contributing to consistency in technical planning efforts over the duration of the Collaborative Program.

Habitat Restoration Work Group

The Habitat Restoration Work Group (HRW) helps to restore habitat in the MRG to contribute to accomplishing BiOp Reasonable and Prudent Alternative (RPA) elements R and

S for the benefit of the listed species. Some of the key HRW objectives include:

- Coordination of long-term, MRG-wide, habitat restoration (HR) plans that actively integrate hydrology, river function, and riparian communities, resulting in improved ecological conditions and habitats for endangered species that support the BiOp;
- Successful integration of HRW activities with other MRG projects, including other Collaborative Program work groups and restoration efforts outside of the Collaborative Program;
- A regular forum for meeting and discussion of Collaborative Program-related HR topics;
- Consistency in technical planning efforts, based on sound science, over the duration of the Collaborative Program;
- Technical assistance to others wanting to implement HR projects in the MRG; and,
- A scientific framework for monitoring and assessing restoration projects.

Public Information Outreach Work Group

The Public Information Outreach Work Group (PIO) assists the EC in educating and informing the general public, stakeholders, and state and federal legislators about Collaborative Program activities and accomplishments. These information and outreach efforts supported: 1) requests for long-term non-federal cost share funding; 2) understanding by the general public regarding the potential role of the Collaborative Program in MRG water management and endangered species recovery issues; and, 3) increased awareness by the general public and decision-makers regarding the collaborative problem-solving approach and funding requirements of the Collaborative Program. Some of the key PIO objectives are to:

- Streamline the process to successfully get the word out about the Collaborative Program;
- Ensure that entities affected by the actions of the Collaborative Program fully understand the issues and participate in a meaningful way with the Collaborative Program and other decision-makers. These entities include land owners, water rights holders, and water users;
- Ensure that the Governor, Congressional Delegation, Pueblo and Tribal Leaders, advocacy groups, and New Mexico State Legislators, along with city and county leaders directly affected by the water management and/or associated endangered species compliance issues on the MRG, are aware of the role of the Collaborative Program regarding these issues and the need for funding from both the federal side and the non-federal cost share;
- Establish an effective communication strategy for all leaders within the Collaborative Program; and,
- Evaluate the role of the Collaborative Program in informing stakeholders and the general public about plans for future water operations, ESA compliance, and Collaborative Program activities.

Science Work Group

The Science Work Group (ScW) provides scientific recommendations, technical assistance, and expertise to the Collaborative Program for the benefit of listed species in the MRG. Some of the key ScW objectives are to:

- Provide recommendations for research and monitoring priorities;
- Provide technical review and coordination of science projects;
- Provide coordination and integration of long-term research and monitoring activities, including other Collaborative Program work groups and activities outside of the Collaborative Program;
- Provide a regular forum for meeting and discussing Collaborative Program-related research and monitoring;
- Provide consistency in technical planning efforts over the duration of the Collaborative Program;
- Provide technical assistance to others wanting to implement research and monitoring projects; and,
- Provide a framework for exchanging scientific information.

Species Water Management Work Group

The purpose of the Species Water Management Work Group (SWM) is to provide assistance and expertise to address specific Collaborative Program tasks included in the LTP

relating to the development and implementation of improved water management strategies. More specifically, SWM:

- Works with Reclamation to secure potential supplies of water and storage space and implement management strategies to meet Collaborative Program goals;
- Seeks to identify and analyze the relative merits of potential water management alternatives to meet water supply and acquisition goals; and,
- Assists with implementation of selected alternatives, including facilitating stakeholder interaction and supporting regulatory compliance activities.

AD HOC WORK GROUPS

Temporary ad hoc work groups may be formed from existing primary Collaborative Program work groups. Ad hoc work groups consist of individuals with expertise and/or interest in the specialized subject necessary to implement LTP tasks. The primary work group oversees each formed ad hoc work group and is responsible for ensuring that ad hoc work groups meet objectives and schedules. The primary work group disbands the ad hoc work group upon completion of the pre-determined objectives. The EC may appoint additional members to the ad hoc work groups.

Population Viability Assessment Work Group

The PVA ad hoc work group identifies and articulates ideas and input into two different Population Viability Assessment (PVA) models, and provides biological information needed for the Biological Assessment (BA) and BiOp. Work group members formulate biological and ecological relationships and define them for analysis in the PVAs.

Monitoring Plan Team

The Monitoring Plan Team ad hoc work group (MPT) was established to lead the development of a 2-year pilot monitoring plan to measure the effectiveness of completed Habitat Restoration (HR) projects funded by the Collaborative Program. The purpose of the 2-year monitoring plan is to contribute to meeting the 2003 BiOp Reasonable and Prudent Alternative (RPA) element S, which requires 10 years of annual monitoring for each HR project.

Database Management System

The DBMS ad hoc work group ensures successful implementation of the Collaborative Program's Database Management System (DBMS) with full involvement and participation of Collaborative Program signatories and work groups.

PROGRAM MANAGEMENT TEAM

The Program Manager and PMT provide management and technical support to the EC, CC, and work groups. The PMT consists of a Program Manager and management staff employed by Reclamation, the Service, USACE, and New Mexico Interstate Stream Commission (NMISC), and contracting, administrative, and clerical staff (federal employees or contractors). The Program Manager provides direction for PMT activities and reports to the EC regularly on Collaborative Program activities. The Program Manager is responsible for determining the most expeditious and reasonable manner to carry out assignments as directed by the EC, whether through a work group, assignment to the PMT, or outsourcing. The PMT is also responsible for overall administration, coordination, and dissemination of information about Collaborative Program activities.

SIGNATORIES

Signatories (listed in the Executive Summary) are entities who have signed the Collaborative Program Memorandum of Agreement (MOA), agreeing to participate in and support the Collaborative Program. Any organization having a demonstrated interest in the success of the Collaborative Program may apply to become a signatory. To qualify for consideration, the applicant organization submits a letter of interest to the EC supporting the goals and success of the Collaborative Program and expressing its intent to sign the MOA if the application is accepted. The number of signatories to the Collaborative Program is limited to 20.

2 FINANCIAL SUMMARY

As the fiscal agent for the Collaborative Program, Reclamation manages the federal funding allocated by Congress to the Collaborative Program. As the contracting agency, Reclamation administers interagency agreements, financial assistance, and contracts for Collaborative Program projects.

Congress appropriated $10.5 million in FY 2010 and $10.1 million in FY 2011 for Collaborative Program activities.

- During FY 2010 on behalf of the Collaborative Program, Reclamation awarded $10.5 million to: acquire and manage water; captively propagate and rear RGSM; plan, construct, and monitor habitat restoration (HR) projects; monitor the status of the RGSM and SWFL; conduct biological and hydrological studies; and, rescue RGSM during river drying.

- During FY 2011 on behalf of the Collaborative Program, Reclamation awarded approximately $10.1 million to: acquire and manage water; captively propagate and rear RGSM; plan, construct, and monitor HR projects; monitor the status of the RGSM and SWFL; conduct biological and hydrological studies; and, rescue RGSM during river drying.

These federal appropriations were supplemented by non-federal Collaborative Program signatories in the form of financial contributions and in-kind services (e.g., personnel time, equipment, land access). FY 2010 and FY 2011 Congressional appropriations provided funding for the categories depicted in Figures 2.1 and 2.2, and Table 2.1 and 2.2. Funded activities meet Biological Opinion (BiOp) requirements or address long-term recovery needs.

In addition, USACE, through its congressional authority, began receiving appropriations in the fourth quarter of 2009. USACE provided $2,977,974 in FY 2010 and $2,471,277 in FY 2011 toward the efforts of the Collaborative Program through workgroup participation and projects. The breakout of this funding will be reported in the USACE annual report for FY 2009 through FY 2013, which will be available in 2014.

Figure 2.1: Fiscal Year 2010

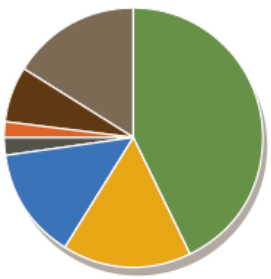
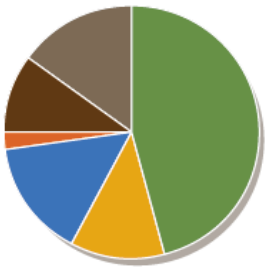


Figure 2.2: Fiscal Year 2011



- Water Operations and Management
- Captive Propagation
- Habitat Improvement (Construction, Planning and Fish Passage)
- Water Quality
- RGSM Salvage
- Other Monitoring and Research
- Program Management, Assessment, and Outreach

Table 2.1 | Breakdown for Fiscal Year 2010

Water Operations and Management	$ 4,514,443	43%
Captive Propagation	1,679,446	16%
Habitat Improvement (Construction Planning and Fish Passage)	1,442,170	14%
Water Quality	178,045	2%
RGSM Salvage	253,376	2%
Other Monitoring and Research	749,349	7%
Program Management, Assessment, and Outreach	1,698,394	16%
TOTAL	**10,525,223**	**100%**

Table 2.2 | Breakdown for Fiscal Year 2011

Water Operations and Management	4,626,300	46%
Captive Propagation	1,175,287	12%
Habitat Improvement (Construction Planning and Fish Passage)	1,474,273	15%
Activities Supporting Development of New Biological Assessment/BiOp	225,710	2%
Other Monitoring and Research	1,046,003	10%
Program Management, Assessment, and Outreach	1,550,490	15%
TOTAL	**10,098,063**	**100%**

3 PROGRAM ACCOMPLISHMENTS

Throughout FY 2010 and FY 2011, the Collaborative Program continued to restore Rio Grande silvery minnow (RGSM) and Southwestern willow flycatcher (SWFL) habitat, acquire and manage supplemental water, augment and propagate RGSM, support scientific analysis and adaptive management, improve public outreach and program management, and promote recovery of the listed species.

Noteworthy Collaborative Program accomplishments include:

- Meeting flow targets and managing river recession as required by the 2003 BiOp by acquiring and releasing approximately 20,000 acre-feet (AF) of supplemental water during the 2010 and 2011 irrigation seasons to minimize incidental take of RGSM;
- Monitoring progress on analysis and recommendations (A&R) reports for the Isleta Reach, the Sandia Pueblo Sub-reach of the Albuquerque Reach, the Velarde Reach, and the San Marcial to Elephant Butte Reach;
- Hosting a River Habitat Restoration Workshop attended by approximately 45 agency personnel and consultants including planners, biologists, ecologists, and engineers;
- Supporting development of a 2-year pilot HR effectiveness monitoring plan to collect standardized data to determine whether Collaborative Program projects are supporting improvements in the RGSM and SWFL populations;
- Improving and/or restoring several hundred acres of habitat (including projects funded in earlier years but completed in 2010 and 2011), with approximately 1,445 acres restored (through Collaborative Program and non-Collaborative Program efforts) to date, or 90% of the 1,600 acre 2003 Biological Opinion (BiOp) requirement.
- Augmenting and propagating RGSM in the Middle Rio Grande (MRG). Since 2000, over 1,477,000 RGSM have been released into the MRG through augmentation activities. Since 1996, approximately 795,000 RGSM have been salvaged and relocated to wet reaches of the Rio Grande. Several activities in 2010 and 2011 were successful in improving the status of the RGSM, as documented by the following:
  - o RGSM were present at 15 out of 20 of the October 2010 sampling sites and at 8 of the 20 October 2011 sampling sites;
  - o The Southwest Native Aquatic Resources and Recovery Center (SNARRC) (formerly Dexter National Fish Hatchery and Technology Center) continued to contribute directly to the enhancement and stabilization of existing and re-introduced RGSM populations within its historic range. In 2010, SNARRC produced over 600,000 age-0 fish, and

released approximately 488,000 RGSM into the Big Bend Reach of the Rio Grande, Texas. In 2011, approximately 463,000 age-0 RGSM were produced, with more than 304,000 being released in the Big Bend Reach;

- o A total of 586 RGSM eggs were collected in 2010. In addition, larval fish were collected each year and taken to propagation facilities in order to augment broodstock. In 2010 and 2011, 40,788 and 205,000 eggs, respectively, were produced from captive spawning at the Albuquerque Biopark propagation facility. In 2011, the Albuquerque Biopark contributed 104,000 RGSM to augmentation activities in the MRG and also contributed 94,000 RGSM eggs and fish to SNARRC;
- o In 2009, a majority of the construction was completed for the Rio Grande Silvery Minnow Sanctuary located in Albuquerque, NM. In June 2010, the U.S. Fish and Wildlife Service (Service) began conducting water quality and operations testing;
- o In 2010 and 2011, RGSM tissue samples and specimens were provided to the University of New Mexico (UNM) for genetic analysis and monitoring of the repatriated population at Big Bend, and the captive propagation program; and,
- o Over 200 individually Passive Implantable Transmitter (PIT)-tagged RGSM have been documented using the fish passage channel located at the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) diversion.

- Initiating Adaptive Management (AM) development through a series of interviews, meetings and workshops in order to complete Version 1 of the AM Plan for the Collaborative Program;
- Forming a Collaborative Program Database ad hoc work group to provide guidance on development of the Data-base Management System (DBMS), a comprehensive web-accessible, GIS-based database management system that will enable Collaborative Program participants and the general public to readily access data associated with Collaborative Program activities regarding HR, water management, and other scientific investigations that support Middle Rio Grande Basin management;
- Organizing a Ten-Year Anniversary Open House event for the Collaborative Program at the Rio Grande Nature Center, including a day of technical presentations, followed by an open house that was attended by more than 250 members of the public. The open house included a walking tour of HR sites, water conservation lessons, and interactive children's activities all staffed by volunteers. This was the Collaborative Program's second open house aimed at educating the general public about the work that Collaborative Program signatories are doing along the MRG; and,
- Deciding to restructure the Collaborative Program and transition from activities focused on avoiding jeopardy, to working toward those of a Recovery Implementation Program (RIP) based on a new LTP.

During FY 2010 and FY 2011, numerous Collaborative Program projects were conducted and contributed to meeting the goals specified in Section 1.0 of this report. These projects are summarized in the following sections and are organized to correspond with Collaborative Program elements identified in the new draft LTP.

Table 3.1 | Collaborative Program FY 2010 and FY 2011 Funded Projects: Physical Habitat Restoration and Management

	Funded Projects – Funded Entity	Entity Performing Work	Continuing Activity or Distinct Project	BiOp Requirement	Grant/ Contract #	Amount Appropriated	Year of Allocation
3.1.1	Velarde Reach Habitat Restoration Analysis and Recommendations Report Finalization	Parametrix	FY07-FY10	no	07-CS-40-8188	$110,480.00	2010
3.1.2	Isleta Reach Riverine Restoration and Habitat Improvements – Phase II Environmental Monitoring	Tetra Tech	FY10-FY13	yes	R10-PD-40-088	$216,359.00	2010
3.1.3	Isleta Reach Riverine Restoration and Habitat Improvements – Phase II	NMISC	FY08-FY10	yes	08-FG-40-2832	$50,000.00	2010
3.1.4	Middle Rio Grande River Restoration/ Channel Maintenance Workshop	Collaborative Program	FY10	no	09AFUC-09-004	$0	2010
3.1.5	River Mile 83 Feasibility Study	Tetra Tech	FY08-FY11	no	R10-PD-40-0075	$127,938.00	2010
3.1.6	Proposed Fish Passage at San Acacia Diversion Dam	Reclamation	FY06-FY12	yes	Various	$107,118.00	2010
3.1.7	Pueblo of Santa Ana: Rio Grande and Rio Jemez Biological and Habitat Survey	Pueblo of Santa Ana	FY08-ongoing	yes	08-FG-40-2819 08-FG-40-2819	$92,720.00 $127,002.00	2010 2011
3.1.8	Rio Grande Silvery Minnow Egg Monitoring in Canals	Service	FY06-ongoing	yes	R11PG40034	$35,000.00	2011
3.1.9	New Mexico State Land Office Habitat Restoration	New Mexico State Land Office	FY11-FY14	yes	R11AP40093	$299,934.00	2011
3.1.10	Ohkay Owingeh Habitat Restoration	Ohkay Owingeh Pueblo; La Calandria Associates, Inc.	FY11-FY13	yes	R11AP40094	$263,330.00	2011
3.1.11	New Mexico Interstate Stream Commission Rio Rancho Habitat Restoration Project – Phase I	Reclamation; NMISC; Rio Rancho Open Space; Wilco Marsh Buggies	FY10-FY14	yes	R11AP40092	$456,872.00	2011
3.1.12	Pueblo of Santa Ana Habitat Restoration	Pueblo of Santa Ana	FY11-FY13	yes	R11AP40096	$292,135.00	2011
3.1.13	Northern Bosque Floodplain Habitat Restoration	Santo Domingo Tribe; Reclamation	FY10-FY14	yes	R10-AP-40-052	$299,114.00	2010
3.1.14	San Felipe Habitat Restoration Plans and Designs	Pueblo of San Felipe	FY10-FY11	yes	R10-AP-40-053	$142,939.00	2010
3.1.15	La Orilla Drain Southwestern Willow Flycatcher Habitat Restoration	ABCWUA; COA Open Space Division; SWCA	FY11-FY13	yes	R10-AP-40-051	$295,502.00	2010
3.1.16	Monitoring Plan Team Cooperative Monitoring Effort	Collaborative Program/ USACE lead	FY09-ongoing	yes	NA	$0	NA

3.1 Physical Habitat Restoration and Management

Habitat restoration (HR) and improvement activities include physical manipulations of the Rio Grande channel (riverine restoration) and adjacent bosque (riparian restoration) to benefit the listed species. For FY 2010 and FY 2011, HR priorities included planning, design, construction, and monitoring of HR projects that would benefit the RGSM and SWFL in various locations throughout the Middle Rio Grande (MRG). Table 3.1 summarizes the status of the projects described under Physical Habitat Restoration and Management. The projects are described below.

3.1.1 VELARDE REACH HABITAT RESTORATION ANALYSIS AND RECOMMENDATION REPORT FINALIZATION

The Velarde Reach Analysis and Recommendations (A&R) report evaluated projects aimed at improving habitat for the RGSM and SWFL in the Velarde Reach of the MRG and the Rio Chama, and focused on four sub-reaches:

- Taos to Pilar;
- Pilar to Embudo Station;
- Velarde to Ohkay Owingeh; and,
- Monastery to Big Eddy.

The recommendations included conceptual-level design drawings, planning-level cost estimates, monitoring recommendations, and adaptive management (AM) considerations. A&R key points presented to the Habitat Restoration Work Group (HRW) in July 2008 included information on floodplains, water quality, water temperature, RGSM spawning, drying conditions, and potential reasons for decline of the SWFL in the Velarde Reach. A draft report was provided for Collaborative Program review in July 2009, and the final report was delivered in 2010. The report identified a total of 425 acres in the overall Velarde Reach that could be candidates for restoration.

Benefits to Species: This project evaluated and recommended projects aimed at improving habitat for both the RGSM and SWFL in the Velarde Reach of the MRG. Reach-specific A&Rs provide guidance for future restoration projects and help prioritize potential projects that benefit the species by:

- Improving habitat and supporting scientific analysis;
- Promoting overall ecosystem health; and,
- Promoting the hydrological connectivity between the active river channel and the floodplain channel and floodplain.

3.1.2 ISLETA REACH RIVERINE RESTORATION AND HABITAT IMPROVEMENTS – PHASE II ENVIRONMENTAL MONITORING

Environmental monitoring was initiated after completion of restoration and rehabilitation activities designed to create wetland, riparian, and aquatic habitat by the NMISC. Monitoring data collected in 2011 indicated a total increase in overall wetland area associated with restoration features and natural revegetation of most of the restoration features. Continued monitoring of this project will be conducted to assess wetland development, riparian vegetation development, and to monitor for noxious weeds.

Benefits to Species: This restoration effort increases measurable habitat complexity in support of various life stages of the RGSM by providing slackwater habitat and facilitating lateral migration of the river across bars and riverbanks during various mid-level and high-flow stages. Specific restoration treatments will be monitored and evaluated to inform restoration plans for future phases.

3.1.3 ISLETA REACH RIVERINE RESTORATION AND HABITAT IMPROVEMENTS – PHASE II

Planning, design, and construction activities were initiated for restoration and rehabilitation designed to create aquatic habitat in the Rio Grande south of Belen. The NMISC selected and designed habitat restoration project sites for the Isleta Phase II project. Construction of this project was accomplished with American Recovery and Reinvestment Act funding, with Reclamation providing acquisition and construction management services. The HR goals for this project include: 1) diversifying mesohabitat types, focusing on spawning, egg retention, larval fish, and young-of-year (YOY) habitat; 2) creating refugial habitat for the RGSM during prolonged dewatering/no-flow periods in locations that are adjacent to perennial water sources; 3) designing strategic inundation of disconnected bosque habitat to encourage and increase the extent of overbank inundation; and, 4) encouraging fluvial processes and river dynamics. Accomplishing these goals requires: 1) creation of backwaters and embayments to form slackwater areas; 2) reduction in height of banklines, bank-attached bars, and islands; and, 3) creation of ephemeral high-flow channels to carry water into hydrologically disconnected overbank areas and bank-attached bars and islands. Construction started in fall 2010, after the migratory bird season ended, and concluded in spring 2011.

Benefits to Species: This restoration effort increased measurable habitat complexity in support of various life stages of the RGSM by providing slackwater habitat and facilitating lateral migration of the river across bars and riverbanks during various mid-level and high-flow stages. Specific restoration treatments will be implemented, monitored, and evaluated to inform the restoration plans of future phases.

3.1.4 MIDDLE RIO GRANDE RIVER RESTORATION/CHANNEL MAINTENANCE WORKSHOP

On September 21, 2010, the Collaborative Program was the lead sponsor of a workshop entitled, "Middle Rio Grande: Methods and Practices on River Habitat Restoration and Management, and State of Local Knowledge." This all-day event was joined by representatives of groups, organizations, agencies, and individuals interested in HR and management methods, with discussions about the benefits, applicability, challenges, and implementation experience of HR practices.

3.1.5 RIVER MILE 83 FEASIBILITY STUDY

This project assessed the possibility of realigning the Rio Grande river channel at River Mile 83 to 77, an area from the north boundary of the Bosque Del Apache National Wildlife Refuge south.

Benefits to Species: This project is an assessment of alternatives to restore and modify existing conditions in a 2-3 mile length of the river and riparian area. Benefits to endangered species are expected upon implementation of potential restoration activities.

3.1.6 PROPOSED FISH PASSAGE AT SAN ACACIA DIVERSION DAM

Initial San Acacia fish passage National Environmental Policy Act (NEPA) compliance support services were funded in FY 2006, with related Endangered Species Act (ESA) compliance support services funded in FY 2007. The preferred alternative for a fish passage at the San Acacia Diversion Dam (SADD) was selected in April 2008. Feasibility-level (30%) engineering designs, cost estimates, and construction schedule were completed in December 2008 and 90%-level engineering designs and draft specifications were delivered in June 2009. A Reclamation-mandated Design, Engineering, and Construction (DEC) review of the facility design, drawings, cost estimates, and "constructability" was also conducted in 2009.

The SADD Peer Review Study (R10-PD-43-073), an external peer review of the science surrounding the need for a fish passage, was completed in February 2011. The peer review panel recommended that more research into the relationship between genetic diversity and dam fragmentation, as well as the influence of habitat mitigation within reaches on movement, growth, survival, and reproductive success of the RGSM, be conducted before the fish passage at SADD is implemented.

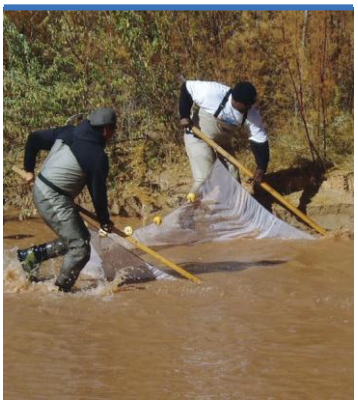
Reclamation has continued to fund interim measures through the Collaborative Program to alleviate adverse effects of habitat fragmentation on genetic viability of the species, including:

- Captive propagation of RGSM at three rearing and breeding facilities;
- RGSM rescue efforts during river drying, and reproductive monitoring;
- RGSM egg collection; and,
- RGSM genetics studies.

Benefits to Species: More research into the relationship between genetic diversity and dam fragmentation will increase the feasibility of such projects contributing to recovery of the species, prior to implementation.

3.1.7 PUEBLO OF SANTA ANA: RIO GRANDE AND RIO JEMEZ BIOLOGICAL AND HABITAT SURVEY

The objective of this project was to develop monitoring protocols that can be used to develop and sustain HR projects within the Pueblo of Santa Ana. Project activities include the performance of a variety of surveys, including icthyofauna, macroinvertebrate, RGSM population and habitat, SWFL population and habitat, soil salinity/texture, and micro-climate measurements. Collected data will be used by the Pueblo to evaluate trends in the populations of RGSM and SWFL, evaluate population utilization of restored sites, and correlate patterns of use/non-use to measureable habitat features, such as vegetation characteristics and micro-climate measurements.



Rio Grande silvery minnow on the Rio Jemez through the Pueblo of Santa Ana using seine nets (Photo courtesy of the Pueblo of Santa Ana, fall 2008)

Benefits to Species: The intensive monitoring specified in this project provides the ability to assess ecosystem changes within the six-mile Rio Grande corridor through the Pueblo of Santa Ana. This assessment will not only provide input on how the RGSM and SWFL populations are faring within this reach, but also provide data on habitat characteristics preferred by these species, which will help in future HR efforts.

3.1.8 RIO GRANDE SILVERY MINNOW EGG MONITORING IN CANALS

This project has been performed each year since 2003 in order to document RGSM entrainment in main canals associated with all three (Angostura, Isleta, and San Acacia) diversion dams during the RGSM spawning period from May 1 - May 31. This project also provides real-time notification of RGSM egg entrainment for action agencies to minimize take due to diversions.

Benefits to Species: Egg entrainment is lower in years with average spring runoff, supporting the use of environmental flow management for reducing entrainment and increasing recruitment. Entrainment monitoring data, when evaluated with spawning periodicity and fish community data, indicates that entrainment of eggs into irrigation canals does not have measureable effects on RGSM recruitment.

3.1.9 NEW MEXICO STATE LAND OFFICE HABITAT RESTORATION

The two main elements of this project are restoration of the native vegetative community and function, and hydrologic restoration of natural fluvial processes. Vegetative restoration includes removal and treatment of non-native vegetation and planting of coyote and Goodding's willow. Hydrologic restoration involves lowering and terracing of the river bankline, construction of backwater embayments, and removal of over 700 jetty jacks.

Benefits to Species: This project will support multiple life-stages of RGSM by creating diverse aquatic habitat for brood-rearing, retention of drifting eggs, and retention of food supply for developing larvae. It is also anticipated that dense, native willow habitat will provide stop-over habitat for migration of SWFL.

3.1.10 OHKAY OWINGEH HABITAT RESTORATION

In this project area, HR activities involve removal of invasive trees and shrubs, deepening and enhancement of the existing high-flow channel through construction of earthwork, and planting of willows. This project intends to expand the area of potential SWFL habitat in the project area.

Benefits to Species: This project could potentially provide 31 acres of additional SWFL habitat. Together with other HR projects on Ohkay Owingeh Tribal lands, project completion could create a contiguous area of 60 acres of bosque that is buffered from grazing.

3.1.11 NEW MEXICO INTERSTATE STREAM COMMISSION RIO RANCHO HABITAT RESTORATION PROJECT – PHASE I

The objective of this project was to increase habitat for RGSM in the upper portion of the Albuquerque Reach of the MRG in a manner that integrates with other ecological features of the river. This restoration project will also create stop-over habitat for SWFL and other migratory avian species.

The project will not only create more suitable habitat for RGSM, but it will also help educate the public about the importance of conservation in support of a healthier Rio Grande ecosystem. The stretch of the river improved by project is also being developed as a public interpretation and recreation site known as the City of Rio Rancho Open Space.

Benefits to Species: The proposed project will restore approximately 50 acres of riparian cottonwood forest and associated vegetated mid-stream islands and bars.

3.1.12 PUEBLO OF SANTA ANA HABITAT RESTORATION

This project involved the creation of a network of ephemeral channels within 10 acres of existing lowered river bar. Areas adjacent to the ephemeral channels were pole planted with woody riparian species, and woody debris piles were placed on the upper portions of the bar.

Benefits to Species: When completed, RGSM and SWFL will potentially benefit from increased wetted habitat when flows are low, diversified habitat types, multi-structured vegetation cover, and re-connection between known used habitats and previously-used habitats.

3.1.13 NORTHERN BOSQUE FLOODPLAIN HABITAT RESTORATION

Floodplain restoration in the North Bosque Demonstration and Restoration Area, and other areas of Santo Domingo Tribal lands, was accomplished primarily through mimicry of pre-Cochiti Dam floodplain hydrology. Three historic side channels were enhanced and rewetted with managed flood events to utilize natural seed germination and recreate diverse, native riparian habitat. The project also includes at least two patches of dense cottonwood and willow plantings.

Benefits to Species: This project potentially benefits 0.25 miles of perennial side channel adjacent to the river, in addition to 24 acres of floodplain. Long-term conservation of SWFL habitat will be improved through floodplain wetting and riparian recruitment, clearing, and re-flooding over the long-term in order to maintain young- to mid-age dense riparian vegetation, which is preferred by SWFL.

3.1.14 SAN FELIPE HABITAT RESTORATION PLANS AND DESIGNS

The goal of this project is to create an HR plan that uses active and passive techniques to reduce non-native vegetation. Phase I of the project includes baseline data collection and assessment, final project design, and drafting of environmental compliance documentation.

Benefits to Species: Planned HR activities are intended to increase seasonal open-water habitat for the benefit of aquatic species, including RGSM, and to enhance riparian vegetation habitat, including potential SWFL nesting habitat. Future construction activities will focus on a 75 acre project area, with the eventual creation of 23 acres of willow marsh.

3.1.15 LA ORILLA DRAIN SOUTHWESTERN WILLOW FLYCATCHER HABITAT RESTORATION

This project restored approximately 10 acres of dense Goodding's willow and coyote willow swale habitat, and provided 10 additional acres of riparian shrub plantings to create a transition to existing bosque vegetation. This project was accomplished by clearing non-native vegetation, lowering bank levels, and planting beneficial species in the La Orilla drain project area.

Benefits to Species: SWFL benefit from dense, mid-sized, native willow-dominated vegetation, ephemeral standing water, insect/food sources, and cover; this project is intended to provide benefits of each.

3.1.16 MONITORING PLAN TEAM COOPERATIVE MONITORING EFFORT

The goal of this activity is to monitor Collaborative Program-funded HR projects/features in order to assess their effectiveness and function over time while complying with project-specific and Programmatic BiOp (RPA Element "S") related requirements. An interim 2-year Effectiveness Monitoring Plan (EMP) established by the Monitoring Plan Team ad hoc work group (MPT) was initialized during the spring of 2010 through the fall of 2012. A multi-disciplinary team from participating entities, led by the USACE, monitored physical elements related to habitat characteristics (hydrology, geomorphology, vegetation) and presence of RGSM and SWFL at the sites. The results from the pilot EMP, subsequent peer reviews, and the adaptive management plan will be used to develop and implement a 10-year EMP. A draft Monitoring Report (2010-2012) is currently under review and includes recommendations for the 10-year EMP. The MPT has also overseen the annual wetland compliance monitoring. Reports were completed for 2011 and 2012.

Benefits to Species: Consistent monitoring will ensure that constructed projects are functioning as designed and assist in determining the effectiveness and life spans of various restoration techniques and treatments. This information is critical to inform the Program's adaptive management process. The on-going activity will monitor the availability and effectiveness of restored habitat in the context of total available habitat and habitat trends (system wide analysis) for the RGSM and SWFL to ensure sufficient habitat availability in order to maintain stable populations and assist in recovery. This will also help with design of future restoration projects, which can be further refined based upon monitoring results.

3.2 Water Management

The Collaborative Program seeks to develop and implement creative water use and development alternatives that will satisfy water needs for threatened and endangered species while protecting existing uses. Language in the FY 2006 Energy and Water Appropriations Act (Public Law 109-275) assigned responsibility for water acquisition, administration, and management to Reclamation, to be conducted at full federal expense.

Water management includes acquisition of water and/or manipulation of flows, reservoirs, and Low-Flow Conveyance Channel (LFCC) pumping to meet compliance requirements and activity objectives on the ground. The purpose of other Collaborative Program-funded water management activities is to provide assistance and expertise to accomplish Collaborative Program goals. Reclamation works to secure potential supplies of water and storage space and implement management strategies to meet Biological Opinion (BiOp) requirements and Collaborative Program goals. Table 3.2 summarizes the status of the water management projects.

Table 3.2 | Collaborative Program FY 2010 and FY 2011 Funded Projects: Water Management

	Funded Projects – Funded Entity	Entity Performing Work	Continuing Activity or Distinct Project	BiOp Requirement	Grant/ Contract #	Amount Appropriated	Year of Allocation
3.2.1	USGS Middle Rio Grande River Gage Operation and Maintenance	USGS	FY05-ongoing	yes	R10-PG40089	$92,466.00	2010
					R10-PG40089	$133,039.00	2011
3.2.2	Data Collection to Better Define the Interaction of the Surface- and Groundwater Systems in the Middle Valley	USGS	FY04-ongoing	no	R-09-PG-40-005	$59,639.00	2010
					R11PG40031	$186,250.00	2011
3.2.3	Bureau of Reclamation – Supplemental Water Program	Reclamation	FY01-ongoing	no	Various	$4,262,338.00	2010
					Various	$5,270,156.00	2011
3.2.4	Upper Rio Grande Water Operations Model to Support New Biological Assessment/Biological Opinion	BH&H Engineering	FY06-ongoing	no	R10-PX-40-112	$100,000.00	2010
					R11PD43022	$36,855.00	2011

3.2.1 USGS MIDDLE RIO GRANDE RIVER GAGE OPERATION AND MAINTENANCE

The U.S. Geological Survey (USGS) operates and maintains a network of 24 streamflow gages in the Middle Rio Grande (MRG), including 12 in the mainstream of the Rio Grande and 12 in tributaries or distribution features. The Collaborative Program has funded four of these gages. The USGS performs manual streamflow measurements regularly at each gage. The manual measurements are used for calibration and generation of ratings curves for each station. The ratings curves convert gage height into stream discharge and allow the USGS to update their webpage with information on flows and provide accurate up-to-date information for water management.

Benefits to Species: The collection of MRG stream flow information helps ensure that required Water Operations elements of the Biological Opinion (BiOp) are met. The data from these gages are critical for efficient management of flows in the MRG, helping MRG water management agencies meet the needs of water users, fulfilling the requirements of the Rio Grande Compact, maintaining sufficient water in storage for future needs, and maintaining adequate water in the river to support the RGSM.

3.2.2 DATA COLLECTION TO BETTER DEFINE THE INTERACTION OF THE SURFACE- AND GROUNDWATER SYSTEMS IN THE MIDDLE VALLEY

This project supplies hourly shallow groundwater and surface-water level data at selected cross-sections across the Rio Grande bosque and adjacent riverside drains from Cochiti Dam to San Acacia. Objectives of the data collection are to use nested piezometers at various depths between the river and riverside drains and outside the bosque, and surface-water level gages to supply corresponding elevation data. The data

Table 3.2.1 | 2010 and 2011 Funding for the San Juan-Chama Project Supplemental Water Lease Agreements

SJCP Contractor	2010 Leased Acre-Feet	2010 Funding	2011 Leased Acre-Feet	2011 Funding
Uncontracted Allocation	2,990	$38,504	2,990	$37,723
Jicarilla Apache Nation	3,500	$262,500	2,500	$187,500
City of Albuquerque	10,000	$1,000,000	10,000	$1,000,000
Ohkay Owingeh	2,000	$94,000	2,000	$94,000
County of Los Alamos	1,200	$56,400	1,200	$56,400
City of Espanola	850	$39,950	900	$42,300
City of Belen	450	$21,150	425	$19,975
Town of Bernalillo	400	$18,800	400	$18,800
Town of Taos	245	$11,515	225	$10,575
County of Santa Fe	175	$8,225	375	$17,625
Village of Los Lunas	200	$9,400	150	$7,050
Town of Red River	60	$2,820	60	$2,820
Village of Taos Ski Valley	8	$376	8	$376
Total	**22,078**	**$1,563,640**	**21,233**	**$1,495,144**
TOTAL 2010 and 2011	**LEASED ACRE-FEET**	**43,311 AF**	**FUNDING**	**$3,058,784**

are used to examine the hydrologic interactions between the river and riverside drains, the river and the shallow groundwater system, riverside drains and adjacent irrigated areas, and further understand flow variability in the bosque shallow groundwater system and the adjacent deeper groundwater system.

Transect measurements continued in 2011 when Reclamation personnel accompanied USGS into the field in order to prepare for the planned transition of future data collection to Reclamation responsibility in 2013.

Benefits to Species: Long-term groundwater and surface-water-level data are useful for: supporting ongoing hydrologic modeling; evaluating changes in adjacent municipal pumping and surface-water diversions; and, evaluating seasonal changes in surface-water-groundwater relationships. Information on hydrologic interactions is also useful for habitat restoration (HR) planning and siting needs.

3.2.3 BUREAU OF RECLAMATION – SUPPLEMENTAL WATER PROGRAM

Water acquisition funding in 2010 and 2011 made possible releases of supplemental water to meet the flow requirements of the 2003 BiOp to benefit the RGSM and SWFL. Collaborative Program funds in the amount of $3,058,784 were used to secure leases of San Juan-Chama Project (SJCP) water from willing lessors to provide for releases of supplemental water into the Rio Grande. In addition, funds in the amount of $4,478,241 were used for LFCC pumping, in which water is pumped from the LFCC into the Rio Grande to enhance river flows to benefit the RGSM and SWFL. Shown in Table 3.2.1 is a summary of water leases for 2010 and 2011.

3.2.4 UPPER RIO GRANDE WATER OPERATIONS MODEL TO SUPPORT NEW BIOLOGICAL ASSESSMENT/BIOLOGICAL OPINION

A 2006 contract supported the Species Water Management Work Group (SWM) using the Upper Rio Grande Water Operations Model (URGWOM) to evaluate reservoir storage options and to estimate supplemental water needs to support the 2003 BiOp. The modeling analysis suggested that hydrology and Rio Grande Compact Article VII restrictions are the factors limiting conservation storage potential and that up to 90,000 AF of storage in the conservation pool may be needed to meet BiOp target flows in any given year.

During the Population and Habitat Viability Assessment (PHVA) workshop in December 2007, work groups identified several water operations scenarios that could be evaluated using Population Viability Assessment (PVA) models. This effort includes evaluating various water management scenarios using URGWOM: (1) to estimate the amount of supplemental water that would be needed to meet the flow targets in an alternate water management scenario;

(2) as inputs for the PVA models; and, (3) to help analyze the effects the water management scenarios would have on the species and its habitat.

Updates and modification to the URGWOM concerning supplemental water usage, groundwater/surface-water interactions, and river drying calibration allowed for more effective projection of supplemental water needs. URGWOM was also used to test a wide variety of alternate water management alternatives. Eleven water management scenarios were developed and run through updated URGWOM for five hydrologic sequences, culminating in an initial screening of alternatives. In 2010 and 2011, enhancements to URGWOM have continued, including calibrations using historic river data.

Benefits to Species: URGWOM assists water managers in better determining the hydrologic effects of alternate water management scenarios, evaluating the amount of supplemental water needed to meet modified flow targets, and supporting other modeling to evaluate the effects of possible water management alternatives on listed species.

3.3 Population Augmentation/Propagation (Silvery Minnow Only)

The Collaborative Program has partially funded the construction, operation, and maintenance of three rearing and breeding facilities for the RGSM in the Middle Rio Grande (MRG): the City of Albuquerque's (COA) Aquatic Conservation Facility (formerly the Rio Grande Silvery Minnow Rearing and Breeding Facility), the New Mexico Interstate Stream Commission's (NMISC) Los Lunas Silvery Minnow Refugium, and the U.S. Fish and Wildlife Service's (Service) Southwestern Native Aquatic Resources and Recovery Center (SNARRC; formerly Dexter National Fish Hatchery and Technology Center). SNARRC is also utilized to conduct research for fish health assessments and to assist in preservation of genetic diversity. These facilities serve to provide sufficient populations for reestablishing and augmenting the RGSM within its historic range of the Rio Grande Basin. Table 3.3 summarizes the captive propagation and population augmentation projects funded by the Collaborative Program in FY 2010 and 2011. The projects are described in the following sections.

Table 3.3 | Collaborative Program FY 2010 and FY 2011 Funded Projects: Population Augmentation/Propagation (Silvery Minnow Only)

	Funded Projects – Funded Entity	Entity Performing Work	Continuing Activity or Distinct Project	BiOp Requirement	Grant/ Contract #	Amount Appropriated	Year of Allocation
3.3.1	Assessment and Monitoring of Rio Grande Silvery Minnow Genetics	UNM	FY09-FY10	yes	07-FG-40-2662	$170,954.00	2010
					07-FG-40-2662	$186,250.00	2011
3.3.2	Security System for Rio Grande Silvery Minnow Sanctuary	PELCO, Inc.	FY10-FY11	no	R10-PD-43-041	$86,426.00	2010
3.3.3	Fund Minnow Sanctuary Operation and Maintenance – U.S. Fish and Wildlife Service	Service	FY08-ongoing	yes	R10-PG-40-116	$190,000.00	2010
					R10-PG-40-116	$150,000.00	2011
3.3.4	U.S. Fish and Wildlife Service Rearing/ Breeding Operation and Maintenance – SNARRC	Service	FY03-ongoing	yes	R10-PG-40-117	$300,000.00	2010
					R10-PG-40-117	$300,000.00	2011
3.3.5	City of Albuquerque Rearing/Breeding Operation and Maintenance	COA	FY03-ongoing	yes	08-FG-40-2743	$104,384.00	2010
					08-FG-40-2743	$149,022.00	2011
3.3.6	Rearing/Breeding Operation and Maintenance New Mexico Interstate Stream Commission Naturalized Refuge	NMISC	FY07-ongoing	yes	08-FG-40-2803	$229,695.00	2010
					08-FG-40-2803	$290,015.00	2011
3.3.7	U.S. Fish and Wildlife Service Experimental Augmentation and Monitoring	Service	FY02-ongoing	no	R10-PG40-097	$120,962.00	2010
					R10-PG40-097	$100,000.00	2011
3.3.8	Reintroduction of Experimental Rio Grande Silvery Minnow Populations	Service	FY08-FY12	no	R10-PG-40-107	$477,025.00	2010

3.3.1 MONITORING OF RIO GRANDE SILVERY MINNOW GENETICS

Genetic sampling and analysis are being conducted on wild and artificially propagated stocks of RGSM. The project facilitates: (1) tracking of the genetic effects of changes in RGSM abundance; and, (2) monitoring of the effects of river fragmentation and supportive breeding on the wild population. The RGSM genetic database is being used to develop, parameterize, and verify models aimed at predicting genetic effects of captive propagation on wild stocks of RGSM (under various scenarios) to further inform captive propagation and augmentation strategies aimed at species recovery. Genetic monitoring of the RGSM using nuclear microsatellites and mitochondrial DNA (mtDNA) commenced in 1999 and has continued annually since that time.

Benefits to Species: It is critical to characterize the genetic diversity of the wild population of RGSM, both spatially and temporally, so that broodstock may be selected to mirror the pattern of wild variation in hatchery propagated individuals. Knowledge of the genetic diversity of captively-spawned RGSM is required to ensure that artificial selection in hatcheries or variance in reproductive success among brooding individuals have not significantly altered (i.e. reduced) gene frequencies of individuals released into the wild population.

3.3.2 SECURITY SYSTEM FOR RIO GRANDE SILVERY MINNOW SANCTUARY

A security system was installed at the RGSM Sanctuary located one mile south of Bridge Street in Albuquerque, NM. Video surveillance is necessary to identify activities at the facility which are considered unlawful.

Benefits to Species: The RGSM Sanctuary is used as an outreach and educational tool, and serves as one of the additional refugia required by the 2003 Biological Opinion (BiOp).

3.3.3 FUND MINNOW SANCTUARY OPERATION AND MAINTENANCE – U.S. FISH AND WILDLIFE SERVICE

This cooperative project will provide a naturalized system for rearing of RGSM for augmentation efforts. The off-channel sanctuary is located one mile south of Bridge Street in Albuquerque, NM. Once fully operational, the facility will mimic wild conditions which may increase survival of RGSM released into the river. The facility may be used as an outreach and educational tool and will also serve as one of the additional refugia required by the BiOp. In June 2010, the Service conducted water quality and operations testing in preparation for full facility operations.

Benefits to Species: This project will aid in developing and refining methods for rearing of the RGSM for augmentation efforts.

3.3.4 U.S. FISH AND WILDLIFE SERVICE REARING/BREEDING OPERATION AND MAINTENANCE – SNARRC

The Dexter National Fish Hatchery and Technology Center is now known as the Southwestern Native Aquatic Resources and Recovery Center (SNARRC). The facility began working with endangered species in 1974. (credit: U.S. Fish and Wildlife Service)

This cooperative project at the Service's SNARRC in Dexter, NM utilizes the joint expertise of federal, state, and educational institutions to significantly aid in reestablishing, stabilizing, and enhancing populations of the RGSM within its historic range of the Rio Grande Basin. SNARRC produces 250,000-300,000 RGSM annually for river augmentation. The facility holds an additional 80,000-100,000 RGSM over winter and 16,000-20,000 captive broodstock year-round. The primary purpose of this activity is to propagate RGSM for augmentation efforts.

In 2010, SNARRC maintained a captive broodstock of 15,000 wild-caught adult fish. SNARRC maximized its production by producing more than 600,000 RGSM in the calendar year. SNARRC also provided 488,444 RGSM for reintroduction at the Big Bend Reach, TX. In 2011, SNARRC maintained a captive broodstock of 12,000 wild caught adult fish and 15,000 larvae from egg salvage operations. SNARRC produced more than 450,000 age-0 fish in the calendar year, and successfully hauled and released 304,651 RGSM into the Big Bend Reach of the Rio Grande, TX.

Benefits to Species: The facility is utilized to conduct research for fish health assessments, maintain captive broodstocks, assist in preservation of genetic makeup, and rear and maintain larvae and adults. The propagation program began in 2001, and has made significant advances in developing appropriate and consistent propagation and culture methods.

3.3.5 CITY OF ALBUQUERQUE REARING/BREEDING OPERATION AND MAINTENANCE

This project provides funding for the operation and maintenance of the COA Aquatic Conservation Facility (formerly the Rio Grande Silvery Minnow Rearing and Breeding Facility) located at the Albuquerque Biopark. The continued operation of the facility promotes the recovery of the RGSM and increases RGSM numbers in the wild through captive propagation and augmentation. The Aquatic Conservation Facility is designed as a practical breeding and rearing center, as well as a research center. The facility includes indoor culture systems, outdoor culture systems, and the Naturalized Refugium. The indoor systems are used for quarantine, breeding, egg hatching, and rearing larvae. The outdoor systems are used for raising larvae to sub-adult age as well as holding large numbers of broodstock. The Naturalized Refugium is an outdoor system that creates a river-like environment with controllable flow, variable depth, variable habitat, and natural substrate.

In 2010, the facility held approximately 50,000 RGSM, and approximately 28,275 of these fish were released to the Rio

Grande in November. About 3,500 RGSM were sent to the U.S. Geological Survey (USGS) for research, 20,000 were released just south of Jarales, and 8,000 were released by Service crews at La Joya in Socorro County. In April, May, and June, facility staff collected 2,000 eggs from Jarales in Valencia County. An estimated 40,788 viable RGSM eggs were produced via Carp Pituitary Gland Extract-induced (CPE) captive spawning. In addition, approximately 1,400 RGSM were collected and brought to the facility by the Service. By the end of 2010, the total number of RGSM held at the facility was 3,414.

At the end of 2011, 5,360 RGSM were on station at the facility for brood-stock and future release. Throughout the year, the facility had released approximately 52,090 tagged RGSM to the San Acacia Reach (SAR), 9,000 RGSM at Neil Cupp, and 43,000 below the San Acacia Diversion Dam (SADD). A total of 136,744 RGSM eggs were collected from the MRG, and 205,000 viable eggs were produced at the facility via hormone-induced captive spawning. Approximately 94,000 RGSM eggs and fish were sent to the Service's SNARRC.

Benefits to Species: The continued operation of this facility will help promote recovery of the RGSM and increase its numbers in the wild through captive propagation and augmentation. The propagation techniques used by the facility staff have produced fish, eggs, and substantive information for other fish culturists. The COA's facility significantly aids reestablishing, stabilizing, and enhancing populations of the RGSM within its historic range of the Rio Grande Basin.

3.3.6 REARING/BREEDING OPERATION AND MAINTENANCE NEW MEXICO INTERSTATE STREAM COMMISSION NATURALIZED REFUGIUM

The Los Lunas Silvery Minnow Refugium, built and managed by the NMISC, opened for operation in May 2009. It is designed to provide a naturalized environment for captive RGSM. The outdoor refugium is 0.5 acres and provides a range of RGSM habitat including backwaters and overbank areas. The refugium has a 1,500 ft^2 indoor holding facility. The facility underwent a three-phase permitting process in 2010, and the results of the 2010 report were deemed successful in 2011 in preparation for full operations.

Benefits to Species: The naturalized refugium is intended to provide conditions for RGSM that are more similar to natural river conditions. The facility is intended to be used for:

- Spawning and propagation of RGSM to augment existing populations in the MRG, as well as other stretches of the Rio Grande;

- Conducting research for use in management of RGSM;
- Housing of a refugial population, for species protection against extinction in the case of river disasters; and,
- Housing of an additional "insurance" captive population in case of a disease affecting other RGSM breeding and propagation facilities.

3.3.7 U.S. FISH AND WILDLIFE SERVICE EXPERIMENTAL AUGMENTATION AND MONITORING

This program evaluates the effectiveness of RGSM population augmentation in the MRG and monitors the temporal and spatial movements of released RGSM. Specific objectives include: (1) determining survival of released RGSM; (2) determining temporal and spatial dispersal of released RGSM; (3) identifying and characterizing river reaches where survival of released RGSM is maximized; (4) evaluating the effects of augmentation on future recruitment; (5) developing protocols for stocking; and, (6) increasing the density of RGSM. Beginning in 2008, the Service initiated a new operating plan for a five year period (2008-2012) for augmentation in the MRG. Augmenting the Isleta Reach and SAR during this period will allow for adequate evaluation of the long-term effects compared to effects without augmentation in the Angostura Reach. All released fish are supplied by supported hatchery operations with guidance from the RGSM Genetics Management and Propagation Plan.

Benefits to Species: Over 1,000,000 hatchery-raised RGSM have been released in the MRG since 2002. The quantitative contribution of this augmentation in currently occupied reaches is under additional study.

3.3.8 REINTRODUCTION OF EXPERIMENTAL RIO GRANDE SILVERY MINNOW POPULATIONS

In December 2008, the Service published a final rule designating a nonessential experimental population area in the Big Bend Reach of the Rio Grande in Texas under section 10(j) of the Endangered Species Act (ESA) for the endangered RGSM. With support from the Collaborative Program and Reclamation, and assistance from many other partners, the Service began releasing RGSM into the Big Bend Reach in December 2008. The four release sites are distributed across federal, state, and private lands: one in Big Bend Ranch State Park; two within Big Bend National Park; and, one on the Adams Ranch del Carmen, a privately-owned and managed conservation area. The reintroduced RGSM came from the Service's SNARRC and the COA's Aquatic Conservation Facility.

Post-release monitoring of the relative abundance of RGSM to other fish species in proximity to the four release sites began in May 2009. Eighty-four RGSM were found during monitoring efforts in January 2010. Also in that year, successful RGSM breeding was detected, including presence of eggs, larval fish, and juvenile fish. In 2011, the Service and multi-agency crews documented that RGSM have dispersed 15 miles upstream and almost 70 miles downstream of release sites.

Benefits to Species: The goal of this reintroduction effort is to reestablish a self-sustaining population of the federally listed endangered RGSM in potentially suitable habitat found within the species' historic range in the Rio Grande within the Big Bend area of Texas.

Multiple refugia and other facilities are involved in captive propagation of RGSM for eventual river augmentation in the Rio Grande. Since 2008, the Collaborative Program has supported reintroduction efforts in the Big Bend Reach of the Rio Grande using broodstock from facilities such as SNARRC (left), and the COA's Aquatic Conservation Facility. (credit: U.S. Fish and Wildlife Service)

3.4 Water Quality Management (Silvery Minnow Only)

The Collaborative Program is interested in furthering the understanding of water quality as an environmental indicator for the RGSM. Several research and monitoring studies have been conducted to evaluate water quality impacts and whether these are affecting reproduction and survival of existing and reintroduced populations of RGSM. Information could assist the management of flows, especially during low-flow conditions and storm events. The overall goal would be to gather information on water quality within occupied areas and reintroduction sites to assist with interpretation of recruitment and survival rates. Although water quality activities did not receive funds in FY 2011, these efforts have continued. In particular the final report of an activity described in the FY 2008 and FY 2009 Biennial Report, *Evaluation of Perennial Wetted In-Stream Habitat Use by Rio Grande Silvery Minnow,* was completed in 2010 with a final report delivered in 2011 (Buhl 2011).

Table 3.4 | Collaborative Program FY 2010 and FY 2011 Funded Projects: Water Quality Management (Silvery Minnow Only)

	Funded Projects – Funded Entity	Entity Performing Work	Continuing Activity or Distinct Project	BiOp Requirement	Grant/ Contract #	Amount Appropriated	Year of Allocation
3.4.1	Development of Integrated Monitoring Plan for Water Quality and Fish Health	Service	FY06-FY12	yes	06-AA-40-2548	N/A	2010
					06-AA-40-2548	N/A	2011
3.4.2	Evaluation of Estrogenic Biomarkers in Rio Grande Silvery Minnow	USGS	FY08-present	yes	R10-PG-40-109	$178,045.00	2010

3.4.1 DEVELOPMENT OF INTEGRATED MONITORING PLAN FOR WATER QUALITY AND FISH HEALTH

This study was initiated to monitor and characterize the health conditions of RGSM in the Middle Rio Grande in order to provide baseline data on diseases and parasites, and document external and internal anomalies and pathologies in fish collected throughout the year. This would be conducted in conjunction with a water quality monitoring program so that results can be linked to possible causes of fish conditions.

Benefits to Species: This project provides data for managers to understand environmental stressors encountered by RGSM, as well as their associated impacts, so that managers can aid in the recovery of the species.

3.4.2 EVALUATION OF ESTROGENIC BIOMARKERS IN RIO GRANDE SILVERY MINNOW

Laboratory and field analyses were conducted to measure the physiological responses of RGSM to known endocrine disrupting chemicals, and determine the suitability of selected biomarkers of endocrine disruption for use in field studies. This information can be used to evaluate the impacts of wastewater effluents on a primary RGSM critical habitat element of water of sufficient quality. Task 1 included an assessment of short-term screening methods for use in detecting exposures of RGSM to estrogenic active substances. The goal is to characterize the responses of RGSM to exposure to a known estrogenically-active chemical. Information from this pilot study will be used to select appropriate life stage(s), exposure duration, and endpoints for use in Task 2. Task 2 involves an assessment of endocrine disruption and toxicity of three wastewater effluents to the RGSM.

Benefits to Species: These studies better delineate what constitutes an acutely toxic event resulting from episodic ammonia release into the MRG and provide new information on the effects of transient ammonia concentrations on RGSM. The lab studies also measure the physiological responses of RGSM to a known endocrine-disrupting compound and test the suitability of selected biomarkers of endocrine disruption for use in field studies.

3.5 Research, Monitoring, and Adaptive Management

The Collaborative Program pursues scientifically based solutions to address the needs of the listed species and the ecosystems upon which they depend. Monitoring and adaptive management (AM) are used to ensure that Collaborative Program activities achieve the desired objectives. The science and monitoring priorities included: 1) assessing key habitat requirements of the RGSM and SWFL essential to alleviate jeopardy and promote recovery; 2) assessing hydrologic and geomorphic impacts on habitat qualities; and, 3) monitoring and assessing the population status of the RGSM and SWFL. Table 3.5 summarizes the research, monitoring, and AM projects funded by the Collaborative Program for FY 2010 and FY 2011. The projects are described in the following sections.

Table 3.5 | Collaborative Program FY 2010 and FY 2011 Funded Projects: Research, Monitoring, and Adaptive Management

	Funded Projects – Funded Entity	Entity Performing Work	Continuing Activity or Distinct Project	BiOp Requirement	Grant/ Contract #	Amount Appropriated	Year of Allocation
3.5.1	Population Estimation and Monitoring Peer Reviews	PBS&J	FY10	no	R10-PD-40-074	$120,000.00	2010
3.5.2	Rio Grande Silvery Minnow Genetics Peer Review	Atkins	FY11	no	R11PD43022	$116,351.00	2011
3.5.3	Rio Grande Silvery Minnow Population Monitoring	ASIR	FY02-ongoing	yes	R09-PC-40-005	N/A	2010
					R09-PC-40-005	$189,076.00	2011
3.5.4	Rio Grande Silvery Minnow Spawning and Reproductive Effort Monitoring	ASIR	FY02-ongoing	yes	R10-PX-40-074	$95,370.00	2010
					R10-PX-40-074	$95,370.00	2011
3.5.5	Rio Grande Silvery Minnow Rescue and Salvage	Service	FY01-ongoing	no	R10-PG-40-098	$253,376.00	2010
					R10-PG-40-098	$225,710.00	2011
3.5.6	Rio Grande Silvery Minnow Population Estimation	ASIR	FY06-FY12	no	R09-PC-40-006	$134,206.00	2010
					R09-PC-40-006	$134,206.00	2011
3.5.7	Rio Grande Silvery Minnow Sampling Methods Calibration and Evaluation	SWCA	FY09-FY11	no	R09-PC-40-007	$179,000.00	2011
3.5.8	Southwestern Willow Flycatcher Surveys	Denver Technical Services Center	FY95-ongoing	no	Denver TSC	N/A	2010
					Denver TSC	$280,000.00	2011
3.5.9	Development of an Adaptive Management Plan	ESSA Technologies LTD	FY10-ongoing	no	R10-PC-40-043	$399,773.00	2010
3.5.10	RAMAS Population Viability Assessment Modeling	Global Conservation Network	FY10-FY11	no	R11PX43064	$52,000.00	2011

3.5.1 POPULATION ESTIMATION AND MONITORING PEER REVIEWS

An independent scientific review panel, with complete autonomy from all agencies, can be used to provide an independent evaluation of research and monitoring activities. An external peer review of RGSM population estimation and population monitoring programs was initiated in 2010 to look at the RGSM population sampling methods used by the Collaborative Program. These monitoring and estimation methods are an essential function of tracking the status of the RGSM, assessing the effectives of Collaborative Program activities, and coordinating augmentation needs with propagation activities.

Benefits to Species: Peer reviews consider the effectiveness of current programs and ensure that the best available science is used to guide and implement recovery actions.

3.5.2 RIO GRANDE SILVERY MINNOW GENETICS PEER REVIEW

An external peer review was initiated in 2011 to look at current RGSM genetics monitoring methods used by the Collaborative Program. Genetics management is a core element of managing RGSM captive propagation.

Benefits to Species: Peer review has a goal of providing valuable information on the genetics program for future management of RGSM. Genetics monitoring is critical to

ensure that genetic changes are detected quickly, and adjustments are made to the captive propagation program that prevent further losses of diversity and divergence of captive and wild stocks.

3.5.3 RIO GRANDE SILVERY MINNOW POPULATION MONITORING

Population monitoring of RGSM and the associated Middle Rio Grande (MRG) fish community has been systematically conducted at multiple sites from Algodones, NM to Elephant Butte Reservoir since 1993, and has been continuously funded by the Collaborative Program from 2002 to present. This long-term sampling program allows for documentation of RGSM population trends, and provides a measure of the success of habitat restoration (HR) efforts.

The consistent monitoring protocol implemented for this project has yielded a nearly seamless long-term ecological data set to:

- Determine long-term (multiple years) and short-term (seasonal) trends in fish populations of the MRG using statistical approaches that discern spatiotemporal differences in the abundance of native and non-native study taxa with a focus on RGSM;
- Evaluate the influence of discharge timing, magnitude, and duration on population fluctuations of both native and non-native fish species in the MRG over time and space, with a focus on RGSM;
- Compare changes in RGSM absolute and rank abundance to that of other native and non-native fish species;
- Determine site-specific sampling variation; and,
- Examine spatial correlation of RGSM population dynamics over time.

Benefits to Species: Monitoring data have provided the foundation necessary to assess changes in the MRG ichthyofaunal community over the long-term. Specifically, these data have been used to document temporal and spatial trends in native and non-native fish populations and to assess the influence of environmental variability (i.e., timing, magnitude, and duration of discharge) on species abundance and community structure. Monitoring fish communities at selected study sites provides information on the RGSM and associated fish fauna, including population trends in response to water management practices and whether increased sampling frequency provides better population data.

3.5.4 RIO GRANDE SILVERY MINNOW SPAWNING AND REPRODUCTIVE EFFORT MONITORING

This monitoring project acquires important (daily) information on the reproductive output of RGSM in the MRG at multiple sites between Albuquerque and Elephant Butte, along the length of the river. The sampling survey protocol is designed to estimate the number of in-river RGSM eggs produced during major spawning events and over the duration of the principal spawning season. Systematic monitoring of the reproductive output of RGSM at several sites in the MRG was first conducted in 1999 and has continued annually (except 2005) since 2001. Previous studies demonstrated that May and June is the primary period of RGSM reproductive activity.

In 2010, the study monitored the spatial and temporal reproductive output of RGSM in the two downstream-most river reaches (Isleta and San Acacia). A cumulative total of 586 RGSM eggs were collected at the two sites. The majority (n=364; 62.1%) of the catch was taken at the San Marcial site while the number and cumulative percent of RGSM eggs collected at the Sevilleta site (n=222; 37.9%) were slightly lower. The 2011 study collected 120,280 RGSM at the two sites.

There were several similarities observed regarding RGSM reproduction during 2002-2004 and 2006-2010. Based on the results of data from all years of the study, there was an extended duration of spawning (April-July). However, the most spawning consistently occurred during the early to middle portion of May over the months sampled.

Benefits to Species: Selected samples of wild eggs are provided to research personnel for ongoing population viability and genetic studies. Long-term monitoring of the reproductive effort of RGSM remains necessary for recovery efforts and to facilitate effective management decisions. Each yearly effort is also designed, in part, to provide insight to the success of recent stocking efforts. The future conservation status of RGSM appears dependent on ensuring adequate flow conditions during the spawning and early recruitment phases of this species.

3.5.5 RIO GRANDE SILVERY MINNOW RESCUE AND SALVAGE

The RGSM is restricted to a variably perennial reach of the Rio Grande in New Mexico, from the vicinity of Bernalillo downstream to the headwaters of Elephant Butte Reservoir. This distance fluctuates as the level of water in Elephant Butte Reservoir changes, but is approximately 150 river miles. The intent of this project by the U.S. Fish and Wildlife Service (Service) is to reduce mortality of post-larval RGSM when flow in the MRG becomes intermittent. The project also determines

the amount of incidental take as defined in the Biological Opinion (BiOp) due to water operations and drying. Rescue and salvage operations were performed each year from 2001 through 2011, except in 2008 when the river did not dry.

In 2010, a total of 10,273 RGSM were salvaged from isolated pools. Of these, 9,667 were transported to flowing sections within the same reach and released alive. In 2011, 8,070 RGSM were salvaged, of which approximately 5,244 were released alive at locations within the same reach as they were salvaged.

Benefits to Species: The MRG rescue and salvage program seeks to salvage RGSM from intermittent reaches of the Rio Grande between Angostura Dam and Elephant Butte Reservoir that, without management intervention, would likely result in substantial RGSM mortality. The RGSM are rescued from isolated pools and transported to upstream perennial reaches (e.g., Albuquerque and Isleta) where they are released.

3.5.6 RIO GRANDE SILVERY MINNOW POPULATION ESTIMATION

The Population Estimation Program supplements the current Population Monitoring Program by providing a robust, yearly estimate of the RGSM population during a single time period (e.g., October). This RGSM population estimation study incorporates several methodologies in an effort to provide a statistically rigorous estimate of population size. This study includes data collection, statistical analyses, development and testing of RGSM population quantification methods, estimates of RGSM numbers in the MRG, and development of site occupancy rates. The project includes mapping the habitat composition of the river at 20 study sites and collection of ichthyological density data in different mesohabitats. The population estimation study provides an alternative metric to the RGSM/Fish Community monitoring.

In 2010, the population estimation study found a RGSM population estimate that was highest in the Isleta Reach (n=137,486) and lowest in the San Acacia Reach (SAR) (n=49,319). Population estimates were also generated using data from the Population Monitoring Program October 2010 sampling efforts. In contrast, these population estimates found the highest numbers in the Isleta Reach (n=27,656) and the lowest numbers in the Angostura Reach (n=19,283).

The 2011 population estimation study estimated the highest population in the Angostura Reach (n=64,207), followed by the Isleta Reach (n=34,891), and the SAR (n=22,505).

Benefits to Species: Estimation of the RGSM population is an essential component in tracking the status of the species and assessing the effectiveness of Collaborative Program activities. In addition, population estimates are required to coordinate augmentation needs with propagation activities (BiOp RPA Y-AA), and to assess the effectiveness of salvage and rescue activities (BiOp RPM 1.3). Data from future years' efforts will provide additional information that will supplement recent population estimation activities and furnish valuable information necessary to gauge recovery of RGSM in the three principal reaches of the MRG. Ultimately, these data will also be used to evaluate progress toward meeting RGSM recovery goals and to assess ichthyofaunal changes following both management actions and stochastic environmental events.

3.5.7 RIO GRANDE SILVERY MINNOW SAMPLING METHODS CALIBRATION AND EVALUATION

Sampling methodologies and gear, used presently or in the past in the MRG, or used in other river systems, are evaluated and compared in order to:

- Assimilate and evaluate past and ongoing fish sampling gear and methods for the MRG;
- Assimilate, compare, and contrast fish sampling gear and methods from other river systems;
- Develop a reliable and robust study design for spring broodstock estimates, fall population estimates, and summer recruitment estimates of RGSM;
- Conduct, evaluate, and refine the study design with a description of gear, methods, expected data precision and accuracy, logistical and labor needs, and costs; and,
- Provide the Collaborative Program with a refined and robust study design for a reliable, accurate, and precise assessment of the RGSM and the associated fish community of the MRG.

Benefits to Species: Results of this project may allow for development of more robust methods that can be added to the RGSM monitoring program. Accurate population demographics are an essential component of tracking the status of the species. Population estimates are needed to coordinate augmentation needs with propagation activities, and to assess the effectiveness of salvage and rescue activities.

3.5.8 SOUTHWESTERN WILLOW FLYCATCHER SURVEYS

Under this project, presence/absence surveys were conducted at selected sites from Velarde to Elephant Butte Project Lands (i.e. the BNSF Railroad bridge at San Marcial). Biologists with Reclamation have conducted SWFL surveys and studies since 1995. These studies were designed to provide further insight into potential threats to and habitat requirements of SWFL populations. The 2010 and 2011 surveys and studies included the continuation of:

- Nest monitoring studies;
- Avian point counts to determine the distribution and abundance of Brown-headed Cowbirds (BHCO) in the MRG;
- Studies to monitor and evaluate the impacts of livestock grazing on the establishment and development of riparian vegetation;
- SWFL habitat suitability assessments;
- Vegetation mapping; and,
- Quantifying vegetation at known SWFL breeding sites.

During the summer of 2010, surveys were conducted and nests monitored in seven distinct reaches along approximately 124 miles of the Rio Grande between the Pueblo of Isleta and Elephant Butte Reservoir. There were 629 resident SWFLs documented in 357 territories forming 272 breeding pairs. As in previous years, the San Marcial Reach of the river, which is outside of the Collaborative Program boundaries, was by far the most productive containing 298 territories and 235 pairs. Nest monitoring was conducted at all sites where nesting pairs were detected. Nests were monitored for success rates, productivity, and BHCO parasitism. The San Marcial Reach proved most productive, producing 241 nests and fledging 202 SWFL young. The Bosque del Apache Reach produced 25 nests and fledged 28 SWFL young.

During the summer of 2011, surveys were conducted and nests monitored again along approximately 186 miles between Bandelier National Monument and Elephant Butte Reservoir. There were 680 resident SWFLs documented in 399 territories and forming 281 pairs. The San Marcial Reach was by far the most productive containing 318 territories and 237 pairs. Nests were monitored for success rates, productivity, and BHCO parasitism. The San Marcial Reach proved most productive, producing 240 nests and fledging 208 SWFL young. The next best productive reach at Bosque del Apache produced 34 nests and fledged 32 SWFL young.

Benefits to Species: This project is an essential component of tracking the status of the species.

3.5.9 DEVELOPMENT OF AN ADAPTIVE MANAGEMENT PLAN

As referenced in the 2003 BiOp, Reclamation is committed to applying the concepts of AM to all of its proposed federal actions. It is anticipated that an AM plan/program will be a component of the Long Term Plan (LTP) and a requirement of the new Programmatic BiOp. The general framework for AM applications follows the scientific perspective of managing in the face of uncertainty, as well as monitoring to evaluate decision-making. This approach is especially relevant to the issues facing water managers in the MRG, and therefore AM principles will be used to adjust future actions based on monitoring and research.

Benefits to Species: This effort will ensure that Collaborative program decision-makers have current information to guide management decisions and future activities. Understanding the system in which activities are implemented is important to species recovery and other Collaborative Program goals.

3.5.10 RAMAS POPULATION VIABILITY ASSESSMENT MODELING

Population Viability Assessment (PVA) modeling associated with Endangered Species Act (ESA) activities on the MRG is planned in three phases: 1) model development; 2) ESA Section 7 Consultation; and, 3) AM and recovery. In 2010 and 2011, accomplishments of the PVA work group included: development of a work plan; updates to model parameters; QA/QC of population data; completion of a list of hypotheses to be tested; and, development of several model prototypes.

Benefits to Species: The PVA work group is tasked with identifying and articulating ideas and input into models, and providing biological information needed for Biological Assessments (BA) and BiOps.

3.6 Public Outreach

The Collaborative Program has a responsibility to educate and inform the general public, stakeholders, and state and federal legislators about Collaborative Program activities and accomplishments. Collaborative Program outreach efforts support: 1) requests for long-term, non-federal cost share funding; 2) understanding by the general public regarding the role of the Collaborative Program in Middle Rio Grande (MRG) water management and endangered species recovery issues; and, 3) increased awareness by the general public and decision-makers regarding the collaborative problem-solving approach and funding requirements of the Collaborative Program. Table 3.6 summarizes the public outreach activities funded by the Collaborative Program for FY 2010 and FY 2011. The projects are described in the following sections.

Table 3.6 | Collaborative Program FY 2010 and FY 2011 Funded Projects: Public Outreach

	Funded Projects – Funded Entity	Entity Performing Work	Continuing Activity or Distinct Project	BiOp Requirement	Grant/ Contract #	Amount Appropriated	Year of Allocation
3.6.1	Collaborative Public Outreach	PIO Work Group	FY05-ongoing	no	Collaborative Program	$28,595.00	2010
					Collaborative Program	$15,000.00	2011
3.6.2	Collaborative Program Webpage Hosting and Maintenance	Icetech, Inc.	FY07-FY12	no	R10-PD-43-009	$27,253.00	2010
					R10-PD-43-009	$27,947.00	2011
3.6.3	Collaborative Program 10-Year Anniversary	PIO Work Group	FY11	no	Collaborative Program	$0	2011

3.6.1 COLLABORATIVE PROGRAM PUBLIC OUTREACH

The Public Information Outreach work group (PIO) is tasked with bringing more positive publicity and public awareness to the Collaborative Program. The PIO receives Collaborative Program funding to implement the tasks outlined in the PIO Annual Work Plans.

Benefits to Species: In 2010 and 2011, the PIO provided information about Collaborative Program accomplishments and MRG endangered species issues in the following ways: (1) producing brochures to inform state and federal legislators; (2) providing publicity and support for the Collaborative Program workshops on October 21, 2011; (3) organizing a 10-Year Anniversary Open House at the Rio Grande Nature Center on October 22, 2011 for members of the general public; (4) developing children's coloring pages with species information for the RGSM and SWFL; (5) participating in New Mexico State Game and Fish (NMGF) exhibits and the New Mexico State Fair; (6) participating in the Pueblo of Santa Ana and Pueblo of Sandia Environment Fairs in 2011; and, (7) assisting the Program Management Team (PMT) in designing and maintaining a publicly accessible website containing project reports, event calendars, and a variety of information about the Collaborative Program.

3.6.2 COLLABORATIVE PROGRAM WEBPAGE HOSTING AND MAINTENANCE

The Collaborative Program website, www.mrgesa.com or www.middleriogrande.com, provides updated information about the Collaborative Program, such as History, Goals, Calendar of Events, and press releases. It also provides links to Collaborative Program-produced documents, such as quarterly updates, annual accomplishment reports, the Long Term Plan (LTP), final project deliverables, financial reports, data sets, surveys, final meeting notes, and other related background information such as the 2003 Biological Opinion (BiOp) and information about the listed species. The website also contains links to signatory websites.

Benefits to Species: The website educates Collaborative Program participants, legislative bodies, and the general public on the issues and rationale for regulatory and management actions, provides access to project reports, and may garner support for RGSM and SWFL recovery actions, including habitat restoration (HR) and water conservation projects.

3.6.3 COLLABORATIVE PROGRAM 10-YEAR ANNIVERSARY

The Collaborative Program held an Open House and Technical Sessions on October 21 and 22, 2011, at the Rio Grande Nature Center. These events celebrated the 10-year anniversary of the Collaborative Program and the work being done to improve the status of endangered species in the MRG.

On October 21, the Collaborative Program hosted a day of technical workshops for participants interested in scientific developments related to the Collaborative Program's work. On October 22, the Collaborative Program invited students, families, and nature enthusiasts to an Open House event that drew more than 250 participants. Walking tours of habitat restoration sites, origami minnow making, and water conservation lessons were part of what participants learned. Staff from Reclamation, the Service, NMISC, NMGF, USACE, and Collaborative Program contractors were stationed at booths along the Nature Center trails to answer questions and provide information about the Collaborative Program's activities.

Benefits to Species: This two-day event contributes to the Collaborative Program's goals of implementing public awareness and education regarding the status of RGSM recovery efforts and communicating with key audiences, including youth.

3.7 Program Management

The Collaborative Program requires management and administrative support to accomplish its goals and objectives. Collaborative Program By-Laws state that Reclamation will employ a Program Manager and management staff. Program management and support activities are required to assist in the implementation of the Biological Opinion (BiOp) RPA and RPMs. Program management involves setting and reviewing objectives, coordinating activities across projects and work groups, and overseeing the integration of interim work products and results. Specific tasks include: contract administration; budget administration and financial management; serving as a Program Management Team (PMT) liaison to technical work groups; reporting to the Executive Committee (EC), Coordination Committee (CC), PMT, and other groups or agencies as appropriate; supporting Collaborative Program activities such as meeting coordination, website administration, and outreach activities arranged by the Public Information and Outreach work group (PIO); and, performing other Collaborative Program-related management functions.

Table 3.7 | Collaborative Program FY 2010 and FY 2011 Funded Projects: Program Management

	Funded Projects – Funded Entity	Entity Performing Work	Continuing Activity or Distinct Project	BiOp Requirement	Grant/ Contract #	Amount Appropriated	Year of Allocation
3.7.1	Bureau of Reclamation Program Management and Support	Reclamation	FY01-ongoing	no	Reclamation	$909,391.00	2010
					Reclamation	$937,650.00	2011
3.7.2	U.S. Fish and Wildlife Service Program Management and Technical Support	Service	FY02-ongoing	no	R10-PG-40-108	$250,000.00	2010
					R10-PG-40-108	$200,000.00	2011
3.7.3	U.S. Army Corps of Engineers Program Management and Support	USACE	FY02-FY09	no	USACE	N/A	2010
					USACE	N/A	2011
3.7.4	Collaborative Program Technical and Administrative Support – Contracted	GenQuest, Inc.	FY02-ongoing	no	R10-PC-40-031	$448,782.00	2010
					R11PD43021	$266,317.00	2011
3.7.5	Collaborative Program Database Development	USACE	FY07-FY11	no	07-AA-40-2691	N/A	2010
					USACE	N/A	2011
3.7.6	10(j) Reintroduction Biologist	Service	FY09-FY12	no	R09-PG-40-006	$34,373.00	2010
					R09-PG-40-006	$103,576.00	2011
3.7.7	Joint Work Group Appreciation Meeting	Collaborative Program	FY11	no	Collaborative Program	$0	2011

3.7.1 BUREAU OF RECLAMATION PROGRAM MANAGEMENT AND SUPPORT

Reclamation has provided contracting and financial management support for the Collaborative Program since 2001, managing more than $135 million in federal funding. Reclamation also provides representatives to participate in Collaborative Program committees. In 2010 and 2011, Reclamation provided a Program Manager and provided management staff responsible for overall Collaborative Program administration, coordination, and dissemination of information about Collaborative Program activities. In addition, Reclamation provided an EC member, PMT member, CC member, representatives for the technical work groups, and contracting support.

Benefits to Species: Program management and support activities are required to implement all aspects of the 2003 BiOp RPA and RPMs. Reclamation serves: (1) as the fiscal agent for the Collaborative Program, by managing the federal funding allocated by Congress to the Collaborative Program; and, (2) as the contracting agency, by administering agency agreements, financial assistance, and contracts for Collaborative Program projects. Reclamation conducts water operations and management of supplemental water in compliance with federal and state law. Reclamation also provides technical support to: assist with the evaluation of proposed projects; review project deliverables; develop scopes of work and independent government cost estimates; and, develop monitoring and program assessment plans.

3.7.2 U.S. FISH AND WILDLIFE SERVICE PROGRAM MANAGEMENT AND TECHNICAL SUPPORT

In 2010 and 2011, the Collaborative Program provided funding to U.S. Fish and Wildlife Service (Service) personnel to serve on the PMT and facilitate Section 7 consultations under the Endangered Species Act (ESA). A Service biologist assisted in coordinating, planning, and managing work groups staffed by Collaborative Program participants, in order to fulfill Collaborative Program By-Laws and the Long Term Plan (LTP). Service biologists assisted in facilitating Section 7 consultations under the ESA for the Collaborative Program. The Service also provided a Middle Rio Grande ESA Coordinator to serve on the CC.

Benefit to Species: Tasks performed exclusively by the Service representatives included: serving as Service contact for ESA (and other) compliance necessary for Collaborative Program activities including a Programmatic Biological Assessment (BA); serving as liaison between the Collaborative Program and other Middle Rio Grande (MRG) projects; and, providing coordination particularly with regard to ESA compliance (both Section 7 and Section 10).

3.7.3 U.S. ARMY CORPS OF ENGINEERS PROGRAM MANAGEMENT AND SUPPORT

Beginning in 2010, the U.S. Army Corps of Engineers (USACE) began receiving its own appropriation which supports Collaborative Program management, such as to the PMT, and other activities. USACE also provides contracting support for the Collaborative Program Database Management System (DBMS) and Albuquerque Reach Analysis & Recommendations (A&R).

Benefits to Species: Program coordination is required to implement all aspects of the 2003 BiOp RPA and RPMs. USACE is either directly or indirectly fulfilling these BiOp requirements through use of USACE employees, contractors, or contracts.

3.7.4 COLLABORATIVE PROGRAM TECHNICAL AND ADMINISTRATIVE SUPPORT – CONTRACTED

In 2010 and 2011, staffing was contracted to perform general and administrative tasks in furtherance of the Collaborative Program's mission. Contracted support duties included: (1) technical note-taking at various Collaborative Program meetings; (2) preparation and distribution of meeting summaries and time-sensitive action items; (3) content maintenance of the Collaborative Program website; (4) technical editing assistance with the revision of the Collaborative Program's LTP; and, (5) providing technical support for workshops, working meetings, and seminars.

2010 and 2011 Accomplishments:

- Collaborative Program work group and committee meeting minutes;
- An EC retreat;
- LTP revision;
- Collaborative Program Annual Report for FY 2008 and FY 2009; and,
- Collaborative program work group and committee meeting facilitation.

3.7.5 COLLABORATIVE PROGRAM DATABASE DEVELOPMENT

USACE awarded an indefinite delivery contract in September 2008 for development of a Database Management System (DBMS). When completed, the database will serve many different Collaborative Program needs, including: integration and spatial correlation of disparate data types generated by numerous research and monitoring projects; analysis of monitoring data to determine the effectiveness of Collaborative Program activities in meeting its goals; access to project information via spatial and non-spatial queries; and, project tracking. The database will be a key component in implementing Adaptive Management (AM).

Benefits to Species: The database will assist in analyzing the effectiveness of Collaborative Program activities toward meeting recovery plan goals and ensuring that BiOp requirements are being met. This activity allows synthesis and analysis of historical and current data sets to determine trends, analyze effectiveness of Collaborative Program activities, and report results.

3.7.6 10(j) REINTRODUCTION BIOLOGIST

The Collaborative Program funded a two-year term biologist at the Service. This biologist assists the Collaborative Program in achieving its goal to conserve and contribute to the recovery of the listed species, stabilize existing populations, and develop self-sustaining populations. In 2010 and 2011, this effort has focused on assessing the reintroduction efforts within the MRG (Cochiti Reach), as well as outside the MRG.

Benefits to Species: The efforts of this term biologist are needed to assist the Collaborative Program in fulfilling its goal to achieve self-sustaining populations of RGSM that would ultimately result in downlisting and delisting of the species.

3.7.7 JOINT WORK GROUP APPRECIATION MEETING

On November 15, 2011, the Collaborative Program held a Joint Work Group Appreciation Meeting with the goals of identifying Collaborative Program "must-dos," improving work group integration and communication, reviewing work group updates and accomplishments, and recognizing the effort and participation of work group participants.

The highlight of this meeting included the announcement of awards for work group participants. The PMT gave out awards to celebrate participation and accomplishment in the categories listed in Table 3.7.7.

This meeting included Collaborative Program participants from the following agencies and organizations:

- City of Albuquerque (COA)
- Albuquerque Bernalillo County Water Utility Authority (ABCWUA)
- USACE
- Service
- Bureau of Indian Affairs
- Pueblo of Isleta
- Reclamation
- Middle Rio Grande Conservancy District (MRGCD)
- State of New Mexico
- New Mexico State University
- Pueblo of San Felipe
- Pueblo of Sandia
- The University of New Mexico (UNM)

Table 3.7.7 | Joint Work Group Appreciation Meeting Award Descriptions

Award	Description
Ambassadorship	For display of diplomacy, enthusiasm, positive attitude, "public relations," or enhancing the image and well-being of the Collaborative Program.
Leadership	For providing outstanding, effective, and sensitive leadership.
Most Collaborative	For encouraging team work and sharing knowledge between members within workgroups.
Innovation and Creativity	For demonstrating the ability to "think outside the box" to develop new approaches, ideas, or concepts that go beyond best practices and truly "next practices."
Most Inspirational	For having the ability to encourage new ideas, promote creativity, and inspire the group to surpass expectations.
Role of Many	For taking on many roles beyond the minimum through the Collaborative Program, and for being the longest standing Chair/Co-chair among any workgroup.
Team Player	For selfless dedication to team achievement by encouraging cooperation and bolstering morale.
Customer Service	For providing an exceptional level of service to a customer, showing flexibility, timeliness, responsiveness, and follow-through.
Technical Achievement	For outstanding use of technology in a creative, innovative, or visionary manner.
Educational Achievement	For pursuit and attainment of a professional certificate or license, or an academic diploma or degree.
Most Positive	For fostering a sense of inclusion, belonging, and optimism, thus contributing to the successes of the workgroup.
Longest Standing Work Group Member	For the technical member that has participated the longest in a workgroup.
Most Consistent Meeting Attendance	For the technical member that has near to perfect attendance at necessary Collaborative Program meetings.
Over and Beyond	For providing consistent additional support outside of their normal call of duty.
Team Mentor	For standing as a "go-to" to their colleagues, and providing the Collaborative Program with a wealth of knowledge and wisdom.

4 summary

The Collaborative Program is actively involved in long-term planning toward a goal of becoming a Recovery Implementation Program (RIP). Completion and implementation of a Long Term Plan (LTP) will help to meet this goal as the new LTP is tied to species recovery plans and will include future activities identified for 2011 through 2020. The work groups, the Project Management Team (PMT), the Coordination Committee (CC), and the Executive Committee (EC) are working to determine and prioritize the future activities needed for Biological Opinion (BiOp) compliance and recovery plan implementation. Additionally, past activities have been summarized and compiled to be included as an appendix to the new LTP. Continued involvement and support for beneficial activities by all signatories to improve the status of the listed species is critical to Collaborative Program success and maintaining compliance with the Endangered Species Act (ESA).

5 REFERENCES

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Service. 2010. *Rio Grande Silvery Minnow (Hybognathus amarus) Recovery Plan, First Revision.* Albuquerque, NM.

6 CONTACTS AND MEETING SCHEDULES

PROGRAM MANAGEMENT TEAM (PMT)

PMT Liaison: Michelle Mann (michelle.n.mann@usace.army.mil)
PMT Liaison: Stacey Kopitsch (stacey_kopitsch@fws.gov)
PMT Liaison: Ann Demint (ademint@usbr.gov)
Program Specialist: Diana Herrera (dherrera@usbr.gov)
Program Admin Assistant: Alighieri Saenz (Ali) (asaenz@usbr.gov)
Interim Program Manager: Rhea Graham (rgraham@usbr.gov)

Meetings Vary

EXECUTIVE COMMITTEE (EC)

Federal Co-chair: Brent Rhees (brhees@usbr.gov)
Non-federal Co-chair: Estevan López (estevan.lopez@state.nm.us)

Meets the 3rd Thursday of the month from 9:00am-1:00pm at Reclamation (Rio Grande Room)

COORDINATION COMMITTEE (CC)

Federal Co-Chair: James Wilber (jmwilber@usbr.gov)
Non-federal Co-chair: Rick Billings (rbillings@abcwua.org)

Meets the 1st Wednesday of the month from 1:00pm-4:00pm at Reclamation and as needed

SCIENCE WORKGROUP (SCW)

PMT Liaison: Stacey Kopitsch (stacey_kopitsch@fws.gov)
Federal Co-chair: Jennifer Bachus (jennifer_bachus@fws.gov)
Non-federal Co-chair: Alison Hutson (alison.hutson@state.nm.us)

Meets the 3rd Tuesday of the month from 9:00-11:30am at Interstate Stream Commission

MONITORING PLAN TEAM AD HOC WORKGROUP (MPT)

PMT Liaison: Stacey Kopitsch (Stacey_kopitsch@fws.gov)
Federal Co-chair: Ondrea Hummel (ondrea.c.hummel@usace.army.mil)
Non-federal Co-chair: Anders Lundahl (anders.lundahl@state.nm.us)

Meets the 3rd Tuesday of the month from 11:30am-12:30pm at Interstate Stream Commission

HABITAT RESTORATION WORKGROUP (HRW)

PMT Liaison: Michelle Mann (michelle.n.mann@usace.army.mil)
Federal Co-chair: vacant
Non-federal Co-chair: Rick Billings (rbillings@abcwua.org)

Meets the 3rd Tuesday of the month from 12:30-3:30pm at Interstate Stream Commission

DATABASE MANAGEMENT SYSTEM AD HOC WORKGROUP (DBMS)

PMT Liaison: Michelle Mann (michelle.n.mann@usace.army.mil)
Federal Co-chair: Kelly Allen (kelly.e.allen@usace.army.mil)
Non-federal Co-chair: Liz Zeiler (elizabeth.zeiler@state.nm.us)

Meets the 2nd Monday of the month from 1:00-2:00pm at US Army Corps of Engineers

SPECIES WATER MANAGEMENT WORKGROUP (SWM)

PMT Liaison: Michelle Mann (michelle.n.mann@usace.army.mil)
Federal Co-chair: Chris Banet (chris.banet@bia.gov)
Non-federal Co-chair: vacant

Meets the 1st Wednesday of the month from 10:00am-12:00pm at Bureau of Indian Affairs

POPULATION VIABILITY ANALYSIS WORKGROUP (PVA/BIOLOGY)

PMT Liaison: Stacey Kopitsch (stacey_kopitsch@fws.gov)
Federal Co-chair: Dave Campbell (david_campbell@fws.gov)
Non-federal Co-chair: Dave Gensler (dgensler@mrgcd.us)

Meetings Vary

PUBLIC INFORMATION & OUTREACH WORKGROUP (PIO)

PMT Liaison: Ali Saenz (asaenz@usbr.gov)
Federal Co-chair: Mary Carlson (mcarlson@usbr.gov)
Non-federal Co-chair: Julie Maas (julie.maas@state.nm.us)

Meetings Vary