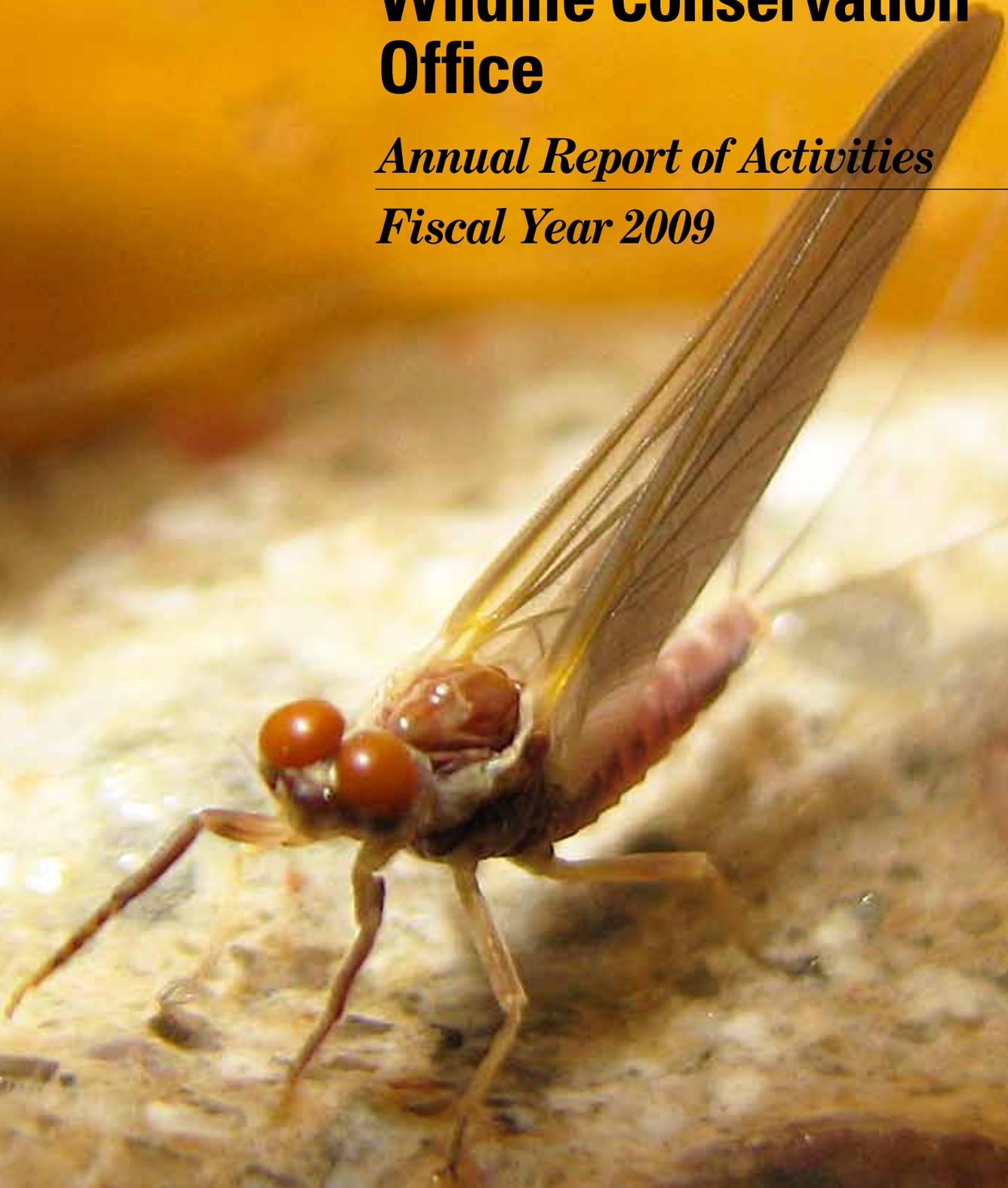


# New Mexico Fish and Wildlife Conservation Office

*Annual Report of Activities*

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*Fiscal Year 2009*



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*Front Cover:*

*Adult Mayfly Hatched from Recirculation System at NMFWCO*

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# Introduction

The primary goal of the New Mexico Fish and Wildlife Conservation Office (NMFWCO) is to conduct dependable and accurate research, monitoring, and resource inventory activities. Paramount is the responsible use of those data. A variety of projects to this end were continued in FY09, including nonnative fish removal on the San Juan River, Pecos River fish monitoring, Rio Grande silvery minnow surveys, Gila trout habitat restoration, inventories of Mexican fishes with cooperating Mexican partners, and community projects with local Tribal groups in New Mexico. These activities are outlined in detail in the following report. The NMFWCO is based in Albuquerque, New Mexico, and is located at 3800 Commons Avenue NE.

Activities conducted by NMFWCO during FY09 address all six Fisheries Program Priorities: 1) recovery of listed and candidate species, 2) restoration of inter-jurisdictional fisheries and aquatic systems, 3) management of inter-jurisdictional fisheries, 4) fulfilling mitigation obligations, 5) restoring depleted aquatic populations to preclude listing, and 6) providing fish and wildlife management assistance to tribes and on FWS lands. Priorities 1, 2, 3, and 5 have considerable overlap in the American Southwest with its scarcity of water and, consequently, were commingled in station efforts. While satisfaction of Tribal trust responsibilities remains an important component of NMFWCO activities, management activities related to native and fish species listed under the ESA, as amended, within various ecosystems play an equally important role and also provide a substantial portion of annual station funding from other agencies. Inherent in station activities is close coordination with biologists and administrators from tribes, other federal and state agencies, a variety of local government agencies, non-governmental organizations, academic institutions, and many private landowners.

Activities are generally discussed below by individual focus areas as identified in the *Fisheries Program Vision for the Future* (2002). Actions conducted by NMFWCO adhere to the Fisheries Program Mission of working with partners to restore and maintain fish and other aquatic resources at self-sustaining levels and support Federal mitigation programs for the benefit of the American public.

# Workforce Management

## *Staffing*

The NMFWCO staff represents a variety of aquatic and outdoor disciplines and includes a combination of permanent, TERM, temporary (TEMP), and student temporary appointment (STEP) positions.

**Table 1. NMFWCO Personnel Roster for FY09**

<i>Name</i>	<i>Title</i>	<i>Series</i>	<i>Appointment</i>
James E. Brooks	Supv. Fishery Biologist	GS-0482-14	Permanent
D. Chris Kitcheyan	Fishery Biologist	GS-0482-12	Permanent
Jason E. Davis	Fishery Biologist	GS-0482-12	Permanent
W. Jason Remshardt	Fishery Biologist	GS-0482-11	Permanent
Daniel Weston Furr	Fishery Biologist	GS-0482-09	Permanent
Susan M. Maestas	Administrative Officer	GS-0341-09	Permanent
Stephen R. Davenport	Fishery Biologist	GS-0482-11	TERM
Ernest Teller Sr.	Biol. Sci. Technician	GS-0404-08	TERM
Thomas P. Archdeacon	Fishery Biologist	GS-0482-09	TERM
James P. Sandoval	Fishery Biologist	GS-0482-09	TERM
Dustin J. Myers	Fishery Biologist	GS-0482-07	TERM
Bobby Ray Duran	Fishery Biologist	GS-0482-07	TERM
Angela James	Fishery Biologist	GS-0404-05	TERM
Paula Stubbs	Fishery Biologist	GS-0482-07	TERM
Evan B. Anderson	Biol. Sci. Aid	GS-0404-03	STEP
Tristan J. Austring	Biol. Sci. Aid	GS-0404-03	STEP

An Organizational Chart (Figure 1) was approved for NMFWCO during FY 09 and includes 16 fulltime positions, of which six are permanent.

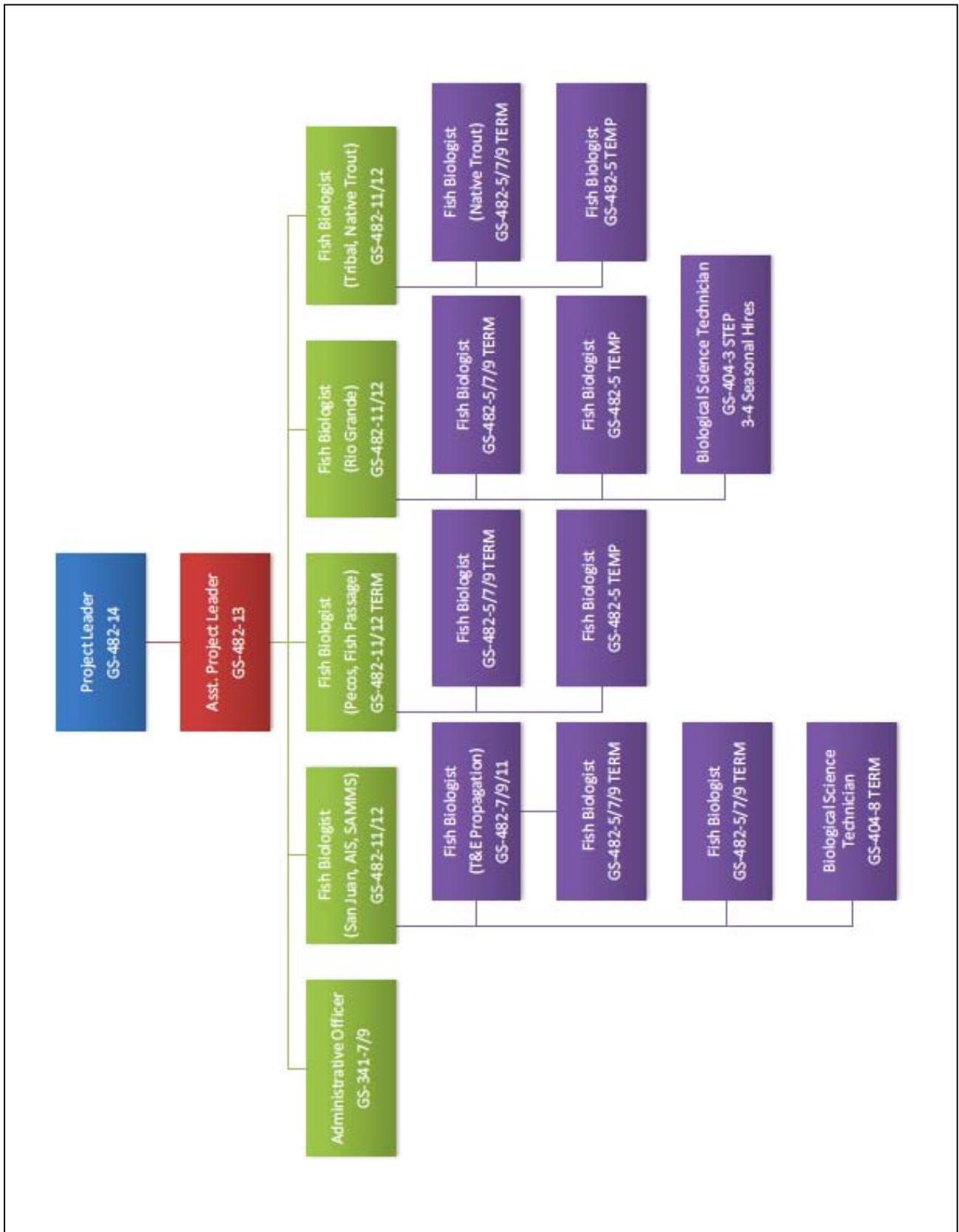


Figure 1. Approved Organizational Chart for New Mexico Fish and Wildlife Conservation Office

## Budget and Administration

The budget of NMFWCO for the last five years represented a combination of base (13xx) and transfer funding (19xx). Transfer funding supported studies related to mechanical removal and control of nonnative fishes in the San Juan River; characterization of fish community structure of Pecos River fishes; and propagation/augmentation, habitat use and availability and movement studies and salvage/transplant (mitigation) of Rio Grande silvery minnow. Transfer funding was provided by U. S. Bureau of Reclamation (BOR). Annual funding allocations to NMFWCO are shown below. Carryover funds in 19XX from FY08 contributed to the total for FY09.

<i>SUBACTIVITY</i>	2005	2006	2007	2008	2009
1113	0	0	0	37,250	0
1122	15,882	0	0	0	0
1130	0	0	0	0	5,000
1311	0	0	0	0	10,000
1313	9,800	0	0	0	0
1331	24,500	18,100	45,000	8,000	0
1332	270,500	396,528	417,000	24,000	0
1334	0	0	0	577,000	676,025
1335	0	0	0	15,000	61,373
1342	0	0	0	20,000	0
1343	0	0	0	0	11,000
19XX	578,465	601,979	1,100,087	1,361,816	1,291,285
1938 (YCC)	0	0	0	17,405	2,459
9831 (YCC)	0	0	0	4,000	0
<b>TOTAL</b>	<b>899,147</b>	<b>1,016,607</b>	<b>1,562,087</b>	<b>2,064,471</b>	<b>2,077,729</b>

NMFWCO functions have relied primarily upon transfer funds from other agencies or other U.S. Fish and Wildlife Service (FWS) programs to perform field surveys and various studies. In some years, soft funding comprised more than two-thirds of the annual budget; and almost always exceeds half the budget for any given year. Program staffing and equipment acquisition planning are difficult to accurately assess. Thus, acquisition of adequate base funding, as is reflected by additional needs identified in FONS proposals, is important and necessary for NMFWCO to adequately address aquatic resource needs in New Mexico. The future of Fisheries funding allocations is uncertain for NMFWCO, as it is for other field stations.

The National Fish Passage Program has provided considerable funding support to NMFWCO for approved projects. The National Fish Habitat Action Plan (NFHAP) has provided limited funding, all for projects related to native trout conservation. These two programs are structured and implemented to ensure maximum cooperation with Service partners and have generally required that at least 70% of the funds go to on-the-ground activities. We are then left with 30% or less to account for contracting and other administrative duties, and project oversight. The NFHAP process is an appropriate example of how cumbersome funding allocations can be. NMFWCO actively participates in the Western Native Trout Initiative (WNTI) process which results in an additional two levels of review of FONS project proposals. Historically, approved projects have been those that were “shovel-ready”. Given that such projects are far outnumbered by those that require more work, i.e. completion of environmental compliance requirements, the

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“low hanging fruit” have been harvested. Thus it is becoming increasingly difficult and time consuming to identify and/or develop “shovel-ready” projects. Furthermore, implementation of monitoring efforts for the “low hanging fruit” projects is not allowed under NFHAP. Monitoring data are critical to project evaluations and future management actions and are fundamental to NMFWCO operations. Critical to improving funding conditions for FWCO operations is a strong leadership role provided by the Fisheries Management Team.

# Aquatic Species Conservation & Management

## *Native Species*

### *Pecos River Basin*

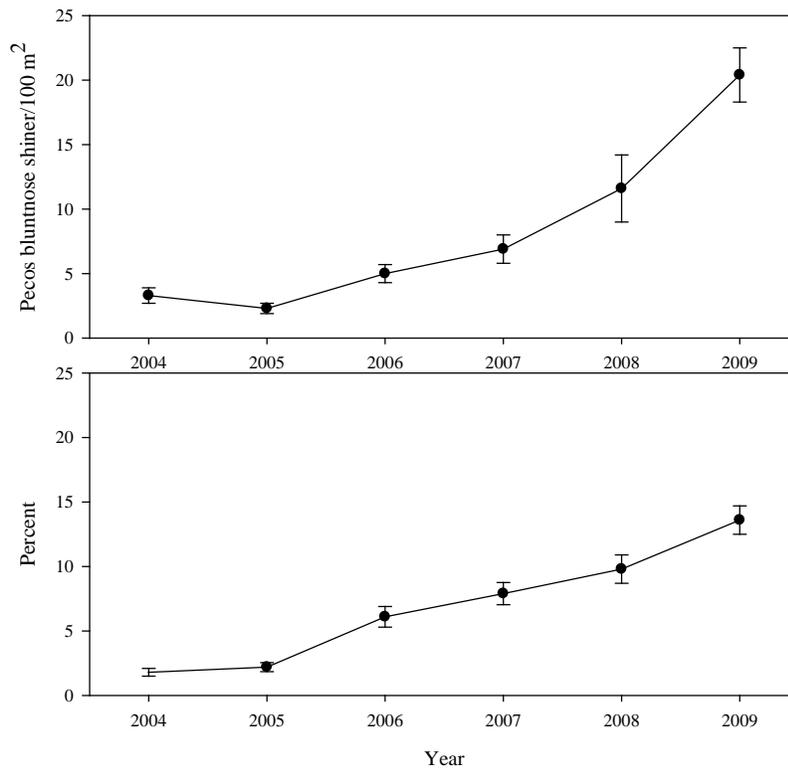
The NMFWCO and New Mexico Department of Game and Fish, Conservation Services Division (NMDGF), continued long-term monitoring of the Pecos River fish community in 2009. Status and trends of the federally threatened Pecos bluntnose shiner *Notropis simus pecosensis* is tracked using two estimates of abundance: catch rate (Pecos bluntnose shiner /100 m<sup>2</sup>) and percent abundance (number of Pecos bluntnose shiner divided by all fish collected). In addition, restoration of the Pecos River at Bitter Lake National Wildlife Refuge (NWR) was completed in June 2009, by reconnecting a previously isolated oxbow to river flow.

Pecos bluntnose shiner catch-rate and percent abundance improved annually since surface flow intermittence ended in 2005 when catch rates dropped to 2.3 fish/100 m<sup>2</sup>, ± 0.4 SE (Figure 2). In 2009 we collected 4,542 Pecos bluntnose shiner, sampled 26,374 m<sup>2</sup>, and visited 15 sites. Cumulative catch-rate was higher (20.4 ± 2.1 fish/100 m<sup>2</sup> SE) than in 2008 (11.6 ± 2.6 m<sup>2</sup> fish/100 m<sup>2</sup> SE), and cumulative percent abundance was higher (13.6 ± 1.1% SE) than in 2008 (9.8 ± 1.1% SE) (Figure 2). Pecos bluntnose shiner abundance varied seasonally; catch-rate and percent abundance were highest in May (44.5 ± 9.2 fish/100 m<sup>2</sup> SE and 23.3 ± 14.0 % SE respectively), and were lower in winter (catch rate was lowest in February (6.4 ± 2.6 fish/100 m<sup>2</sup> SE) and percent abundance was lowest in December (4.7 ± 1.9 % SE)). Catch rate also varied longitudinally by season; cumulative catch-rate in the upstream “core” population was highest at U.S. Highway 70 in May (35.1 ± 11.1 SE fish/100 m<sup>2</sup>), and in the downstream river section at Brantley Inflow in October (52.0 ± 21.1 SE fish/100 m<sup>2</sup>). Pecos bluntnose shiner was not collected in the river section downstream of Sumner Reservoir, and has not been collected there since 1999. Pecos River flows were continuous in 2009, and extreme low flows, <1.0 ft<sup>3</sup>/sec, did not occur.



*Pecos bluntnose shiner*

Pecos River restoration efforts at Bitter Lake NWR were monitored for fish use by NMFWCO personnel. Pecos bluntnose shiner catch rates were higher in the restored river section than in a control site within the channelized river section, and cumulative percent abundance of the three native broadcast spawning fish was highest at the restored river section and lowest at the channelized control site.



**Figure 2. Pecos bluntnose shiner cumulative catch rates (top) and cumulative percent of the fish community (bottom) ( $\pm$  one standard error), 2004-2009, Pecos River New Mexico.**

### FY 2010 Proposed Activities

Pecos River fish community monitoring will proceed in FY 2010. Methods used in 2009 and in years prior will be continued to facilitate inter-annual comparability. Core sites within the reproductive population of Pecos bluntnose shiner will be monitored monthly. Fish community monitoring within the restored oxbow will also continue. This information will be combined with geomorphic comparisons of each reach to provide a complete assessment of restoration activities.

## Upper/Middle Rio Grande Basin

### Rio Grande Silvery Minnow Augmentation and Monitoring

Following the revised 5-year Rio Grande silvery minnow *Hybognathus amarus* augmentation plan (2008-2012), augmentation efforts shifted focus to the Isleta and San Acacia reaches while continuing evaluation of previous efforts in the Angostura Reach. Stocking and monitoring efforts were initially focused in the Angostura Reach (Albuquerque), where catch rates were extremely low and the expected benefit of augmentation could be maximized. Monitoring for previously augmented fish continued monthly in FY09 at 7 sites within the Angostura and Isleta reaches. This monitoring, along with monitoring conducted by other researchers in the Middle Rio Grande, was combined to evaluate augmentation success based on recaptures and movement of released individuals. Between 2002 and 2004, 100,000 to 200,000 Rio Grande silvery minnow were released annually in the Angostura Reach, with a total of 1,114,890 Rio Grande silvery minnow released throughout the Middle Rio Grande, New Mexico, since 2002.

Catch rates from fall 2008 monitoring were compared with the target catch rate of 1 RGSM / 100 m<sup>2</sup> for each site. All sites had catch rates over this target, including a majority of the sites with significantly higher catch rates. Therefore, no augmentation of Rio Grande silvery minnow was

necessary in the Middle Rio Grande during October 2008. Additional fish that were to be available for the Middle Rio Grande were made available for the initial 10(j) reintroduction in Big Bend, Texas, which occurred in December 2008.

A combination of factors led to these increased catch rates, including optimal spring runoff, recruitment flows throughout the early summer, and no river intermittency. With average overwinter survival, higher catch rates were sustained through late winter / early spring prior to the 2010 season.

### **Rio Grande Silvery Minnow Rescue and Salvage**

Between 16 July and 20 October 2009, 20.0 miles of the main channel of the Middle Rio Grande became intermittent, all in the San Acacia Reach. An estimated total of 18,473 Rio Grande silvery minnow were salvaged from isolated pools, transported, and released alive at a location upstream within the San Acacia Reach that maintained more favorable habitat conditions. The observed mortality of 1,694 Rio Grande silvery minnow was attributed to water operations in the Middle Rio Grande during the 2009 irrigation season and assigned as incidental take. This level of incidental take was well below the legal limits established under the amended Biological Opinion of 22,242 individuals. Additionally, 1,646 Rio Grande silvery minnow were not salvaged per established protocols related to survivability and were preserved under the Service's ESA Section 10 Permit.



*NMFWCO personnel preparing for another day of salvage in the Rio Grande near Socorro, New Mexico.*

### **Rio Grande Silvery Minnow Monitoring for Egg Entrainment into Irrigation Canals**

In May 2009, NMFWCO conducted daily monitoring of 4 canals below three irrigation structures within the Middle Rio Grande, New Mexico, including Angostura, Isleta, and San Acacia Diversion Dams. A total of 44 Rio Grande silvery minnow eggs were collected throughout the month. No eggs were collected in the Angostura Canal. The lack of eggs in the Angostura Canal suggests that Rio Grande silvery minnow density upstream of Angostura Diversion Dam was extremely low, if present at all. The majority of eggs observed in irrigation canals in 2008 (Socorro Main, N=29) were found in the San Acacia Diversion Dam irrigation system, resulting from spawning activity early in May in the Isleta Reach. The remaining egg collection (Peralta Main and Belen Hi-Line, N=15) below the Isleta Diversion Dam resulted from spawning activity in the Angostura Reach. Relatively high river flows and low egg monitoring numbers in irrigation systems in 2009 suggest that egg entrainment and the negative effect on the Rio Grande silvery population was likely minimal.

## Rio Grande Silvery Minnow Big Bend Reintroduction

The NMFWCO personnel continue to serve a primary role in the Rio Grande silvery minnow Big Bend reintroduction project. In FY09, NMFWCO assisted in the initial release of 431,196 Rio Grande silvery minnow at four locations within the Big Bend Reach of the Rio Grande in Texas in December 2008. This was the first of 5 years of planned releases, monitoring, and research to reestablish a population of Rio Grande silvery minnow. Following the initial release, staff assisted other researchers in monitoring during May and August 2009. Rio Grande silvery minnow from the release were collected in May 2009 at 3 of the 4 release sites, while no Rio Grande silvery minnow were observed in August 2009.



*NMFWCO staff and volunteers release Rio Grande silvery minnow into acclimation pens in Big Bend, Texas.*



*NMFWCO staff and other researchers monitoring in Big Bend, Texas.*

## PIT Tag Research Related to Albuquerque Fish Passage Structure

A fish passage structure designed for Rio Grande silvery minnow was installed at the Albuquerque Drinking Water Facility in 2008. Following this construction, we began a study to evaluate its effectiveness. Phase I of this project involved the actual testing of PIT tags in Rio Grande silvery minnow and was completed in FY08. Phase II of the PIT tag project was initiated and continued through FY09. Eighty Rio Grande silvery minnow that were remaining from Phase I were released to assess the status of the antenna. Fish were split into two groups, one group placed between the two antennas, one group placed downstream of the antennas, but

still in the channel. Fish from both groups were detected, indicating that the antennas would in fact accurately detect fish. Of the 80 PIT tagged fish released between the 2 antennas, 78 were picked up at least once (97.5%).

Beginning in April 2009, we began tagging a larger number of Rio Grande silvery minnow to evaluate fish movement through the channel. A total of 4,274 PIT-tagged fish were released at 6 sites upstream and downstream of the passage in June 2009 with an average of nearly 700 PIT tagged fish released per site. Through the end of FY09, nearly 60 individuals were documented passing either upstream or downstream through the passage. Although movement was observed at all hours of the day, nearly 75% of the activity was during daylight hours between 6 AM and 6 PM.

Information on the exact times of fish passage at the City of Albuquerque's Drinking Water Project will allow for additional information to be collected. Specifically, we will collect information on discharge (ft<sup>3</sup>/sec), water temperature (C°), and turbidity (NTUs) at the site (USGS gage at Alameda Bridge). We will attempt to correlate these environmental variables with the temporal and spatial movement of augmented adult Rio Grande silvery minnow. This information may provide details on the movement that have not been possible to observe previously. This information could assist in the design and operation of future fish passage structures. For example, it is thought that increases in water temperatures in the spring may induce upstream movements of Rio Grande silvery minnow. If we observe increases in fish movements upstream through the fish passage (via the PIT tag detector) during similar conditions, the importance of providing fish passage will be evident.



*Rio Grande silvery minnow fish passage near Albuquerque, New Mexico.*

## **Rio Grande Silvery Minnow Sanctuary**

Collaboration continued in 2009 between NMFWCO and BOR on the completion of the Rio Grande Silvery Minnow Sanctuary (Sanctuary). The Sanctuary is designed to provide a more naturalized rearing habitat for the Rio Grande silvery minnow and to reduce the risk of genetic loss should there be catastrophic mortality at other facilities. Located in Albuquerque's Rio Grande Valley State Park, the Sanctuary is distinct from other federal, state, and city facilities that produce and rear Rio Grande silvery minnow in that it is built within the historic floodplain, has approximately 400 meters of flowing naturalized braided channel with various habitats, and connects directly to the Rio Grande. The basic concept of the Sanctuary is to use water from the Middle Rio Grande Conservancy District's Albuquerque Riverside Drain, pump it into the

Bosque's floodplain, allowing it to flow through a constructed 'naturalized' channel, and finally return the water back to the Albuquerque Riverside Drain. By operating pumps at various rates the Sanctuary will try to mimic the natural variability in flow and habitat conditions of the Rio Grande. Water flowing through the Sanctuary can be temporarily diverted back to the Rio Grande and allow for direct release of fish from the facility into the Rio Grande.

The final stage of major construction was finished in autumn 2009. However, the need for facility security was identified and plans were developed for a perimeter fence and camera surveillance system to be installed in 2010. Furthermore, high spring flows and operational testing identified a variety of functional problems facing the Sanctuary. First, river flows approaching 3,000 cubic feet per second through the Albuquerque reach will over-top the relief spillway at the Outlet Building and allow river water, along with associated organisms, to infiltrate the Sanctuary channel. Fish that had become entrained within the Sanctuary during the 2009 spring run-off were captured and returned to the river. At least one adult Rio Grande silvery minnow was identified among the several thousands of fish moved out of the Sanctuary. Additionally, mechanical issues were identified concerning the various operational systems of the Sanctuary. These systems included; the water delivery system (vertical turbine pumps and controls), the air burst screen cleaning system, the inlet water filtration system (Hydrotech rotating drum filter), the sediment capture and recirculation system, and the fish exclusionary system at the Outlet Building (air-driven rotating drum screens). After these issues were identified they have been under discussion to best determine appropriate action to remedy the situation. Continued testing of the operational functionality of the entire Sanctuary will continue to detect more limitations or problems that will need to be addressed prior to full operation expected to begin in 2011. The NMFWCO and BOR will continue to work closely together to ensure that the Sanctuary becomes an important management tool for the recovery of Rio Grande silvery minnow.



*Inundation over the top of the relief spillway during Spring run-off.*

## **Upper Colorado River Basin – San Juan River**

### **San Juan River Basin Recovery Implementation Program (SJRIP)**

The SJRIP is a cooperative recovery program designed to aid in the recovery of razorback sucker *Xyrauchen texanus* and Colorado pikeminnow *Ptychocheilus lucius* while allowing water development to continue in the San Juan River Basin. Participants in the Program include the States of Colorado and New Mexico, four Native American Tribes (Jicarilla Apache Nation, Navajo Nation, Southern Ute, Ute Mountain Ute), water development interests, conservationists, and four DOI agencies (Bureaus of Indian Affairs, Land Management and Reclamation, and

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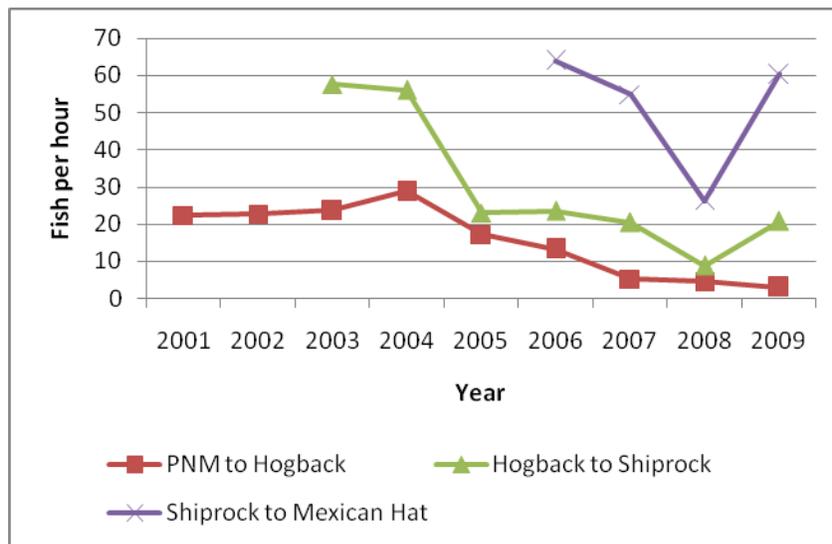
FWS – Regions 6 and 2). The SJRIP works through a committee process (Coordination, Biology, and Hydrology) and each participant has representation on these committees. For the Service, NMFWCO represents Region 2 on both the Coordination (Chair) and Biology (Member) Committees. New Mexico FWCO participates in all committee meetings and associated workshops related to the SJRIP.

The NMFWCO is the principal investigator of a long-term program aimed at the control of large-bodied nonnative fishes, primarily channel catfish *Ictalurus punctatus* and common carp *Cyprinus carpio*, as a management tool for the recovery of razorback sucker and Colorado pikeminnow. In addition to nonnative fish removal, NMFWCO has assumed the lead responsibility for augmentation efforts for the two federally protected species. A component of this includes the co-management, with the Navajo Nation Department of Fish and Wildlife, of a series of razorback sucker grow-out ponds located southeast of Farmington, New Mexico, on Navajo Agricultural Products Industries (NAPI) lands. The NMFWCO is also responsible for the pre-release acclimatization of hatchery-reared Colorado pikeminnow designed to improve survivability and short term retention of stocked fish.

### **Nonnative species monitoring and control**

The introduction and establishment of nonnative fishes has been recognized as one of several factors leading to the decline of native fish populations. The control of nonnative fishes has become an increasingly important management action in programs aimed at the recovery of federally protected species. The establishment of channel catfish and common carp has been identified as a detriment to the recovery of Colorado pikeminnow and razorback sucker and their control has specifically been identified as a management element in the SJRIP's Long Range Plan.

Nonnative fish removal efforts conducted by NMFWCO began on a limited basis in 1998 with intensified efforts beginning in 2001. In response to changes in channel catfish distribution and abundance, nonnative fish removal efforts have continued to expand and now include removal for a total of 113.5 river miles (RM). With the assistance of FWS – Colorado River Project, NMDGF, and Utah Department of Wildlife Resources, a total of 37,735 channel catfish and 970 common carp were removed from 113.5 river miles in 2009. Channel catfish catch per unit effort (CPUE (fish/hour)) from PNM Weir to Hogback Diversion (river miles [RM] 166.6 – 159.0) has been reduced 86% from 2001 to 2009 while CPUE from Hogback Diversion to Shiprock Bridge has been reduced 64% from 2003 to 2009 (Figure 3). Common carp were collected infrequently throughout the study area with catch rates < 2 fish/hour in each of our study sections.



**Figure 3. Channel catfish (CPUE; fish/hour) by individual removal section.**

In addition to the removal of nonnative fishes, NMFWCO collected data on distribution, abundance, growth and movement of Colorado pikeminnow and razorback sucker. A total of 1,983 Colorado pikeminnow ranging in size from 65-616 mm total length were collected during nonnative removal efforts. Twenty four sub-adult and adult Colorado pikeminnow were collected. A total of 720 razorback sucker ranging in size from 223-600 mm TL were collected in 2009 with 90 fish  $\geq$  500 mm total length. These data are provided to the SJRIP and are used to assess progress toward recovery for the two endangered fishes.



*Bobby Duran with a Colorado pikeminnow collected during nonnative removal*

### Rare fish augmentation

In 2009, NMFWCO and partners stocked a total of 476,942 age-0 (average 50-60 mm total length) and 8,942 age 2+ (average 300 mm total length) Colorado pikeminnow into the San Juan River. A total of 12,439 razorback sucker were stocked in 2009 including 4,421 razorback sucker harvested from ponds located on Navajo NAPI lands. These three ponds are co-managed by NMFWCO and Navajo Nation Department of Fish and Wildlife.

## FY 2010 Proposed Activates

- Continue intensive nonnative fish removal throughout 113.5 river miles of the San Juan River.
- Continue to experiment with various stocking localities and holding times (including control vs. treatment groups) when releasing hatchery reared age-0 and age1+ Colorado pikeminnow and razorback sucker.
- Assist Utah Division of Wildlife Resources – Moab Field Office with nonnative fish removal in the lower canyon and USFWS- Colorado River Project with annual sub-adult adult fish community monitoring.
- NMFWCO will continue its involvement in the Coordination Committee (Jim Brooks, chair) and Biology Committee (Jason E. Davis, member) of the San Juan River Basin Recovery Implementation Program.
- Participate in nonnative fish workshop

## Gila River Basin

During FY 2009, NMFWCO activities in the Gila River basin focused primarily on conservation and recovery of Gila trout *Oncorhynchus gilae* as outlined in the 2003 recovery plan for the species. In cooperation with the United States Forest Service (USFS)- Gila National Forest, Mora National Fish Hatchery and Technology Center (NFHTC), and NMDGF, Conservation Services Division, recovery efforts focused on monitoring existing populations, mechanically and chemically removing nonnative fish species from “recovery” streams for the establishment of new Gila trout populations, supplementing existing populations, replicating relict lineages into new drainages, and participating in the annual Gila Trout Recovery Team Meeting. Since the downlisting of Gila trout in August 2006, certain waters within the Gila basin have been designated as “recreational streams” allowing for take via angling under a special 4(d) rule, thereby expanding recovery activities to include stocking and monitoring of recreational populations as well. The collaborative recovery efforts agree with the mission of Landscape Conservation Cooperatives (LCC) by developing range-wide management strategies and partnerships for the conservation of Gila trout against environmental threats such as climate change.



*Gila trout broodstock fish collected during a nonnative removal trip in August 2009.*

## Population Monitoring

NMFWCO conducted backpack electrofishing surveys to determine the status of Gila trout populations in Little Creek and Black Canyon (Table 3). Little Creek is a tributary of the West Fork Gila River, and Black Canyon is a tributary of the East Fork Gila River. Both populations are repatriations of the Main Diamond lineage. Reproduction and recruitment were observed by the presence of 4 to 5 age classes, ranging from young-of-year to adults.

Longfin dace *Agosia chrysogaster* and speckled dace *Rhinichthys osculus* were abundant in both streams. Native Sonoran sucker *Catostomus insignis*, desert sucker *Pantosteus clarki*, and nonnative brown trout *Salmo trutta* were also present in Black Canyon.

**Table 3. Stream, date, lineage, sample size, size range (Total length, mm), catch per unit effort (fish/minute), biomass (g/m), and density (fish/m) of Gila trout in two streams surveyed during summer 2009 in Gila National Forest, New Mexico.**

<i>Stream</i>	<i>Date</i>	<i>Lineage</i>	<i>Sample Size</i>	<i>Size Range</i>	<i>CPUE</i>	<i>Biomass</i>	<i>Density</i>	<i>GPS Coordinates</i>
Little Creek	08/11/09	MD	331	51-270	2.37	3.63	0.11	12S 0755324 3676297 12S 0753166 3676144
Black Canyon	08/12/09	MD	245	55-290	0.70	2.06 (n=233)	0.05	13S 0223811 3673344 13S 0223738 3673301

A total of 3,229 Main Diamond and South Diamond lineage Gila trout were stocked in “recreational” streams for angling and in “recovery” streams (Table 4). Gila trout produced at Mora NFHTC from 2007-08 spawning efforts were used to augment recovery populations, while former broodstock (2003-06) were used for stocking recreational streams.

**Table 4. Stocking sites, date stocked, spawn year, and mean total length (TL mm) of Main and South Diamond Gila trout to recovery and recreational streams during FY 2009.**

<i>Stocking Site</i>	<i>Date</i>	<i>Spawn Year</i>	<i>Lineage</i>	<i>Stream Classification</i>	<i>No. Stocked</i>	<i>Mean TL</i>
Sheep Corral Creek	11/05/2008	2008	MD	Recovery	110	104
Little Creek	11/06/2008	2008	MD	Recovery	1000	104
Sapillo Creek	11/12/2008	2006-07	MD/SD	Recreation	50	292
Forks Area	11/12/2008	2003, 06-07	MD/SD	Recreation	69	292 419
Black Canyon	11/13/2008	2008	MD	Recovery	1000	104
Willow Creek	11/18/2008	2008	SD	Recreation	1000	104
Total					3229	

### Chemical Removal of Nonnative Trout

The USFS, NMDGF, and NMFWCO continued piscicide application efforts to eradicate all nonnative trout from the upper West Fork Gila River using CFT Legume™-rotenone. The project tasks were to secure Gila trout populations from nonnative encroachment, expand current range of Gila trout by 34.25 km (21.26 mi), and reestablish additional Gila trout populations to reduce susceptibility of localized extirpation from catastrophic events such as wildfires and climate change. Macroinvertebrates were collected at four sites to examine the chemical effects on the aquatic community before and after chemical treatment. A total of 1,061 brown trout and 1 rainbow trout were removed during the June 15-24, 2009, rotenone treatment. Follow-up surveys conducted in July revealed the presence of brown trout in Cub Creek. Cub Creek and the main stem West Fork above the confluence, were retreated on October 1, 2009. No fish was observed during this treatment. Gila trout stocking of the upper West Fork Gila River has been scheduled for fall 2010.

### Mechanical Removal of Nonnative Fish

Nonnative fishes and nonnative amphibians pose conservation threats to native fishes in the

upper Gila River Basin, specifically to Gila trout, loach minnow *Tiaroga cobitis*, spinedace *Meda fulgida*, and headwater chub *Gila nigra*. The NMFWCO personnel, in collaboration with USFS, NMDGF, and Kansas State University, resumed nonnative fish removal efforts on a three mile stretch of the Gila River within the Heart Bar Wildlife Management Area (WMA). Target species included: brown trout, rainbow trout, yellow bullhead *Ameiurus natalis*, black bullhead *Ameiurus melas*, smallmouth bass *Micropterus dolomieu*, green sunfish *Lepomis cyanellus*, flathead catfish *Pylodictis olivarius*, fathead minnow *Pimephales promelas*, red shiner *Cyprinella lutrensis*, western mosquitofish *Gambusia affinis*, and bullfrog *Rana catesbeiana*. Two crews collected 12,173 fish over four days of sampling. A total of 889 nonnative fishes and 165 bullfrogs were removed from the study site. Density of native fishes (0.36 fish/m) was higher than nonnative fish density (0.02 fish/m). A mechanical removal effort was also conducted in Black Canyon to remove nonnative brown trout above the gabion barrier. Eighty-five (85) brown trout ranging from 134 - 410 mm TL were collected and removed.

## Fire and Fish Evacuation

Fire is an imminent threat to Gila trout populations throughout the Gila Wilderness and poses the greatest threat of local and regional extirpation of populations. Five fires occurred in the vicinity of Gila trout populations: White Fire, Langstroth Fire, Packsaddle Fire, Meason Fire, and Diamond Fire. The Meason and Diamond fires crossed over Black Canyon and burned into Main and South Diamond, threatening two relict populations. To protect the South Diamond lineage, 250 Gila trout were evacuated by helicopter and transported to Mora NFHTC. The fires were brought under control before the evacuation of any Main Diamond individuals was warranted. All actions were guided by the Emergency Evacuation Plan For Gila Trout, an interagency protocol developed as part of recovery criteria and listed in the Gila Trout Recovery Plan.

## Wild Fish Collections

In June, NMFWCO assisted in the collection of two threatened species, spinedace and loach minnow; and two native species of suckers, desert sucker and Sonoran sucker. Twenty (20) spinedace and 57 loach minnow were collected from the Gila River, and transferred to Bubbling Ponds State Fish Hatchery in Arizona for rearing. One hundred thirteen (113) native (desert and sonoran) suckers ranging from 99-199 mm TL were collected from the Heart Bar WMA and transported to Mora NFHTC to mimic natural environmental settings and improve rearing conditions for Gila trout.

## Public Outreach

In June, NMFWCO set up the “Living River” display at Lake Roberts for the 1<sup>st</sup> Annual Lake Roberts Kids Fishing Derby, sponsored by Gila National Forest-Wilderness Ranger District. The display contained several species of native fish, including Gila trout. The derby was held on the statewide-designated “Free Fishing Day” and over 60 kids participated in the competition.

## FY 2010 Proposed Activities

Conservation and recovery efforts scheduled for FY 2010 include; monitoring Gila trout populations (Main Diamond Creek, Sheep Corral Creek, Black Canyon Creek, Langstroth), surveying potential recovery streams (Sacaton Creek, McKenna Creek, Little Turkey Creek) to assess presence of nonnatives fishes, mechanically removing all nonnative fishes (Black Canyon, Little Creek, and Gila River at Heart Bar WMA), chemically treating the upper West Fork Gila River if necessary, collecting wild trout (Main Diamond and Spruce Creek) to supplement broodstock population at Mora NFHTC, collecting tissue samples for DNA analysis (Iron Creek, Little Creek, and Black Canyon), augmenting Langstroth population with Whiskey Creek

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lineage, and participating in the 2<sup>nd</sup> annual Lake Roberts Fishing Derby. The NMFWCO will be placing data temperature loggers and collecting macroinvertebrates in every inhabited Gila trout stream to develop baseline data for assessing the impacts of climate change and projecting future impacts. The NMFWCO will continue stocking Gila trout into recovery and recreational streams in the Gila River basin and host the annual Gila Trout Recovery Team Meeting.

## *Aquatic Nuisance Species*

In 2005, funding was allocated to the NMFWCO to initiate a long-term early detection program for zebra/quagga mussels and New Zealand mudsnail at various localities throughout the state of New Mexico. Coordination with state and federal agencies allowed 14 reservoirs to be monitored for early detection of zebra/quagga mussel starting in the summer of FY 2009. These reservoirs include: Navajo Reservoir, Eagle Nest Lake, Conchas Lake, Ute Lake, Heron Lake, El Vado Lake, Abiquiu Reservoir, Nambe Lake, Cochiti Lake, Elephant Butte Lake, Caballo Lake, Santa Rosa Lake, Sumner Reservoir, and Brantley Reservoir. The current methods being used by NMFWCO and partners to identify presence/absence of zebra/quagga are information & education (I&E) outreach programs and early detection and monitoring. The methodology for early detection and monitoring of adults utilizes artificial substrata, while PCR (genetic analysis) and microscopic analysis are used to detect veligers.

Test results for PCR from BOR in Denver, Colorado, showed positive samples obtained in the spring of 2008 from Ute Lake State Park and Abiquiu Lake State Park. Subsequently, personnel from NMFWCO and NMDGF conducted additional surveys and were unable to verify the presence of zebra or quagga mussel. Further tests suggest the original results were false positives. Retesting of these 2008 samples by a more specific DNA primer showed these results to be neither zebra nor quagga mussel and may be native mussel species common among these water bodies

In May 2009, Navajo Lake State Park personnel informed NMFWCO that a boat had been stopped from launching due to zebra/quagga mussel infestation. Personnel from NMFWCO examined the boat, collected samples, assisted in boat decontamination and provided technical advice/support to State Parks personnel and private marina managers.



*Houseboat infested with Quagga Mussels.*

The San Juan River quality waters section below Navajo Dam had a report of New Zealand mudsnail in the stomach contents of a rainbow trout. Four sites were sampled by NMFWCO from the dam to the lower boundary of the quality waters to determine presence/absence of New Zealand mudsnail. All snails collected were identified as belonging to the family *Physidae*, none were identified as New Zealand mudsnail.

The NMFWCO conducted 8 Level I Boat Inspection and Decontamination Training courses in FY 2009 throughout New Mexico. More than 200 individuals have received certification as a Level I Watercraft Inspector.

In January 2009, the City of Albuquerque Aquarium and Biopark requested our assistance in identifying an unknown substance found on site. It was determined that the sample was a filamentous algae and not Rock Snot (a diatom).

### **FY 2010 Proposed Activities**

The NMFWCO will continue to work with New Mexico Aquatic Invasive Species Advisory Council, by coordinating PCR sampling, processing and shipping. Level I Watercraft Inspection and Decontamination Training technical assistance will continue to be provided to other government agencies, tribal entities and NGOs upon request. A copy of NMFWCO's AIS database was provided to 100<sup>th</sup> meridian for use throughout the west.

## Cooperation with Native Americans

The NMFWCO is responsible for providing technical assistance to twenty-two Native American tribes to develop and enhance native fish conservation and recreational fisheries. The duties provided by NMFWCO to Tribes have ranged from lake/stream surveys, habitat assessment and improvements, fish passage, native fish conservation, non-native fish removal, educational outreach, and ESA collaboration. As each Tribal partner continues to expand their conservation efforts, enhance their recreational fisheries, and increase Native American Youth outreach programs, the NMFWCO will strive to continue to fulfill its Tribal trust responsibilities.



*Results of sampling at Stone Lake, Jicarilla Apache Reservation*

### Southwest Tribal Fisheries Commission

The NMFWCO personnel continued participation in Southwest Tribal Fisheries Commission (SWTFC) quarterly meetings. The purpose of the commission is to provide a coordinated tribal management group to guide recreational fisheries management and support for hatchery operations and native fish restoration. The development of the commission was in response to declining Service hatchery operations and concomitant reductions in hatchery stockings for tribal and other recreational fisheries programs. The NMFWCO staff and the executive director of SWTFC completed a final draft Memorandum of Agreement (MOA) between SWTFC and the Service. The Regional Director and President of SWTFC signed the agreement on November 12, 2008.

### Technical Assistance and Field Activities

The NMFWCO staff participated on the Regional Review Team to evaluate and rank Tribal Wildlife Grant (TWG) proposals submitted by tribes/nations/pueblos within Region 2. Each peer-reviewer had approximately one month to review the proposals before reconvening at the Regional Office in Albuquerque, New Mexico, for ranking.

Two recreational fisheries management plans were completed for the Pueblo of San Ildefonso and Ohkay Owingeh (formerly San Juan Pueblo). The management plans identify key issues on the Pueblos and develop goals, objectives, and strategies for maintaining, enhancing, and conserving fishery resources. Emphasis is also placed on maintaining traditional and cultural values and beliefs.

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The NMFWCO conducted lake surveys on waters of Mescalero Apache Tribe, Pueblo of Acoma, Pueblo of Nambe, Pueblo of Zuni, and Jicarilla Apache Indian Reservation to assess species composition, relative abundance, size structure, growth, and condition of fish. Rainbow trout, brown trout, and channel catfish are annually produced and distributed by the Service to our tribal partners in fulfillment of tribal trust responsibilities. Sampling methodology included the use of trammel and gill nets, and an electrofishing boat. All fish collected were identified to species, weighed to the nearest gram (g), measured for total (TL) and standard length (SL) to the nearest millimeter (mm), and returned to the reservoir. Length-weight data were used to evaluate body condition and growth rates of individual fish. These data were used to calculate Fulton's condition factor ( $K_{TL}$ ), proportional stock density (PSD), relative stock density (RSD), and relative weight (Wr) for brown trout, rainbow trout, channel catfish, and largemouth bass.

On three separate occasions NMFWCO provided assistance to the Pueblo of Santa Ana to evaluate the fish community and characterize habitat use and habitat availability in the Rio Grande. Initially, this project was funded through the Service's Tribal Landowner Incentive Program grant. The Pueblo was subsequently awarded additional funding to expand habitat restoration efforts on the Rio Grande and evaluate how the fish community responds to these habitat modifications.

The NMFWCO, Pueblo of Laguna (POL)-Department of Natural Resources, and POL-Facilities Department completed the construction of two fish passage crossings on the Rio Paguete. The project was initiated due to motorized vehicles continuing to intercept Rio Paguete and degrade the stream bottom and the stream channel creating large amounts of sediment deposition, which was potentially impacting spawning areas for salmonids present in the Rio Paguete.

### **Nonnative Fish Removal**

The Pueblo of Zuni's Fish and Wildlife Department and NMFWCO continued mechanical removal efforts in 2 spring-fed ponds from May 26-28, 2009. Staff used an electrofishing raft and removed 325 goldfish from Dog Springs. A pre-position electrofisher (electrified framework placed for a period of time, usually < 15 min, prior to fishing) was used in Well Springs to remove 225 goldfish. All goldfish were transported to the Eagle Aviary for bald and golden eagles to utilize as a food source.

### **Recreational Fisheries Program**

Beginning October 2008 and continuing through June 2009, Alchesay-Williams Creek NFH distributed approximately 50,000 catchable rainbow trout (8 to 10 inches) to 8 tribes/pueblos in New Mexico. Inks Dam NFH distributed approximately 55,017 channel catfish (8 to 10 inches) from April through July, 2009, to the Navajo Nation, Pueblo of Zuni, Ohkay Owingeh, and Jicarilla Apache Tribe. In November 2008, Inks Dam NFH also distributed 1,645 largemouth bass *Micropterus salmoides* (8-inches) to the Pueblo of Zuni and Navajo Nation. Recreational fish distributed by federal hatcheries have enhanced recreational fishing opportunities for both tribal members and non-tribal individuals and fulfilled Indian Fiduciary Trust responsibilities.

### **Rio Grande Silvery Minnow**

In collaboration with the Pueblo of Isleta and the Pueblo of Sandia, staff from NMFWCO continued to monitor the abundance and distribution of Rio Grande silvery minnow. All data collected on tribal lands remained with the Pueblo. Monitoring was conducted monthly at designated sampling sites along the Rio Grande on tribal lands.

## Education Outreach

The NMFWCO participated with the New Mexico Forestry Camp on June 3, 2009, at Seven Springs State Fish Hatchery, and the 2009 Tribal Youth Environmental Summer Camp, at Santa Clara Canyon, to present information on backpack electrofishing and aquatic macro-invertebrates. In addition, NMFWCO assumed primary responsibility for overseeing the Youth Conservation Corp (YCC) program at the Mescalero Tribal Fish Hatchery, Mescalero Apache Indian Reservation. Five tribal youths worked from June 15, 2009, to August 7, 2009, and engaged in multiple projects for hatchery operations, trail construction, stream and riparian restoration, and spring renovation.



*Angela James presents information on native trout conservation*

## Rio Grande Cutthroat

The NMFWCO participated in several Rio Grande cutthroat trout Working Group meetings. Ongoing discussions with Santa Clara Pueblo have resulted in the Pueblo passing a Tribal Resolution designating the entire headwaters of the Santa Clara Creek Drainage as Rio Grande cutthroat trout waters. The Pueblo and the NMDGF have been finalizing a Memorandum of Agreement outlining the working relationship and acquisition of pure Rio Grande cutthroat trout. The Pueblo was awarded a Western Native Trout Initiative (WNTI) grant to renovate the current spillway structure at Pond 4 and improve habitat conditions in Santa Clara Creek. The Pueblo, with assistance by NMFWCO, constructed 20 different habitats in a 1-mile reach, ranging from W-rock weirs, log-vanes, J-Hook vane, and cross-vane structures.

In August 2009, Jicarilla Apache Tribal Game and Fish Department and NMFWCO surveyed Poso Creek to evaluate the efficacy of mechanical removal by electrofishing for nonnative brook trout *Salvelinus fontinalis*. Public misconception regarding environmental consequences of antimycin use resulted in a decision by Jicarilla Apache Tribe to use mechanical removal to complete the renovation process after initial chemical treatment did not remove all brook trout. Sampling efforts in 2009 yielded both brook trout and Rio Grande cutthroat trout in Poso Creek, indicating incomplete removal. Sixty cutthroat trout from Willow and Poso creeks were collected to evaluate the genetic purity of these fish. The Tribe coordinated with Dexter National Fish Hatchery and Technology Center to conduct the genetic analyses.

## FY 2010 Proposed Activities

Conservation and recovery efforts scheduled for FY 2010 include; monitoring Rio Grande silvery minnow on Pueblo of Isleta and Pueblo of Sandia, conducting annual spring lake surveys on Pueblo of Zuni, Pueblo of Nambe, Mescalero Apache Tribe, Pueblo of Acoma, Pueblo of Laguna, and Jicarilla Apache Indian Reservation; surveying Rio Paguete to assess 2 fish passage crossings on Pueblo of Laguna; mechanically removing all nonnative fishes (Pueblo of Zuni and Santa Clara Pueblo); chemically treating the headwaters in the Santa Clara Creek Drainage; and hosting a National Conservation Training Center course entitled “Rotenone and Antimycin Use in Fish Management” at Santa Clara Pueblo. The NMFWCO will continue its participation with the New Mexico Forestry Camp, Southwest Region-Native American Fish and Wildlife Society Youth Practicum, Tribal Youth Environmental Summer Camp at Santa Clara Canyon, and the 25<sup>th</sup> Annual Southwest Region Native American Fish and Wildlife Conference.

The NMFWCO will be constructing additional habitat structures in Santa Clara Creek drainage as part of continuing habitat restoration for Rio Grande cutthroat trout. Staff will continue to coordinate with Alchesay-Williams Creek NFH Complex and Inks Dam NFH on annual fish distribution to the New Mexico Tribes.



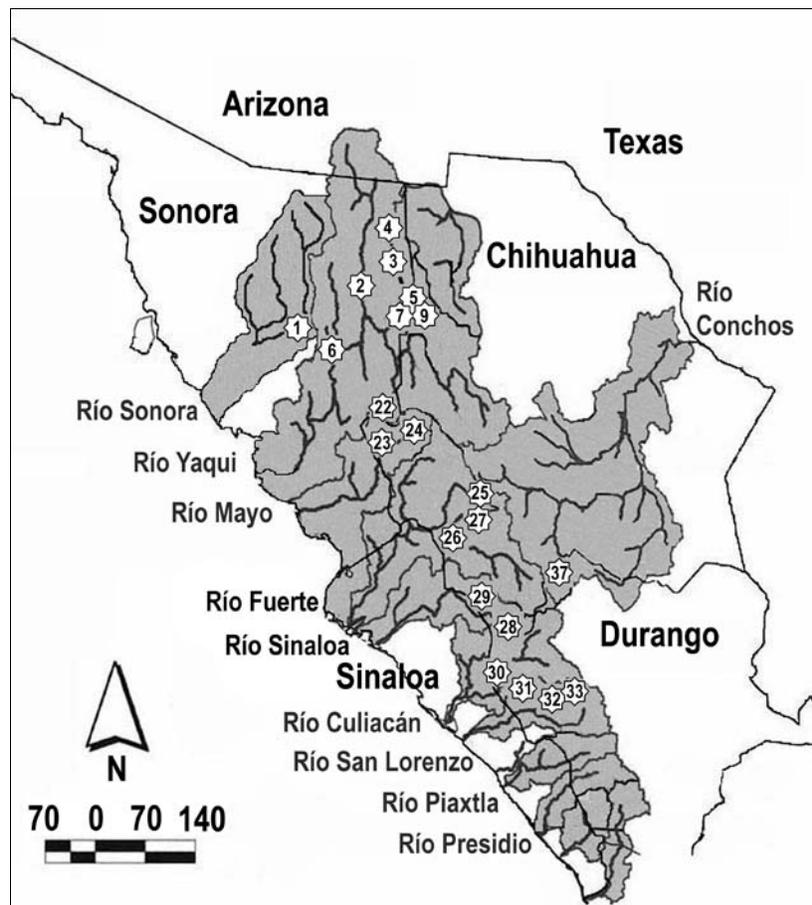
*Chris Kitcheyan leads a field exercise for Native American students at the Youth Practicum*

# International Affairs

## *Cooperative Mexico Fisheries Issues*

Since 1995, NMFWCO personnel have participated in a variety of Mexico fish surveys and meetings for the purposes of characterization of native species distribution and status, threats, and possible management actions to remove or minimize threats. This has included both work on shared species, i.e. Yaqui fishes, and initiation of conservation efforts for others, such as a variety of native trout and catfishes in the Sierra Madre Occidental. Close working relationships have been built with numerous Mexican scientists, State personnel, and NGOs, notably the World Wildlife Fund. Currently, emphasis of our work is based upon conservation of the re-discovered Conchos trout and protection of the native fish community and associated habitats in the upper Rio Tutuaca, Rio Yaqui Basin.

Field based efforts for native species conservation in Mexico have been altered by ongoing conflict in many interior regions of Mexico due to Mexican government drug interdiction activities. As a consequence field survey efforts have been somewhat restricted and greater emphasis in 2009 was placed on administrative duties in coordinating with Mexican biologists.



*Localities for Yaqui Catfish, Sierra Madre Occidental, Mexico*

## **Canada-Mexico-U.S. Trilateral Committee for Wildlife and Ecosystem Conservation and Management**

Personnel from NMFWCO did not directly participate in the 11th Annual Meeting of the Canada-Mexico-U.S. Trilateral Committee for Wildlife and Ecosystem Conservation and

Management in Canada, May 2008. However information was provided on conservation of native trout of the Sierra Madre Occidental to the ‘Species of Common Concern Working Table’. Additional communication with the Sonoran Joint Venture coordinator in the Tucson, Arizona, office enabled continued cooperation on related issues in the northern Sierra Madre Occidental.

## **Status of Fisheries Surveys of the Rio Tutuaca, Yaqui Catfish**

### **Taxonomy**

The Rio Tutuaca is the largest tributary of the Rio Aros, Rio Yaqui Basin. Previous work by this office and cooperators included the detailed inventory of the resident fish community in the Tutuaca’s uppermost reach and inflowing tributaries in 2006. This work resulted in the discovery of a population of pure native Yaqui catfish *Ictalurus pricei*. This was an important find given the rarity of Yaqui catfish elsewhere in the Rio Yaqui Basin. Endangered by hybridization with non-native ictalurids, Yaqui catfish persist in the Rio Tutuaca with the, so far, total absence of non-native species. In conjunction with personnel from Universidad de Sonora (Alejandro Varela), CONANP (Mauro Ramos), and Rancho El Nogal (Tutuaca Mountain Center), previous survey data were compiled, analyzed and the status of species of native Mexican catfish was updated. Alejandro Varela recently completed his PhD work, including publication of the joint findings of status and taxonomy of native catfishes of the northern Sierra Madre Occidental.



*Rio Tutuaca Yaqui Catfish*

## **Fisheries Surveys in the Rio Conchos Basin**

While basic fish community surveys and conservation efforts for the Conchos trout remain a priority, 2009 activities were restricted in international/interagency meetings associated with the Desert Fishes Council annual meeting at Death Valley, California. Representatives of Truchas Mexicanas met to discuss ongoing field efforts, status of taxonomic descriptive work, and high priority conservation needs.

## **FY 2010 Proposed Activities**

Basic fish community surveys and continuation of cooperative management activities with ejidos will continue.

# Partnerships and Accountability

## *National Fish Habitat Action Plan*

Under the National Fish Habitat Action Plan (NFHAP), there are a number of partnerships and the WNTI is the focus of current NMFWCO involvement in NFHAP activities. The WNTI is comprised of 12 western states, tribes, other federal agencies, and public and private non-governmental organizations. The basic objective of WNTI is to facilitate implementation of conservation actions by establishing collaborative conservation efforts for native trout across the western states through a joint venture Strategic Plan involving interagency efforts and partnerships. The WNTI is one of several joint ventures identified as an implementation tool for the National Fish Habitat Initiative. Some problems with operations exist, however and center on the coordination and administration of WNTI. As allowed by the Service, WNTI is operated under the direct auspices of the Western Association of Fish and Wildlife Agencies and not FWS-NFHAP. Thus, WNTI membership and involvement concentrate on State participation and minimize the participation and contribution of non-State partners. The NMFWCO Project Leader serves as the Region 2 Coordinator for WNTI.



*NFHAP-supported stream habitat improvement structure constructed on Santa Clara Creek*

During FY09, we allocated considerable resources to WNTI meetings, conference calls, document review, and inter-regional (Service) coordination. As part of NFHAP funding mechanisms for WNTI, FONS is the proposal submission process. The NMFWCO staff coordinated the direct production and input of FONS proposals for Gila trout and Rio Grande cutthroat trout and coordinated with Arizona Fish and Wildlife Conservation Office on proposals for Arizona -based Gila trout restoration activities. In New Mexico, NMFWCO developed a Request For Proposals for WNTI FONS and provided to various cooperators. Proposals received were modified/added and ranked according to priority. Proposals were then input into FONS format. All proposals for Arizona and New Mexico Gila trout projects and New Mexico Rio Grande cutthroat trout projects were then used to build a spreadsheet for final Region 2 ranking. A total of 4 reviewers from Arizona and New Mexico ranked the proposals and we then

submitted the top ten FONS proposals to the Regional Office and to WNTI for funding consideration. We were successful in obtaining funds for one project for Rio Grande cutthroat trout. This project will support reconstruction of the dam and spillway at Pond 4 on Santa Clara Creek, Santa Clara Pueblo, and restoration of native Rio Grande cutthroat trout to the entire headwaters, including establishment of a trophy fishery in Pond 4.

## *National Fish Passage Program*

The National Fish Passage Program (NFPP) is a voluntary, non-regulatory program that attempts to restore native fish and other aquatic species to self-sustaining levels by reconnecting habitat that has been fragmented by barriers, where such re-connection would not result in a net negative ecological effect such as providing increased habitat to exotic species.

The NMFWCO facilitated several NFPP projects within New Mexico in 2009. Two ongoing projects are located within the South Canadian River drainage of Northern New Mexico on Ponil Creek. Five low water stream crossings will be renovated on South Ponil Creek on property owned by Philmont Scout Ranch and three low water stream crossings will be renovated on Middle Ponil Creek on property administered by NMDGF within the Barker State Wildlife Area. These projects will restore heavily used road crossings in order to reduce disturbance to stream bed sediments. This restoration is completed by installing low water stream crossings using a cellular soil confinement system manufactured by Geoweb®. Road crossing restoration will improve habitat and provide unfettered access to upstream areas for Rio Grande cutthroat trout and other aquatic organisms. Both projects will be completed in 2010. In addition, NMFWCO assisted Laguna Pueblo in completing the installation of two low water stream crossings on the Rio Pagate. A Geoweb® cellular soil confinement system was installed to reduce downstream sedimentation, and to improve upstream access. Rio Pagate maintains a population of Rio Grande cutthroat trout.



*Completed low water stream crossing on the Rio Pagate, Laguna Pueblo, Cibola County, New Mexico.*

### **FY 2010 Proposed Activities**

The NMFWCO will continue to pursue NFPP partners, through assessing watersheds for fish passage needs. High priority watersheds will be identified and projects within these watersheds will be identified that have greatest benefit to aquatic resource management.

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## ***Service Asset Maintenance Management System (SAMMS)***

Beginning in FY 2006, NMFWCO was tasked with entering maintenance orders on personal property into the SAMMS database. A total of \$15,412 was spent during FY 2009 for the maintenance of personal property with the majority of these costs associated with vehicle maintenance and repair. Of this money, \$11,003 was spent on material costs including off-station labor. The NMFWCO staff spent 203 hours on maintenance activities at a cost to the station of \$4,410. These numbers do not represent all maintenance actions; only those that were submitted to the office's SAMMS coordinator were entered into the SAMMS database.

## ***Fisheries Operational Needs System (FONS)***

FONS proposals are submitted on an annual basis in order to address additional operating needs for satisfactory performances of Fisheries Program directives. Proposals submitted address listed species recovery, nonnative species control, native species conservation, recreational fisheries management, and cooperation with private landowners. Since the initiation of FONS, only fish passage, NFHAP and AIS proposals submitted by NMFWCO have received funding.

Numerous high priority proposals that satisfy a variety of GPRA objectives continue to be unfunded for this or any other conservation (non-hatchery) office in the Fisheries Program. Notably, unfunded native trout conservation and use of nonnative fish transplanted from wild environments satisfy numerous objectives relative to listed species recovery, habitat improvement, nonnative species interactions, and tribal fisheries management and trust responsibilities.

Annual reporting of FY2009 Accomplishments in FIS is located in Appendix A.

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# Leadership in Science and Technology

Science and technology form the foundation of successful fish and aquatic resource conservation and are used to structure and implement monitoring and evaluation programs that are critical to determine the success of management actions. The NMFWCO is committed to following established principles of sound science.

## *Gila Trout*

Management and recovery of Gila trout includes a genetically based captive propagation program at Mora NFHTC. Broodstock management includes periodic supplementation with wild fish collections of pure Gila trout to minimize genetic drift of relic lineages. High mortality rates for incoming wild trout from often small donor populations have reduced hatchery numbers and threaten unique genetic stocks. Thus, ensuring survival and acclimation of wild Gila trout to captive facilities is a priority. Development and testing of environments that allow transition of wild fish to artificial conditions is the focus of this work. Initially a literature review was conducted to provide a basis for developing a naturalized rearing system for the purposes of acclimating wild Gila trout to captive propagation environments while minimizing mortality. Then the system discussed below was developed.

### **Accomplishments**

A fully functioning recirculation system located at the NMFWCO office was modified to enhance habitat complexity and mimic the Gila trout's natural environment consisting of cover, tank color, substrate, light, and monitoring of fish behavior. Physical structures were placed in the system to mimic the structural complexity of a natural stream system; these structures were cinder block, artificial plants, aquamats, and polyvinyl chloride (pvc) pipe structures. To aid in cryptic coloration, tanks were painted a brown/bronze color and natural colored gravel and cobble were added to the recirculation system. A two-part true-light lighting system was setup with timers to mimic natural day-night, including dusk and dawn, cycles to improve growth conditions and maintain a natural diel-cycle. To complement the tanks appearance, additional methods such as maintaining near wild densities (0.01-0.02lbs/ft<sup>3</sup>), varied natural feed diet, and polyculture (rearing multiple species) were utilized.

In addition, to minimize hatchery learned behavior of surface feeding, an underwater aerated feeding system was developed to deliver frozen natural feed within the water column to the fish. Immediately after constructing the system, it was determined the ability to actively observe fish had been diminished and an underwater camera system was used to help monitoring fish.



Configuration of recirculation system with “riffles” and “pools”.

Aquatic invertebrates were collected and introduced into the system to provide a natural food base for incoming wild fish. The naturalized rearing system successfully held aquatic invertebrates (*Ephemeroptera* sp., *Plecoptera* sp., and *Diptera* sp.) for three months with larvae of all three orders emerging to adults. Fifteen Sonoran suckers (Average TL = 101.5mm) and 15 desert suckers (Average TL = 75.1mm) were collected from the middle reach of the West Fork Gila River and introduced to the system in May 2009. The catostomids were observed feeding and using the various habitat structures with the underwater camera system. Hatchery reared Gila trout (Age-0) were introduced to the system December 2009. The Gila trout initially displayed common hatchery characteristics of pale coloration, non-predator avoidance, surface feeding, and failure to use habitat structure. Of 40 Gila trout, 23 were lost within the first month, three due to jumping from the tanks and 20 from cannibalism/aggression. There have been no other mortalities since the trout were size-graded and segregated into two groups. There was no loss of suckers with the addition of the trout and it is assumed they maintained their wild behavior of avoiding trout by utilizing structures for cover. Since being introduced in the naturalized rearing system, the Gila trout have darkened in color, improved predator avoidance behavior, have been feeding within the riffle and water column, and using the structures.



*Gila trout in recirculation system*

### **FY 2010 Proposed Activities**

The natural rearing system is expected to be a beneficial tool in acclimating wild Gila trout to captivity based on the encouraging results of the invertebrates, suckers, and hatchery reared Gila trout. The system will be on stand-by as of June 2010 to accommodate incoming wild Gila trout due to broodstock collection, renovation work, or fire evacuation to serve as an appendage to the facilities at Mora. Additional modifications to the naturalized rearing system will be made as needed to minimize mortality of wild Gila trout.

# Piscicide Use and Fisheries Management

Use of piscicides is regulated by the Federal Insecticide, Fungicide, Rodenticide Act. This act requires registration with the Environmental Protection Agency (EPA) and only two products, antimycin and rotenone, are registered piscicides relevant to NMFWCO uses. Currently both piscicides are being re-registered and NMFWCO staff has assisted with development of use manuals, considered integral to pesticide label requirements. EPA delegates enforcement authority to the states and for NM, the State Department of Agriculture is responsible, including permitting for pesticide applicators. Currently five NMFWCO personnel are permitted by the State of NM to apply piscicides.

One of the primary roles of NMFWCO in piscicide use in fisheries management in Region 2 is training. The NMFWCO Project Leader is one of four instructors for the National Conservation Training Center (NCTC) course, “*Rotenone and Antimycin Use in Fisheries Management*”, FIS 2132. Duties for participation in this training include not only course instruction, but course development and revision that requires annual planning meetings and time allotted to course revision requirements. This course was taught during 2-6 March 2009 at Ho’omaluhia Botanical Garden, on the island of O’ahu, Hawaii and one NMFWCO staff biologist participated in the training. The emphasis of this course, due to predominant class attendance by biologists working in Pacific Island environments, was on the use of rotenone in small tropical streams and ocean-side aquatic environments.



*Stream-side drip station exercise, Ho’omaluhia Botanical Garden*

The FY 2010 piscicide activities will entail completion of rotenone application to the Upper West Fork Gila River for restoration of Gila trout and also initiation of a project to restore Rio Grande cutthroat trout to the Upper Santa Clara Creek watershed at Santa Clara Pueblo.

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## Information and Education

The NMFWCO reported on a variety of station activities in technical agency reports and plans, symposium proceedings manuscripts, abstracts and presentations in technical meetings, individual trip reports, interagency meetings, and in media produced articles.

### *Technical Reports and Publications*

- Archdeacon, T.P. and S.R. Davenport. 2010. Predation by Age-0 Smallmouth Bass (*Micropterus dolomieu*) on Bigscale Logperch (*Percina macrolepida*) in the Pecos River, New Mexico. *The Southwestern Naturalist*. 55:120-122.
- Archdeacon, T.P., W.J. Remshardt, and T.L. Knecht. 2009. Comparison of two methods for implanting passive integrated transponders in Rio Grande silvery minnow. *North American Journal of Fisheries Management* 29:346-351.
- Archdeacon, T. P., and S. R. Davenport. 2009. Occupancy Estimation of Bigscale Logperch in the Pecos River, New Mexico. Annual report submitted to New Mexico Department of Game and Fish.
- Davis, J.E., D.W. Furr and E. Teller. 2009. Nonnative species monitoring and control in the upper San Juan River: 2008. Final Report. U.S. Fish and Wildlife Service. San Juan River Basin Recovery Implementation Program, Albuquerque, NM.
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# Appendix

# Appendix A. FY 2009 Accomplishments



## U.S. Fish & Wildlife Service Fisheries Information System

### FY 2009 Accomplishments

#### 22330-A-001 - Gila trout recovery

**Total Funding** \$177,087

**Objective** Recover fish and other aquatic resource populations protected under the Endangered Species Act.

**Benefited Species** Gila trout ([Oncorhynchus gilae](#))

**Benefited Population** [Gila trout - Whiskey Creek \[Threatened\]](#)

**Plans** Gila Trout Recovery Plan

**Keyword** Recovery

**Project No.** 22330-A-001

- Partners**
- New Mexico Department of Game and Fish(\$45000)
  - Trout Unlimited(\$5000)
  - U. S. Forest Service(\$35000)
  - University of New Mexico

#### Accomplishment Summary

**FY2009:** Assistance was provided to Mora NFHTC, with stocking of captively propagated Gila trout of two lineages into 7 streams within the Gila NF for both recovery and recreational stockings. Status surveys were completed in four streams. Piscicide was applied to the upper West Fork Gila drainage. Followup checks in July indicated need for further application, which occurred in late Sept/early Oct. NMFWCO hosted the annual meeting of the Gila Trout Recovery Team.

#### Description

**The importance to the Resource:**

Native trout management in Gila Wilderness

**The problem:**

Reduced distribution due to historical stocking and expansion of nonnative trouts and wildfire impacts to occupied streams

**The objective:**

The objective of this project is to restore Gila trout to streams that have been treated to remove nonnative trouts and to streams where populations were eliminated by post-wildfire impacts

**The method:**

Streams are selected that have physical barriers to upstream movement of nonnative trout, piscicide is applied to stream if nonnatives are present, fish propagated at Mora NFHTC or wild fish translocated are used to repopulate recovery streams; wildfire impacts are monitored and fish restocked when stream recovery is adequate to support trout

**Further description:**

Gila trout are reduced to a small fragment of their historical range. Impacts associated with the introduction and establishment of nonnative salmonid species is the primary concern. This project will assist in recovery of Gila trout through expansion of range. The objective of this project is to increase the distribution of Gila trout within the Gila River Basin and to eliminate sportfish recreational programs that rely upon nonnative salmonids. Recovery streams were selected that were within historical range and had physical barriers present. Piscicide is applied to these streams to remove nonnative salmonids. Captively propagated Gila trout are introduced after successful elimination of nonnatives. Field collection of wild Gila trout are conducted to provide for genetic broodstock management guidelines.

#### Accomplishments

##### 2009 performance measures

Number of habitat assessments completed (not acres)	6.0
Total number of population assessments completed	6
Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	3
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	3
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	3
Number of activities conducted to support the management and control of aquatic invasive species (Fisheries)	1
Number of activities conducted to support the management and control of aquatic invasive species (FWMA)	1
Number of risk assessments conducted to evaluate potentially invasive aquatic species - annual	1

For the 2009 piscicide application, NMFWCO completed a detailed assessment of the environmental impacts of the project in a Intra-Service Section 7 Evaluation Form and also a Pesticide Use Proposal. NMESFO completed a Biological Opinion allowing the project to proceed.

**Pictures**



**Caption:**  
Barrier on lower Langstroth Creek

**Credit:**  
Jim Brooks, USFWS

**Description:**  
Above this barrier resides the replicate population for Whiskey Creek lineage.



**Caption:**  
Whiskey Creek Gila trout from Langstroth Creek.

**Credit:**  
Stephanie Coleman, USFWS

**Description:**  
Fat and healthy Gila trout transplanted from Whiskey Creek to Langstroth one year after stocking.

**22330-A-027 - NFPP - Assessment of Fish Passage needs for the Rio Grande Basin Headwaters**

**Total Funding** \$15,000

**Objective** Facilitate management of aquatic habitats on national and regional scales.

**Benefited Species** Rio Grande cutthroat trout ([Oncorhynchus clarkii virginalis](#))

**Benefited Population** [Rio Grande Basin, NM-3](#)

**Plans** Conservation Agreement for the Range-Wide Preservation and Management of the Rio Grande Cutthroat Trout among Colorado Division of Wildlife, New Mexico Department of Game and Fish, U.S. Forest

**Accomplishment Summary**

*FY2009:* Project Complete. Fish passage assessment report finalized. Compiled multiagency (USFS, BLM, Tribal, USBOR, USACE, State of New Mexico, private and acequia districts) data base into spread sheet format. Conducted field assessments of selected barriers within upper Rio Grande and Pecos River tributaries to determine feasibility and approximate costs and timelines. In addition, added information for the San Juan River and Gila River basins.

**Description**

**The importance to the Resource:**  
Fish passage barriers prevent native and recreational species from fully occupying available habitats and from movement during

Service, U.S. Fish and Wildlife Service, Bureau of Land Management, Jicarilla Apache Nation

**Keyword** Fish Passage

**Project No.** 22330-A-027

**Accomplishments**

**2009 performance measures**

Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	6
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	6
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	6

environmental perturbations (flooding, drought). Culvert crossings for the plethora of roads on public lands serve to limit fish passage. For Rio Grande cutthroat trout restoration, fish passage is a priority.

**The problem:**

There is a lack of comprehensive assessment of fish passage needs throughout the headwater region of the Rio Grande Basin. Without it, work done on streams may be redundant or counterproductive as fish passage needs are not addressed in a coordinated manner to maximize the benefits.

**The objective:**

The objectives are twofold. First is to compile available information and work with partnering agencies, landowners, and NGOs to develop a prioritized list of specific fish passage needs. Second is to implement correctivemeasures at three currently identified crossings.

**The method:**

Fish passage needs will be inventoried for the headwaters via interagency planning meetings, on-site evaluations, and focused field surveys of streams containing species with limited distributions. Reconstruction at three crossings will result in increased fish passage opening an additional 25 miles of streams.

**Further description:**

A comprehensive assessment of fish passage needs and aquatic habitat quality is not available for the Rio Grande basin, despite its importance to native and recreational species. Such an assessment would be of critical support to the National Fish Habitat Action Plan and the allocation of fish passage funds to high priority projects that will result in successful fish passage and habitat restoration projects. Basin by basin assessments would greatly enhance cumulative benefits of fish passage funding. Numerous barriers to fish passage exist in headwaters on the Rio Grande Basin in New Mexico from irrigation and mining diversions, channel modification for flood control, road construction and maintenance, wildfire caused debris flows, and channel dewatering. Often times, funding allocations and timelines require "reactionary" approaches to proposal submission and proposals may not be coordinated on a basin wide approach for highest priority. Basin-wide assessments with partner involvement can provide for supportable fish passage priorities.

**22330-A-030 - NFPP: Fish Passage on South Ponil Creek for Rio Grande Cutthroat Trout at Philmont Scout Ranch.**

**Total Funding** \$22,000

**Objective** Maintain diverse, self-sustaining fish and other aquatic resource populations.

**Benefited** Rio Grande cutthroat trout

**Accomplishment Summary**

*FY2009:* Philmont Scout Ranch has received funds and is beginning first phase of project-constructing educational signs to be placed along South Ponil Creek. USFWS personnel are planning a site visit to advise on types of low water stream crossings to installed, and to advise on

**Species** ([Oncorhynchus clarkii virginialis](#))

**Benefited Population** [South Ponil Creek](#) [[Candidate](#)]

**Plans** Conservation Agreement for the Range-Wide Preservation and Management of the Rio Grande Cutthroat Trout among Colorado Division of Wildlife, New Mexico Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, Jicarilla Apache Nation

**Keyword** Fish Passage

**Project No.** 22330-A-030

**Partners** New Mexico Department of Game and Fish

stream and fish surveys. The Scout Ranch, a separate and subsidized business under Boy Scouts America has been difficult to work with due to unresponsiveness. Our future activities will include intensive project monitoring. Goal is to improve five (5) low water stream crossings on south Ponil Creek and to establish educational signs at three points along the stream to inform public about native fishery work that is taking place and importance of fish passage. Worked with Boy Scouts of American - Philmont Scout Ranch to establish contracting and agreement guidelines.

**Description**

**The importance to the Resource:**

Improving the low water stream crossings using available “best practices” to reduce impact of vehicle traffic to the fisheries. The signs will educate numerous boy scout troops about the importance of native fisheries and fish passage.

**The problem:**

South Ponil creek is crossed five times for emergency access and essential maintenance route for Philmont Scout Ranch. Increased sediment in the stream may degrade habitat and impact native population of Rio Grande Cutthroat Trout.

**The objective:**

To improve and protect native fishery on Philmont Scout Ranch through reduction of sediment in south Ponil Creek associated with stream crossings, increase fish passage and educate visiting boy scout troops about native fishery, fish passage and habitat restoration.

**The method:**

To replace existing road crossings with low impact water crossings that allow/increase fish passage and decrease impact to stream habitat and aquatic organisms.

**Further description:**

Philmont Scout Ranch has resources (both man power and equipment) to complete all construction. The funds requested will buy materials for the stream crossings. More than 8000 Boy Scouts hike along South Ponil Creek each summer as part of the Philmont Scout Ranch Program and will participate in the fish passage project. This program educates youth annually on importance of conservation and wildlife. For the past fifteen years, Philmont Scout Ranch has worked with the New Mexico Department of Game and Fish on reintroduction of the Rio Grande Cutthroat Trout in the 7.5 mile South Ponil Creek, Colfax county, New Mexico. This project will provide both education for boy scouts traveling to New Mexico from throughout the nation and conservation benefits for South Ponil Creek.

**Accomplishments**

**2009 performance measures**

Total number of miles of in-stream and shoreline habitat assessed	5.0
Total number of population assessments completed	1
Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	3
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	3
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	3

**22330-A-013 - Aquatic nuisance species**

**Total Funding** \$11,000

**Accomplishment Summary**

**Objective** Prevent new introductions of aquatic nuisance species.

**Benefited Species** (0) Multiple Species ( )

**Benefited Population** Not specified

**Plans** ANS Task Force Strategic Plan

**Keyword** Aquatic Nuisance Species

**Project No.** 22330-A-013

- Partners**
- New Mexico Department of Environment
  - New Mexico Department of Game and Fish
  - New Mexico State Parks Division(\$5000)
  - U.S. Army Corps of Engineers(\$5000)
  - U.S. Bureau of Reclamation
  - University of New Mexico(\$1000)

*FY2009:* New Mexico FWCO was the lead office for the collection of plankton tow net samples for PCR analysis throughout the State. Staff trained over 150 individuals in Level 1 Watercraft Inspection and Decontamination training. NMFWCO continued to remain highly engaged with the State of New Mexico's Aquatic Invasive Species Advisory Council. Early detection and monitoring activities continued at four locations throughout the State.

**Description**

**The importance to the Resource:**

The prevention of the spread and establishment of aquatic nuisance species is critical to maintaining healthy native aquatic communities.

**The problem:**

New Zealand mudsnail and zebra mussel have had detrimental effects both biologically and economically where established. The prevention of introductions and timely response measures are critical to maintaining healthy native aquatic communities.

**The objective:**

Implement routine monitoring stations at a variety of New Mexico water bodies to detect the presence/absence of New Zealand mudsnail and zebra mussel.

**The method:**

Deploy artificial substrata devices at a variety of New Mexico State Park localities and monitor devices on a regular basis throughout the year. Conduct boat trailer inspections for the identification of ANS and conduct boater surveys to determine possible means of introduction.

**Further description:**

Exotic species threaten existing native and desirable aquatic resources in the American Southwest. Lake bound traffic for out of state boaters provides for the potential invasions of exotic invertebrates. The objective of this project is to provide field technicians and cooperating agencies with identification expertise for New Zealand mudsnails and zebra mussels. Handouts containing information on ANS program and target species will be provided to cooperators and technicians, routine monitoring devices using artificial substrate will be deployed, and routine inspection of boats at New Mexico State parks will be conducted.

**Accomplishments**

**2009 performance measures**

Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	1
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	1
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	1
Number of surveys conducted for early detection and rapid response for aquatic invasive species	169.0
Number of state/interstate management plans supported to prevent and control aquatic invasive species (annually)	1
Number of invasive species partnerships established and maintained	10
Number of training session to support Tribal fish & wildlife conservation	2
Number of activities conducted for rapid response (ANS)	4
Number of activities conducted to address priority pathways (ANS)	2
Number of ANS related outreach/education activities conducted	2
Number of surveys conducted for early	165

detection (ANS)	
Number of technical assistance/coordination activities conducted (ANS)	10

### 22330-A-032 - NFHAP: Protection of Alamitos Creek population of Rio Grande cutthroat trout per WNTI priorities

**Total Funding** \$15,000

**Objective** Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.

**Benefited Species** Rio Grande cutthroat trout ([Oncorhynchus clarkii virginalis](#))

**Benefited Population** [Rio Grande Basin, NM-3](#)

**Plans** Conservation Agreement for the Range-Wide Preservation and Management of the Rio Grande Cutthroat Trout among Colorado Division of Wildlife, New Mexico Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, Jicarilla Apache Nation

**Keyword** Habitat

**Project No.** 22330-A-032

- Partners**
- New Mexico Department of Game and Fish
  - Trout Unlimited
  - U. S. Forest Service

#### Accomplishments

##### 2009 performance measures

Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	4
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	4
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	4

#### Accomplishment Summary

**FY2009:** Cooperative Agreement with Trout Unlimited was finalized and funding transferred. USFS did not complete NEPA in time, but did finish re-engineering design. NM Interstate Stream Commission signed on as partner and decision made to modify/improve existing diversion structure to serve as barrier.

**FY2008:** Goal is to construct a barrier to protect of 7.5 stream miles inhabited by pure Rio Grande cutthroat trout from encroachment by nonnative salmonids. Contract written and submitted to CGS. TU prepared a proposal and forms for funding award and transfer. USFS conducting NEPA compliance activities. Construction scheduled for FY09.

#### Description

##### The importance to the Resource:

Securing populations of Rio Grande cutthroat trout and protecting them from threats posed by nonnative salmonids and habitat degradation decreases the likelihood of placing this species in jeopardy; requiring listing under the ESA.

##### The problem:

Alamitos Creek supports a large core population of pure Rio Grande cutthroat trout threatened by invasion of nonnative salmonids leading to hybridization, predation and competition impacts.

##### The objective:

The project would ensure protection of the existing population and benefit ongoing Rio Grande Cutthroat trout conservation efforts.

##### The method:

Construction of a permanent barrier would negate upstream movement of nonnative salmonids and protect of the resident Rio Grande cutthroat trout population.

##### Further description:

Alamitos is a multi-year project where environmental compliance will be acquired the first year with barrier construction immediately following. This projects satisfies the WNTI Joint Venture's goal of building, funding, and implementing collaborative conservation efforts. Nonnative salmonids threaten this population of several thousand Rio Grande Cutthroat trout.

### 22330-A-031 - NFHAP: Black Canyon barrier rehabilitation for Gila trout restoration per WNTI management priorities

**Total Funding** \$22,500

#### Accomplishment Summary

**FY2009:** All environmental compliance was

**Objective** Maintain diverse, self-sustaining fish and other aquatic resource populations.

**Benefited Species** Gila trout ([Oncorhynchus gilae](#))

**Benefited Population** [Gila trout - Black Canyon Creek \[Threatened\]](#)

**Plans** Gila Trout Recovery Plan

**Keyword** Habitat

**Project No.** 22330-A-031

- Partners**
- New Mexico Department of Game and Fish(\$1000)
  - Trout Unlimited
  - U. S. Forest Service(\$5000)

## Accomplishments

### 2009 performance measures

Number of habitat assessments completed (not acres)	1.0
Total number of miles of in-stream and shoreline habitat assessed	9.0
Total number of population assessments completed	1
Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	5
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	5
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	5

completed by US Forest Service. An agreement was finalized and funding transferred to rebuild and solidify the existing barrier and replace the splash pad. Engineering design completed, materials purchased, splash pad temporarily replaced to prevent immediate threat of nonnative movement, and fish community resurveyed to ensure absence of nonnative trout.

## Description

### The importance to the Resource:

A replicate population of Main Diamond lineage Gila trout occurring in Black Canyon is threatened by encroachment of nonnative salmonids. This population is important to recovery of the species and currently represents the only pure Gila trout stream open to recreational angling.

### The problem:

Black Canyon supports a replicate, self-sustaining population of Main Diamond lineage Gila trout above gabion basket barrier. In spring 2007, the existing barrier was compromised because of high discharge allowing for possible upstream movement of nonnative salmonids and encroachment upon Gila trout.

### The objective:

Repair and reinforce the existing Black Canyon Barrier to protect Gila trout populations from predation, competition, and hybridization of nonnative salmonids.

### The method:

Damaged gabion baskets will be repaired and/or replaced in Black Canyon barrier. After repairs are completed, a cement face and apron will be constructed on the downstream side of the fish barrier to strengthen the gabion baskets.

### Further description:

Gabion baskets have a limited lifespan and require maintenance as wire ages. A cement structure would stabilize gabion baskets and act as a barrier as wire corrodes and loses strength over time. Rehabilitation of Black Canyon fish barrier with cement will decrease future maintenance and create a more permanent, durable barrier to upstream movement of nonnative salmonids. Continued protection of the existing replicate Gila trout population is a key factor in recovery of the species. This is a multi-agency collaborative effort which satisfies the WNTI Joint Venture's goal.

## Pictures



**Caption:**  
Black Canyon Barrier  
**Credit:**

Jim Brooks, USFWS

**Description:**

Downstream view of existing barrier. Note the compromise of the splash pad downstream, allowing for pool development and 'launch platform'.

**22330-A-022 - Recreational Fisheries Management and Technical Assistance to Tribes**

**Total Funding** \$80,000

**Objective** Provide support to States, Tribes, and other partners to identify and meet shared or complementary recreational fishing and aquatic education and outreach objectives.

**Benefited Species** Rainbow trout ([Oncorhynchus mykiss](#))

**Benefited Population** Not specified

- Plans**
- Tribal Recreational Fisheries Management Plan for Nambe Pueblo
  - Tribal Recreational Fisheries Management Plan for Santa Clara Pueblo
  - Tribal Fisheries Management Plan for Sandia Pueblo
  - Tribal Fisheries Management Plan for Pueblo of Laguna
  - Tribal Recreational Fisheries Management Plan for Mescalero Apache Reservation

**Keyword** Tribal

**Project No.** 22330-A-022

- Partners**
- Acoma Pueblo
  - Alchesay and Williams Creek NFH Complex
  - Bureau of Indian Affairs
  - Dexter Fish Health Unit
  - Ecological Services
  - Inks Dam National Fish Hatchery
  - Jicarilla Apache Nation
  - Mescalero Apache Tribe
  - Navajo Nation
  - Pueblo of Laguna
  - Pueblo of Nambe
  - Pueblo of Santa Clara
  - Pueblo of Zuni
  - Sandia Pueblo
  - Santa Ana Pueblo
  - Southwest Tribal Fisheries Commission
  - Taos Pueblo

**Accomplishment Summary**

*FY2009:* Provided technical assistance to 13 tribes, completed 2 draft recreational fisheries management plans. Conducted spring lake surveys on 5 reservations to assess fish populations. Inspected 5 hatchery loads for non-target organisms prior to each warmwater stocking. Mechanically removed 500 goldfish from two sarced springs on Zuni Pueblo. Participated in 3 outreach youth programs to demonstrate sampling techniques. Hosted backpack electrofishing training session for Santa Clara Pueblo.

**Description**

**The importance to the Resource:**

Insure the integrity and quality of tribal recreational programs without impacting native fish communities.

**The problem:**

Accidental stocking of non-target fish may impact the presence and abundance of native fish as well the tribal recreational fish program.

**The objective:**

Provide recreational angling opportunities and guidance to tribes, while avoiding impacts to native species.

**The method:**

Conduct fall and spring surveys to evaluate the fish community and in conjunction conduct creel surveys to evaluate angler pressure and catch and harvest rates to estimate projected stocking numbers of fish. Continue to inspect hatchery trucks for the presence of non-target fish and initiate removal efforts to eradicate non-target fish.

**Further description:**

Numerous tribes in New Mexico require technical assistance in the proper management of fisheries on their land. Avoidance of negative interactions between recreational and native fisheries programs is very important to many tribes as well as to Service biologists. Recreational angling demands require intelligent tinkering when stocking nonnative species. The objective of this project was to provide recreational angling opportunities and guidance to tribes, while avoiding impacts to native species. Adherence to management plans and check of hatchery shipments from Texas to avoid stocking of non-target organisms found in warmwater hatchery shipments is required. Routine monitoring of creel data collected by tribal officials is accomplished to

## Accomplishments

### 2009 performance measures

Number of habitat assessments completed (not acres)	6.0
Total number of miles of in-stream and shoreline habitat assessed	10.0
Total number of population assessments completed	10
Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	12
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	12
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	12
Number of aquatic outreach and education activities and/or events (NFHS)	4
Number of aquatic outreach and education activities and/or events (FWMA)	4
Number of training session to support Tribal fish & wildlife conservation	4
Number of consultations conducted to support Tribal fish & wildlife conservation	10
Number of School Tour activities and/or events for adults and children	3
Number of Fishing activities and/or events for adults and children	1

monitor effect of stocking numbers on angler harvest.

## Pictures



### Caption:

Staff attempting to weigh a grass carp

### Credit:

Zuni Fish & Wildlife Department

### Description:

Personnel from Zuni Fish and Wildlife Department and NMFWCO were conducting spring lake surveys to assess the fish community in Ojo Caliente.

## 22330-A-034 - NFPP: Barker State Wildlife Area Stream Road Crossing Improvements

**Total Funding** \$22,850

**Objective** Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative conservation strategies for aquatic resources.

**Benefited Species** Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*)

**Benefited Population** [South Ponil Creek](#) [ [Candidate](#) ]

**Plans** Conservation Agreement for the Range-Wide Preservation and Management of the Rio Grande Cutthroat Trout among Colorado Division of Wildlife, New Mexico

## Accomplishment Summary

*FY2009:* Funds were secured and transferred to New Mexico Department of Game and Fish to begin environmental compliance for this two year project. New Mexico Department of Game and Fish continued fishery surveys in Ponil Creek to assess native fish population prior to stream road crossing improvements

## Description

### The importance to the Resource:

Several fish species are found within the wildlife area. The native fish are longnose dace, creek chub, and white sucker. The non-native sport fish is a Rio Grande cutthroat/rainbow trout hybrid (*Oncorhynchus clarkii virginalis* X *Oncorhynchus mykiss*). The wildlife area is open to public angling year round.

### The problem:

A dirt road crosses Middle Ponil in three locations,

Department of Game and Fish,  
U.S. Forest Service, U.S. Fish  
and Wildlife Service, Bureau of  
Land Management, Jicarilla  
Apache Nation

**Keyword** Fish Passage

**Project No.** 22330-A-034

- Partners**
- New Mexico Department of Game and Fish(\$10000)
  - U. S. Forest Service(\$10000)

## Accomplishments

### 2009 performance measures

Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	5
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	5
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	5

and 15 to 20 vehicles drive through the crossings each day. The road crossings slope downward to the creek, increasing sediment deposition into the creek. The downward slope also causes large amounts of sediment deposited in the creek during heavy rain events that are washed from the road.

**The objective:**

The objective of the project is to reduce sediment input into Middle Ponil, increasing the quality of instream fish habitat, for native and sport fishes

**The method:**

Three road crossings need to be developed to a less intrusive type. A half culvert bridge will mitigate erosion from rain events and vehicles. A developed road crossing will keep the natural stream channel to avoid causing a fish barrier. Keeping the vehicles out of the stream will reduce fish disturbance and mortality from vehicles crossings.

**Further description:**

The Barker State Wildlife Area is located northwest of Cimarron, New Mexico in Colfax County. The Barker Wildlife Area is about 5,000 acre tract of land owned and administered by the New Mexico Department of Game and Fish. Within the wildlife area exists about three miles of the Middle Ponil Creek, a tributary to the Canadian River. Several fish species are found within the wildlife area to include three native fish and one non-native sport fish. The native fish species are longnose dace (*Rhinichthys cataractae*), creek chub (*Semotilus atromaculatus*), and white sucker (*Catostomus commersoni*). The non-native sport fish is a Rio Grande cutthroat/rainbow trout hybrid (*Oncorhynchus clarki virginalis* X *Oncorhynchus mykiss*). The wildlife area is open to public angling year round.

## Pictures



**Caption:**  
cutthroat trout

**Credit:**  
USFWS

**Description:**  
cutthroat trout

## 22330-A-005 - Restoration of Rio Grande Cutthroat Trout

**Total Funding** \$33,960

**Objective** Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.

### Accomplishment Summary

*FY2009:* Assisted Jicarilla Apache Game & Fish Department with fish surveys on Poso and Willow creeks to evaluate population and genetic purity, and provide recommendations on repairing fish barrier on Poso Creek. Participated in 2 RGCT

**Benefited Species** Rio Grande cutthroat trout ([Oncorhynchus clarkii virginalis](#))

**Benefited Population** [Santa Clara Creek](#) [ [Candidate](#) ]

- Plans**
- Tribal Recreational Fisheries Management Plan for Santa Clara Pueblo
  - Conservation Agreement for the Range-Wide Preservation and Management of the Rio Grande Cutthroat Trout among Colorado Division of Wildlife, New Mexico Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, Jicarilla Apache Nation

**Keyword** Restoration

**Project No.** 22330-A-005

- Partners**
- Bureau of Indian Affairs
  - Dexter National Fish Hatchery & Technology Center
  - Mescalero Apache Tribe(\$10000)
  - New Mexico Department of Game and Fish(\$10000)
  - Pueblo of Santa Clara
  - Southwest Tribal Fisheries Commission(\$5000)
  - Taos Pueblo

## Accomplishments

### 2009 performance measures

Number of habitat assessments completed (not acres)	6.0
Total number of miles of in-stream and shoreline habitat assessed	5.0
Total number of population assessments completed	4
Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	10
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	10
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	10
Number of training session to support Tribal fish & wildlife conservation	4
Number of consultations conducted to support Tribal fish & wildlife conservation	6

workgroup meetings hosted by NMDGF and provide updates on tribal projects. Evaluated growth and survival of native trout transported to and reared at MTFH every 30 days from October 2008 to March 2009. Genetic analysis concluded trout from Santa Clara Pueblo were hybrids.

## Description

### The importance to the Resource:

Rio Grande cutthroat trout are one of only two native trouts in NM and also reflect the health status of high country stream watersheds in northern New Mexico

### The problem:

Hybridization with nonnative trout and habitat destruction due to grazing, logging, and home building all contribute to reduced range.

### The objective:

The objective of this project is to both expand occupied range and to repopulate streams once holding native trout

### The method:

Cooperative management efforts with tribes, states and other federal agencies used to implement conservation activities such as nonnative species removal, stocking with native trout, habitat improvement and protection.

### Further description:

Rio Grande cutthroat are a popular recreational fish in New Mexico and southern Colorado. Active Federal Aid in Restoration programs with both states fund activities on public lands. FWS involvement has been in an advisory role and as mandated responsibilities for species listing. Recently, FWS has been petitioned to list the Rio Grande cutthroat trout under the ESA. The lack of involvement by FWS in on-the-ground management activities, particularly in coordinating activities on Tribal lands with public lands actions, has hindered coordinated efforts. This project will provide funding and personnel to provide a collaborative effort between Tribal and public land conservation activities, bring additional technical expertise from FWS to public lands activities, and increase on-the-ground conservation efforts.

## Pictures



### Caption:

Brook trout collected in Poso Creek

### Credit:

Chris Kitcheyan, USFWS-NMFWCO

### Description:

Annual fish surveys are conducted by Jicarilla Apache Game & Fish Department to evaluate the

presence & absence of non-native trout such as brook trout in Poso Creek.



**Caption:**  
Electrofishing Surveys in Poso Creek

**Credit:**  
Chris Kitcheyan, USFWS-NMFWO

**Description:**  
Personnel from Jicarilla Apache Game & Fish Department conducting electrofishing surveys in Poso Creek to evaluate the fish community and genetic purity.



**Caption:**  
Rio Grande cutthroat trout

**Credit:**  
Chris Kitcheyan, USFWS-NMFWCO

**Description:**  
Rio Grande cutthroat trout collected in Poso Creek in August 2009.



**Caption:**  
Rio Grande cutthroat trout

**Credit:**  
Chris Kitcheyan, USFWS-NMFWCO

**Description:**  
Rio Grande cutthroat trout staging near an undercut bank in Poso Creek.

## 22330-A-036 - Youth Conservation Corp (YCC) Activities at the Mescalero Tribal Fish Hatchery

**Total Funding** \$15,000

**Objective** Provide employees with opportunities to maintain competencies in the expanding knowledge and technologies needed to improve opportunities for professional achievement,

### Accomplishment Summary

*FY2009:* Five Native American Youth students were employed at Mescalero Tribal Fish Hatchery (MTFH). YCC participants engaged in all aspects of operation and maintenance of the MTFH. YCC participants were constructed over 3 miles of trails in the Cienigieta, Rio Ruidoso, and Eagle Creek watersheds. The YCC constructed 8 stream

advancement and recognition.

**Benefited Species** (0) Can Not Assign ( )

**Benefited Population** Not specified

**Plans** The Service's Native American Policy

**Keyword** Outreach

**Project No.** 22330-A-036

- Partners**
- Bureau of Indian Affairs
  - Mescalero Apache Tribe
  - Southwest Tribal Fisheries Commission
  - U.S. Fish and Wildlife Service

### Accomplishments

#### 2009 performance measures

Total number of miles of in-stream and shoreline habitat assessed	8.0
Total number of in-stream/shoreline miles restored in U.S.	8.0
Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	2
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	2
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	2
Number of training session to support Tribal fish & wildlife conservation	4
Number of instream miles enhanced	4.0
Number of riparian miles enhanced	4.0

structures in South Tularsoa and Rio Ruidosos drainage. YCC participants renovated the Carrillo Springs to stabilize and protect the spring structure supplying water to the hatchery.

### Description

#### The importance to the Resource:

The YCC is a summer employment program established by Public Law 93-408 for young men and women ages 15 through 18. The YCC program at the Mescalero Tribal Fish Hatchery allows young Native American students opportunities and experiences to partake in activities to care for Mother-Earth and her surroundings.

#### The objective:

Five Native American students were employed at Mescalero Tribal Fish Hatchery from June 15, 2009 through August 7, 2009. The duties performed by YCC personnel ranged from hatchery operations, stream/riparian restoration, spring renovation, and various signage.

#### Further description:

YCC participants completed a 6" pipeline from a spring to the hatchery intake, a distance of over 4500ft. Engineering estimated this project would cost more than \$32K; however the YCC staff was able to complete this project with less than \$7K in material costs. This was huge accomplishment as a backhoe could not have been used to completed this project, as it was too heavy and sunk into the march which would have increased the ultimate costs had the YCC students not stepped up to the tasks. In addition, they were able to build more than 4 miles of trail, created a path to the riparian corridor blocked by woody debris as a result of last year's flood event, and increased pool/riffle habitat on several miles of stream. The YCC has the opportunity to participate in the SW Regional Native American Fish & Wildlife Society Conference held at Isleta Pueblo. Of the 5 students, three individuals have reported that they will be pursuing a career in natural resources.

### Pictures



#### Caption:

Cleaning the raceways at MTFH

#### Credit:

Michael Montoya, Mescalero Tribal Fish Hatchery

#### Description:

YCC participant, Dylan Kayson, cleaning the raceways at Mescalero Tribal Fish Hatchery.



**Caption:**

Stuart Leon and YCC

**Credit:**

Chris Montoya, Mescalero Tribal Fish Hatchery

**Description:**

Stuart Leon with YCC participants and Hatchery Manager (Michael Montoya).



**Caption:**

YCC and NMFWCO.

**Credit:**

Michael Montoya, Mescalero Tribal Fish Hatchery

**Description:**

YCC participants receiving their work boots and waders from NMFWCO personnel to begin their summer field work at Mescalero Tribal Fish Hatchery.

## 22330-A-024 - Increase Fish Passage to 1.5 miles of Paguate Creek, Pueblo of Laguna

**Total Funding** \$40,580

**Objective** Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative conservation strategies for aquatic resources.

**Benefited Species** Cutthroat trout ([Oncorhynchus clarkii](#))

**Benefited Population** [Cutthroat trout](#)

- Plans**
- The Service's Native American Policy
  - Tribal Fisheries Management Plan for Pueblo of Laguna

**Keyword** Fish Passage

**Project No.** 22330-A-024

**Partners** • Paguate Village

### Accomplishment Summary

*FY2009:* Construction completed July 2009.

Construction of 2 road crossings on Rio Paguate included excavation of site, placement of geotextile and GeoWeb, then backfilled with gravel. Project will reduce sedimentation and improve habitat conditions for resident fish population due to unimproved road crossing. Fish surveys conducted in February 2009. Collected and fin clipped 25 cutthroat trout. Ongoing monitoring will continue to document the effects of improvements on fish distribution and habitat.

### Description

**The problem:**

Motorized vehicles continue to intercept Paguate Creek and degrade the stream bottom and the stream channel therefore creating large amounts of sediment deposition which is potentially impacting spawning areas for salmonids present in Paguate Creek.

**The objective:**

Construct a fish passage crossing to eliminate or reduce the amount of sediment deposition

- Pueblo of Laguna(\$5000)

**Accomplishments**  
**2009 performance measures**

Number of habitat assessments completed (not acres)	1.0
Total number of miles of in-stream and shoreline habitat assessed	5.0
Total number of in-stream/shoreline miles restored in U.S.	1.5
Total number of fish passage barriers removed or bypassed	2
Number of miles re-opened to fish passage - FWMA	1.5
Total number of population assessments completed	1
Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	4
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	4
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	4
Number of training session to support Tribal fish & wildlife conservation	2
Number of consultations conducted to support Tribal fish & wildlife conservation	6
Number of instream miles enhanced	3.5

impacting salmonid growth and survival in Paguate Creek.

**Further description:**

Fish passage is an important aspect of maintaining healthy fish populations in stream headwater reaches. Paguate Creek is segmented into tribal, state, and private lands. Two roads cross Paguate Creek and crossings crease barriers. Cutthroat trout (subspecies unknown) occupy Paguate Creek, but are restricted to downstream reaches only. Spawning habitat has been impacted by sediment transport and deposition caused by the unimproved stream crossings. The objective of this proposal is to reconstruct two road crossings to allow fish passage to upstream reaches and to reduce sedimentation caused by stream crossings. Two fish passage crossings will be constructed using web material (Go-Web) anchored to stream bottom. Work will be completed in conjunction with Pueblo of Laguna, Paguate Community, and Bureau of Indian Affairs.

**Pictures**



**Caption:**  
1st crossing complete Rio Paguate  
**Credit:**

D. Chris Kitcheyan

**Description:**

Road crossing stabilized with GeoWeb and filled with gravel (2009). This will reduce sedimentation for low-impact vehicle crossing and improve water quality and habitat conditions for resident fish populations. In conjunction with 1st crossing, improves up to 1.5 miles of stream for fish passage.



**Caption:**  
2cd road crossing complete Rio Paguate  
**Credit:**

D. Chris Kitcheyan

**Description:**

Upper road crossing stabilized with GeoWeb and

filled with gravel (2009). This will reduce sedimentation for low-impact vehicle crossing and improve water quality and habitat conditions for resident fish populations. In conjunction with 1st crossing, improves up to 1.5 miles of stream for fish passage.



**Caption:**  
Cooperation with Laguna Pueblo

**Credit:**  
D. Chris Kitcheyan

**Description:**  
This project included cooperation and agreements with Laguna Pueblo Natural Resources and Roads Departments.



**Caption:**  
Road damage resulting if deep rutting and debris buildup

**Credit:**  
W. Jason Remshardt, USFWS

**Description:**  
Road crossing damage results in rutting and building up of a debris jam that prevents fish movement during low flow periods.



**Caption:**  
Road damage resulting if fish passage problems

**Credit:**  
W. Jason Remshardt, USFWS

**Description:**  
Road crossing damage results in rutting and building up of a debris jam that prevents fish movement during low flow periods.

**22330-A-033 - NFPP: Monitoring fish passage at a Denil fish passageway at Garanbullo Diversion Dam, NM**

Total Funding \$15,000

**Accomplishment Summary**

FY2009: Private land owners were contacted and

**Objective** Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative conservation strategies for aquatic resources.

**Benefited Species** Rio Grande cutthroat trout ([Oncorhynchus clarkii virginalis](#))

**Benefited Population** [Rio Grande Basin, NM-3](#)

- Plans**
- Pecos Bluntnose Shiner Recovery Plan
  - Pecos Bluntnose Shiner Recovery Plan

**Keyword** Fish Passage

**Project No.** 22330-A-033

**Partners** Ecological Services

## Accomplishments

### 2009 performance measures

Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	1
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	1
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	1

permission was granted to access property to assess condition of existing Denil fish passageway. Improvements to the existing Denil fish passageway are ongoing and will be finalized prior to fish mark and recapture surveys downstream of structure. Study design and mark and recapture methods were reviewed and finalized by the research team.

## Description

### The importance to the Resource:

The importance is to provide resources to fish passageway improvements and monitoring. Without periodic maintenance and monitoring fish passageways may not be functioning, as intended.

### The problem:

Since June 2004, the fish passageway at Garanbullo has not been revisited, because funds have not been available to continue the project. We propose to inspect the fish passage way, repair damages and monitor fish movement through the Denil fish passageway at Garanbullo.

### The objective:

We propose to evaluate the the condition of the fish passage way after four years, and reinstate monitoring of fish passageway.

### The method:

After repair of the structure we propose to instate monitoring of the Denil fish passageway. We propose to sample the fish community using three pass depletion sampling above and below the structure. All fish collected will be individually tagged released. A fish trap will be used to determine short-term movement of marked and unmarked fish.

### Further description:

Garanbullo Diversion Structure was built by the Corps of Engineers in 1995-1996 to replace an existing brush and boulder structure. As part of construction, a Denil fish passageway was added to provide fish passage. It is a modified Denil fish passageway with 16 Denil baffle slots. The passageway is 60 feet long and 3.9 feet wide with one 180 degree turn that provides a resting area. In 2003, the wooden baffle slots were improved and replaced. The new baffles raised the height of the water within the passageway approximately 3.5 feet.

## Pictures



**Caption:** Overhead view of Pecos River at Garanbullo

**Credit:** USFWS

**Description:**  
Garanbullo Diversion Structure

**22330-A-012 - Pecos bluntnose shiner conservation**

**Total Funding** \$74,000

**Objective** Recover fish and other aquatic resource populations protected under the Endangered Species Act.

**Benefited Species** Bluntnose shiner ([Notropis simus](#))

**Benefited Population** Not specified

- Plans**
- Pecos Bluntnose Shiner Recovery Plan
  - Pecos Bluntnose Shiner Recovery Plan

**Keyword** Monitoring and Assessment

**Project No.** 22330-A-012

- Partners**
- Bitter Lake National Wildlife Refuge
  - Bureau of Land Management
  - Carlsbad Irrigation District
  - New Mexico Department of Game and Fish
  - New Mexico Interstate Stream Commission
  - U.S. Army Corps of Engineers
  - U.S. Bureau of Reclamation

**Accomplishment Summary**

*FY2009:* Pecos bluntnose shiner population monitoring was conducted at 14 sites as directed by current 10 year Biological Opinion. Status and trends data for Pecos bluntnose shiner provided to multiple agencies. Activities included data management and analysis and QAQC, specimen processing and curation, and dispersal of electronic data files to cooperators. Presented information at Rio Grande Fishes Recovery Team meeting.

**Description**

**The importance to the Resource:**

Pecos bluntnose shiner status is a reflection of river health to people. Pecos River fish community monitoring provides status of endemic fish.

**The problem:**

Habitat fragmentation and desiccation caused by water development for human uses

**The objective:**

The objective of this project is to monitor Pecos River fish population status relative to federal reservoir operations.

**The method:**

Standardized, long term fish community monitoring

**Further description:**

The Pecos River is heavily impacted by water management to satisfy agricultural, interstate compact deliveries and flood control purposes. Provision of current population data for Pecos bluntnose shiner is critical to planning efforts for consumptive demands and satisfaction of NEPA requirements for coordinating species protection and resource use. The objective of this project is to provide current data on Pecos bluntnose shiner population status. Intensive seining 6 times per year at 15 sites employed. 12-15 sites are monitored by seining. Specimens are preserved for lab identification, and curated at University of New Mexico Collection of Fishes.

**Accomplishments**

**2009 performance measures**

Number of habitat assessments completed (not acres)	84.0
Total number of miles of in-stream and shoreline habitat assessed	280.0
Total number of population assessments completed	6
Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	8
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	8
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	8
Number of risk assessments conducted to evaluate potentially invasive aquatic species - annual	2
Number of surveys conducted for aquatic invasive species baseline/trend information	2

**Pictures**



**Caption:**

Aerial view of Pecos River near Dexter, NM.

**Credit:**

Jim Brooks, USFWS

**Description:**

for aquatic invasive species	
Number of state/interstate management plans supported to prevent and control aquatic invasive species (annually)	1
Number of acres of wetland habitat assessed	60.0

Overflight of Pecos River during summer to investigate channel drying. Note the bounded river channel by farmlands.



**Caption:**  
Block net to separate fish from habitat improvement project at Bitter Lake National Wildlife Refuge

**Credit:**  
Steve Davenport, USFWS

**Description:**  
Block net deployed during habitat improvement project at BLNWR that reconnected an abandoned oxbow, thereby increasing habitat complexity.



**Caption:**  
Brantley Dam, Pecos River, Eddy Co., NM

**Credit:**  
Jim Brooks, USFWS

**Description:**  
Lower reservoir control dam to satisfy Pecos River Compact entitlements and store/deliver irrigation water.



**Caption:**  
Sallee Ranch Sampling Site, Pecos River

**Credit:**  
Jim Brooks, USFWS

**Description:**  
Complex habitat in farmlands reach on the Pecos River, Chaves Co., NM; east of Dexter, NM.

**22330-A-035 - NFPP: Monitor Pecos Bluntnose Shiner and Rio Grande Silvery Minnow In Reponse To Federal Water Ops.**

**Total Funding** \$150,000

**Objective** Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.

**Accomplishment Summary**

*FY2009:* Pecos bluntnose shiner and Rio Grande silvery minnow distribution and catch rates were monitored in response to federal water operations. Status and trends of both species was monitored monthly, as was fish passage through diversion

**Benefited Species** Rio Grande silvery minnow (*Hybognathus amarus*)

**Benefited Population** [Middle Rio Grande Basin NM-2 \[Endangered\]](#)

**Plans**

- Rio Grande Silvery Minnow Recovery Plan
- Pecos Bluntnose Shiner Recovery Plan
- Arkansas/Red Rivers Ecosystem Plan
- Pecos Bluntnose Shiner Recovery Plan

**Keyword** Fish Passage

**Project No.** 22330-A-035

- Partners**
- New Mexico Department of Game and Fish(\$15000)
  - New Mexico Interstate Stream Commission
  - Texas Parks and Wildlife Department(\$10000)
  - U.S. Bureau of Reclamation(\$50000)
  - University of New Mexico(\$10000)
  - Western Native Trout Initiative

## Accomplishments

### 2009 performance measures

Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	3
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	3
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	3

structures and seasonal and longitudinal fish movement. Rio Grande silvery minnow were assessed for implantation of individual PIT tags in order to study movement. A population of Pecos bluntnose shiner were collected and housed at Dexter National Fish Hatchery.

## Description

### The importance to the Resource:

Monitoring and protection of federally listed native fishes assists with maintaining viable river corridors, important also to people for consumptive uses.

### The problem:

Federal water operations in NM impact native fishes through disruption of migration corridors, channel drying, and reduction of high flow events that serve to maintain the river channel.

### The objective:

This project would support FWS-funded monitoring activities specific to FWS needs relative to ESA compliance activities.

### The method:

Seining at standardized sites will be conducted 6-12 times per year on the Pecos River and Rio Grande. Data will be maintained in standardized database, analyzed and reported on, and species status informatin provided to Ecological Services and other cooperators.

### Further description:

Given the scarcity of surface water supplies, increasing human occupation of NM, and ESA compliance issues caused by water use, acquisition of current biological data is critical to ensuring accurate decisions by FWS and cooperators. Federal water management activities in the Rio Grande Basin, NM have caused the decline of several native minnows adapted to plains stream environments. The federally threatened Pecos bluntnose shiner and endangered Rio Grande silvery minnow are primary indicators for the habitat degradation attributed to water management practices. Protection of native minnows in the Rio Grande Basin in NM will ensure viable river conditions important for various consumptive uses

## 22330-A-004 - Rio Grande Silvery Minnow Recovery

**Total Funding** \$785,000

**Objective** Recover fish and other aquatic resource populations protected under the Endangered Species Act.

**Benefited Species** Rio Grande silvery minnow (*Hybognathus amarus*)

**Benefited Population** [Middle Rio Grande Basin NM-2 \[Endangered\]](#)

**Plans** Rio Grande Silvery Minnow

## Accomplishment Summary

*FY2009:* Augmentation was not required in FY09. Conducted monthly monitoring at 7 sites within Pueblo boundaries to collect information on survival, movement, and habitat use of released fish. Released 431,196 hatchery-raised fish into Big Bend reach of the Rio Grande, Texas for reintroduction effort. Conducted salvage on 10 miles of dry river. Conducted egg monitoring in irrigation systems. Released PIT tagged Rio Grande silvery minnow to monitor fish passage use.

Recovery Plan

**Keyword** Recovery

**Project No.** 22330-A-004

- Partners**
- City of Albuquerque(\$15000)
  - New Mexico Department of Game and Fish
  - U.S. Army Corps of Engineers(\$1000)
  - U.S. Bureau of Reclamation
  - University of New Mexico

## Accomplishments

### 2009 performance measures

Total number of miles of in-stream and shoreline habitat assessed	370.0
Total number of population assessments completed	2
Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	5
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	5
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	5
Number of aquatic outreach and education activities and/or events (NFHS)	1
Number of aquatic outreach and education activities and/or events (FWMA)	1
Number of training session to support Tribal fish & wildlife conservation	1
Number of consultations conducted to support Tribal fish & wildlife conservation	1
Number of School Curriculum activities and/or events targeting children only	1

## Description

### The importance to the Resource:

Rio Grande silvery minnow status reflects the health of the middle Rio Grande, a resource relied upon by many people

### The problem:

Rio Grande silvery minnow are endangered by habitat dessication and fragmentation which is the result of intensive water management and other human impacts.

### The objective:

The objective of this project is to support maintenance of the wild population until water management activities are no longer in conflict with natural resources conservation

### The method:

Intensive research and monitoring is conducted to provide data on successful methods for stocking fish, fate of stocked fish, habitat use patterns, and identify remediation activities. Salvage activities are implemented to alleviate the effects of river drying.

### Further description:

Rio Grande silvery minnow are threatened with extirpation by water management practices. Propagation efforts are required actions to prevent extinction. Intensive field surveys by seine and passive egg monitoring were conducted by the New Mexico Fish and Wildlife Conservation Office and its partners. Captive propagation is conducted at Dexter NFH&TC and the City of Albuquerque's BioPark. The primary objective of this project is to support the population of Rio Grande silvery minnow in all three sub-reaches of the Middle Rio Grande, New Mexico and reintroduced population in Big Bend. Propagated fish are released under varying conditions, batches individually marked, and post-stocking monitoring conducted to determine successful methods, dispersal patterns, and habitats occupied.

## Pictures



### Caption:

Augmentation Program Milestone

### Credit:

Jason Remshardt, USFWS

### Description:

Senator Pete Dominici, Congresswoman Heather Wilson and Congressman Tom Udall take part in the release the 1,000,000th Rio Grande silvery minnow into the Rio Grande near Albuquerque, New Mexico.



**Caption:**  
Big Bend Reintroduction  
**Credit:**  
Aimee Roberson, USFWS  
**Description:**  
Biologists and volunteers release Rio Grande silvery minnow in Big Bend National Park, Texas.



**Caption:**  
Rio Grande Silvery Minnow monitoring  
**Credit:**  
Jason Remshardt, USFWS  
**Description:**  
New Mexico Fishery Resources Office biologists sorting monitoring for released Rio Grande silvery minnow

## 22330-A-011 - Nonnative Species Control and Monitoring on the San Juan River

**Total Funding** \$185,444

**Objective** Recover fish and other aquatic resource populations protected under the Endangered Species Act.

**Benefited Species** Colorado pikeminnow ([Ptychocheilus lucius](#))

**Benefited Population** [San Juan River Basin NM-2 \[Endangered\]](#)

- Plans**
- Colorado pikeminnow recovery goals, Amendment and supplement to the Colorado squawfish Recovery Plan
  - Razorback Sucker Recovery Plan
  - San Juan Recovery Implementation Program Long-range Plan

**Keyword** Nonindigenous

**Project No.** 22330-A-011

- Partners**
- Bureau of Indian Affairs (\$15000)
  - Navajo Nation Department of

### Accomplishment Summary

*FY2009:* Multiple-pass electrofishing resulted in the removal of over 15,000 nonnative channel catfish and common carp from 113 river miles of the San Juan River occupied by the federally listed Colorado pikeminnow and razorback sucker. NFWCO was the lead agency for the stocking of these endangered fishes under the guidance of the SJRIP. Stocked fish and recapture data will be utilized by the SJRIP to evaluate augmentation efforts and to assess progress towards recovery.

### Description

**The importance to the Resource:**

Establishment on nonnative fish have been recognized as one factor in the decline of native fishes.

**The problem:**

Channel catfish and common carp in the San Juan River may affect native aquatic communities through trophic interactions (direct predation, competition for resources), spatial interactions and through habitat alteration.

**The objective:**

Evaluate distribution and abundance patterns of nonnative fishes to determine effects of mechanical removal on native fishes.

**The method:**

Multi-pass raft mounted electrofishing

- Fish and Wildlife
- New Mexico Department of Game and Fish
- U.S. Bureau of Reclamation
- Utah Division of Wildlife Resources

## Accomplishments

### 2009 performance measures

Total number of population assessments completed	32
Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	2
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	2
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	2
Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	2
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	2
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	2

### Further description:

Nonnative species have been introduced into the San Juan River basin for a variety of reasons related primarily to sportfishing. Control of nonnatives is identified as a major component to endangered species recovery for Colorado River fishes. The objective of this project is to reduce the abundance of nonnative species, thereby reducing negative interactions with native species. Nonnative species were removed from San Juan River habitats by raft-mounted electrofishing. Channel catfish from the San Juan River were transplanted to Four Corners-area lakes for recreational angling.

In addition to nonnative fish removal, NMFWCO recently acquired full responsibility for all augmentation efforts related to Colorado pikeminnow and razorback sucker. With the assistance of partners, NMFWCO annually stocks 300,000 age-0 and 3,000 age-1+ Colorado pikeminnow and 12,000 razorback sucker. Various stocking methodologies including acclimatization of fish to a variety of conditions (i.e. river flow, temperatures, settling of blood chemistry post transport) are being utilized in an attempt to increase retention of stocked fish.

### Pictures



**Caption:**

Channel catfish

**Credit:**

USFWS

**Description:**

Large predatory channel catfish removed during nonnative fish removal trip on the San Juan River; New Mexico-Colorado-Utah



**Caption:**

Colorado pikeminnow with channel catfish lodged in mouth

**Credit:**

D. Weston Furr, USFWS

**Description:**

Example of negative interactions between nonnative channel catfish and native Colorado pikeminnow, San Juan River.



**Caption:**  
Colorado pikeminnow with channel catfish lodged in mouth

**Credit:**  
Jason E. Davis, USFWS

**Description:**  
Age 1 Colorado pikeminnow with juvenile channel catfish lodged in mouth. Channel catfish was removed and Colorado pikeminnow released alive.



**Caption:**  
Processing fish collected during nonnative fish removal on the San Juan River, NM

**Credit:**  
USFWS

**Description:**  
Standard setup for processing both nonnative and native fishes collected during nonnative fish removal project on the San Juan River, NM.

## 22330-A-026 - NFPP - Phase II: Restore 4 miles of degraded Gila trout habitat per WNTI and fish passage priorities

**Total Funding** \$15,000

**Objective** Recover fish and other aquatic resource populations protected under the Endangered Species Act.

**Benefited Species** Gila trout ([Oncorhynchus gilae](#))

**Benefited Population** [Gila trout - Whiskey Creek \[Threatened\]](#)

**Plans** Gila Trout Recovery Plan

**Keyword** Fish Passage

**Project No.** 22330-A-026

**Partners**

- New Mexico Department of Game and Fish(\$1000)
- U. S. Forest Service(\$1000)

### Accomplishment Summary

*FY2009:* Project Completed. Conducted field survey of passage improvement with USFS, NMDGF, and TU. Project is completed. Beavers have further stabilized the reach, narrowing and deepening the channel and providing access by Whiskey Creek trout to the upper WF.

### Description

**The importance to the Resource:**

Maintenance of widely ranging populations is critical to recovery of Gila trout. Severe habitat degradation alters stream channel environments that can result in loss of passage capabilities and surface flow intermittency. Stable habitat conditions are necessary to ensure species recovery.

**The problem:**

The 2002 Cub Fire severely impacted the upper West Fork Gila River by subsequent debris flows and post-rainstorm scour events. As a result, approximately 2 miles of surface flow was lost and

## Accomplishments

### 2009 performance measures

Number of habitat assessments completed (not acres)	1.0
Total number of miles of in-stream and shoreline habitat assessed	10.0
Number of miles re-opened to fish passage - FWMA	1.0
Number of all tasks implemented, as prescribed in Recovery Plans (Fisheries PART)	4
Number of all tasks implemented, as prescribed in Recovery Plans (NFHS)	4
Number of all tasks implemented, as prescribed in Recovery Plans (FWMA)	4

numerous debris slides blocked the active channel.

#### **The objective:**

This project, with extensive cooperation with USFS and NMDGF, will improve channel conditions through construction of habitat improvement structures with native materials. Channel response from these activities will narrow and deepen the active channel, restore lost surface flow, and provide passage to four miles of stream.

#### **The method:**

Initial phase of this project identified appropriate structures and placement locations and initiated environmental review procedures by USFS and NMDGF. This phase will complete environmental review, initiate construction activities, and initiate willow pole plantings for bank stabilization. Subsequent efforts will complete activities.

#### **Further description:**

Improvement of upper West Fork Gila River would support re-establishment of multiple lineages of Gila trout and would protect the isolated Whiskey Creek lineage. Continuing flood and scour events threaten ongoing re-establishment efforts and threaten continued existence of the Whiskey Creek population. This project will increase surface flow via stream bed elevation lowering through narrowed active channel establishment. It will also stabilize and improve habitat conditions to increase pool habitats and instream cover, thereby supporting increased population stability for Gila trout. Project work would entail use of draft mules to place large woody debris and boulders into stream channel to create pool scour and cover zones. Existing technology will be used to locate and place specific habitat improvement and bank protection structures. Juvenile and adult beavers would be transplanted from human-based problem areas to the lower project area to take advantage of increasing willow and alder riparian community to increase surface water retention and bank stabilization. Willow pole plantings would be conducted in the upper project area to assist in bank stabilization.

## Pictures



#### **Caption:**

Upper West Fork Gila River

#### **Credit:**

Jim Brooks, USFWS

#### **Description:**

Reach of recovering upper West Fork Gila River where shoreline was stabilized and debris jam and associated silted-in reach were removed.

## 22330-A-006 - Development of Fishery Management Plans on Native American Reservations in New Mexico

**Total Funding** \$58,500

**Objective** Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative conservation strategies for aquatic resources.

**Benefited Species** Rainbow trout ([Oncorhynchus mykiss](#))

**Benefited Population** Not specified

- Plans**
- Tribal Recreational Fisheries Management Plan for Santa Clara Pueblo
  - Tribal Fisheries Management Plan for Pueblo of Laguna
  - Tribal Recreational Fisheries Management Plan for Nambe Pueblo

**Keyword** Tribal

**Project No.** 22330-A-006

- Partners**
- Albuquerque Public Schools
  - Bureau of Indian Affairs (\$1000)
  - Pueblo of Laguna(\$1000)
  - Pueblo of Nambe(\$1000)
  - Pueblo of Santa Clara(\$1000)
  - Sandia Pueblo
  - Southwest Tribal Fisheries Commission

### Accomplishments

#### 2009 performance measures

Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	3
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	3
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	3
Number of consultations conducted to support Tribal fish & wildlife conservation	5

### Accomplishment Summary

*FY2009:* Continued consultations with the 7 remaining New Mexico Tribes/Pueblos on updating their fisheries management plans (FMP). Completed draft recreational FMPs for Pueblos, Pueblo of San Ildefonso and Ohkay Owingeh (formerly Pueblo of San Juan). FMPs were submitted to RO for review, revisions incorporated, and will be finalized in September 2009. NMFWCO and AZFWCO are currently in collaboration on revising the FMP for the Navajo Nation to outline each field stations responsibilities and duties.

### Description

#### The importance to the Resource:

Effective use of FWS hatchery fish and protection of tribal resources ensure conservation of all resources

#### The problem:

Maintenance of quality recreational angling programs and protection of rare native species can often conflict with one another

#### The objective:

The objective of this project is, through planning, to ensure that consumptive and non-consumptive uses alike are protected

#### The method:

Planning

#### Further description:

This project will improve fishery management on Native American reservations and pueblos in New Mexico by identifying goals/objectives for tribal fishery programs. Thousands of acres of land and miles of stream occur on reservations in New Mexico, and these lands contain valuable habitat for native fish as well as providing substantial economic benefits to tribes and also surrounding communities off the reservations through angling. Execution of the project will entail working with the tribes to update and/or develop fishery management plans to identify short and long-term goals directing fishery management in a more consistent, efficient, and beneficial manner. Coordination meetings will be conducted between the USFWS and tribes to identify goals for the fishery program and to identify areas of concern. Plans will then be developed by the USFWS in conjunction with the tribes and other adjacent land owners/managers (e.g., US Forest Service). Evaluation of hatchery products relative to specific objectives and goals as outlined in management plans and the Region 2 Stocking Policy will be emphasized.

## 22330-A-037 - Restoration of Rio Grande Cutthroat trout in the headwaters of Santa Clara Creek per WNTI priorities

**Total Funding** \$45,593

**Objective** Maintain diverse, self-sustaining fish and other aquatic resource populations.

**Benefited Species** Rio Grande cutthroat trout ([Oncorhynchus clarkii virginalis](#))

**Benefited Population** [Rio Grande Basin, NM-3](#)

- Plans**
- Tribal Recreational Fisheries Management Plan for Santa Clara Pueblo
  - Conservation Agreement for the Range-Wide Preservation and Management of the Rio Grande Cutthroat Trout among Colorado Division of Wildlife, New Mexico Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, Jicarilla Apache Nation

**Keyword** Fish Passage

**Project No.** 22330-A-037

- Partners**
- Bureau of Indian Affairs
  - New Mexico Department of Game and Fish(\$10000)
  - Pueblo of Santa Clara
  - Southwest Tribal Fisheries Commission(\$35000)
  - Trout Unlimited

### Accomplishments

#### 2009 performance measures

Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	6
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	6
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	6

### Accomplishment Summary

**FY2009:** Santa Clara Pueblo was awarded WNTI grant for RGCT restoration to remove nonnative trout, construct a barrier and habitat improvement structures. Mechanically removed 500 nonnative trout and constructed 20 pool habitats in a one mile reach. Participated in council meetings to designate entire headwaters as RGCT. Assisted with development of MOA between NMDFG and Pueblo. Developed cooperative agreement with Pueblo for spillway renovation and piscicide application.

### Description

#### **The importance to the Resource:**

Rio Grande cutthroat trout have inhabited Santa Clara Creek for time immemorial. The species is religiously and culturally significant to the Pueblo. Securing populations of Rio Grande cutthroat trout and protecting them from nonnative salmonids and habitat degradation decreases the likelihood of listing under ESA and affecting Pueblo lifestyle.

#### **The problem:**

Establishment and maintenance of a nonnative salmonid recreational angling program has eliminated Rio Grande cutthroat trout throughout most of its historical range in Santa Clara Creek.

#### **The objective:**

This project would provide for an additional 5 miles of stream habitat for Rio Grande Cutthroat trout if nonnative and hybrid salmonids are removed. In addition, the project would also allow the establishment of a native trout recreational fisheries in pond #4 below the headwater streams in the Santa Clara Creek Drainage.

#### **The method:**

Resident cutthroat trout will be collected from the headwaters of Santa Clara Creek, PIT tagged, held and genetically tested for purity. Barrier construction will prevent future hybridization. Stream habitats will be treated with piscicide to remove nonnative salmonids, and pure Rio Grande cutthroat trout introduced after treatment completion.

#### **Further description:**

Santa Clara Creek occurs entirely on Santa Clara Pueblo and the tribal council has endorsed restoration of native cutthroat trout. This project satisfies the WNTI Joint Venture's goal of building, funding, and implementing collaborative conservation efforts. This is consistent with the Service's Fisheries Program Vision for the Future and the NFHI. Active Federal Aid in Restoration programs with both states fund activities on public lands. The lack of involvement by FWS in on-the-ground management activities, particularly in coordinating activities on Tribal lands with public land actions has hindered conservation efforts. The objective of this project is to mesh native

species conservation with tribal recreational angling.

## Pictures



**Caption:**

Pool habitat constructed in Santa Clara Creek

**Credit:**

Chris Kitcheyan, USFWS-NMFWCO

**Description:**

Log was placed in this area to slow down water flow and create two small plunge pools. In addition woody materials were placed on top to provide overhead cover for native trout.



**Caption:**

Pool habitat constructed in Santa Clara Creek

**Credit:**

Chris Kitcheyan, USFWS-NMFWCO

**Description:**

Logs and rocks were placed in this area to enhance pool habitat for native RGCT.



**Caption:**

Pool habitat in Santa Clara Creek

**Credit:**

Chris Kitcheyan, USFWS-NMFWCO

**Description:**

Logs were placed in the stream to enhance pool habitat for native RGCT in Santa Clara Creek.



**U.S. Department of the Interior  
U.S. Fish & Wildlife Service**

<http://www.fws.gov>

**Fisheries and Aquatic Resource Conservation  
New Mexico Fish and Wildlife Conservation Office**

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