

U.S. Fish & Wildlife Service

New Mexico Fish and Wildlife Conservation Office

Annual Report of Activities

Fiscal Year 2010

Front Cover:

Black Canyon, Aldo Leopold Wilderness, Gila National Forest

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Introduction

Efforts of the New Mexico Fish and Wildlife Conservation Office (NMFWCO) to conduct dependable and accurate research, monitoring, and resource inventory activities are key to the U.S. Fish and Wildlife Service (FWS) priorities. Paramount is the responsible use of those data. A variety of projects were continued in FY10, including nonnative fish removal on the San Juan River, Pecos River fish monitoring, Rio Grande silvery minnow surveys, Gila trout species 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 FY10 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 FY10

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

An Organizational Chart (Figure 1 and 2) was approved for NMFWCO during FY 2010 and includes 16 fulltime positions, of which 7 are permanent.

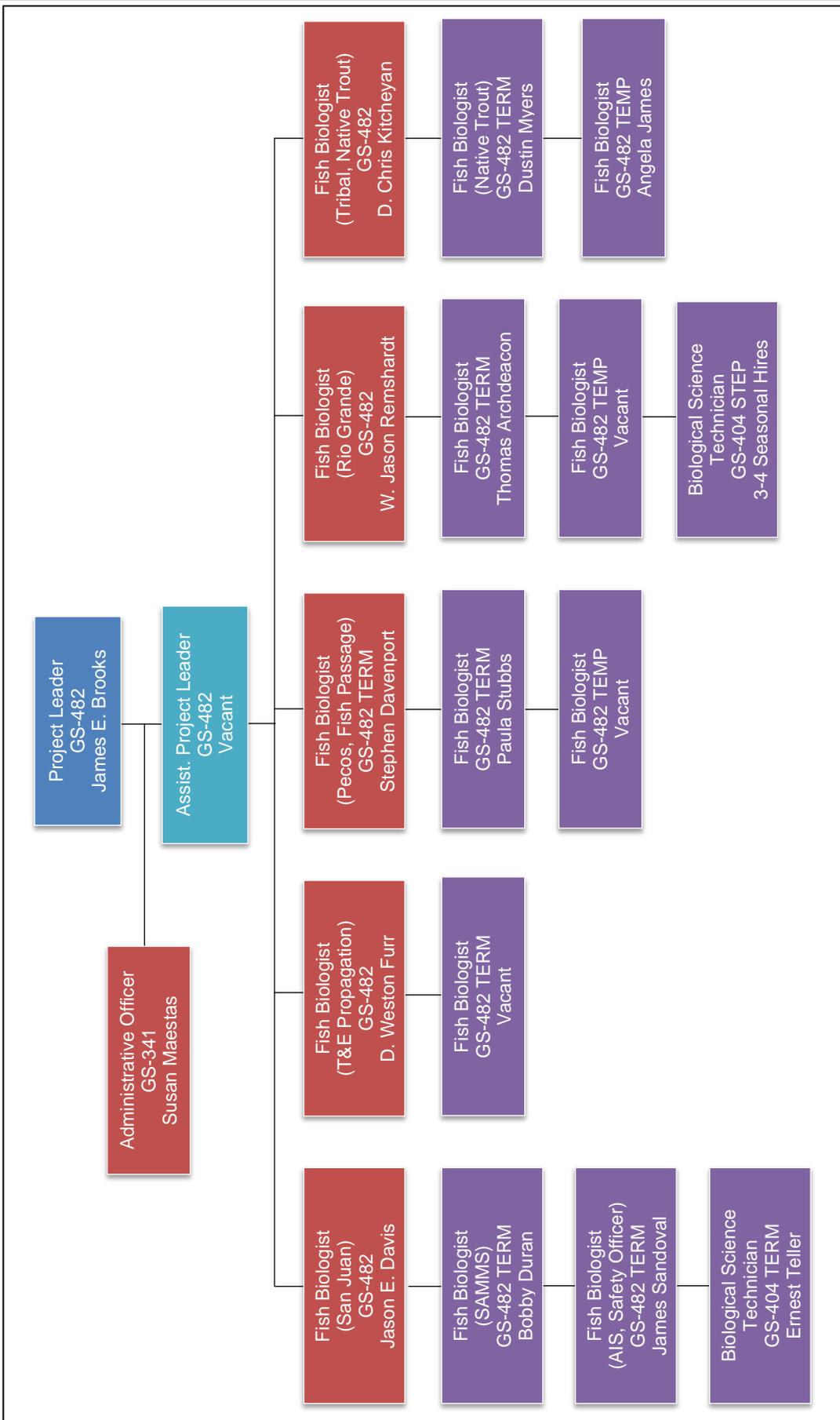


Figure 1. Approved Organizational Chart for New Mexico Fish and Wildlife Conservation Office (Beginning of FY10)

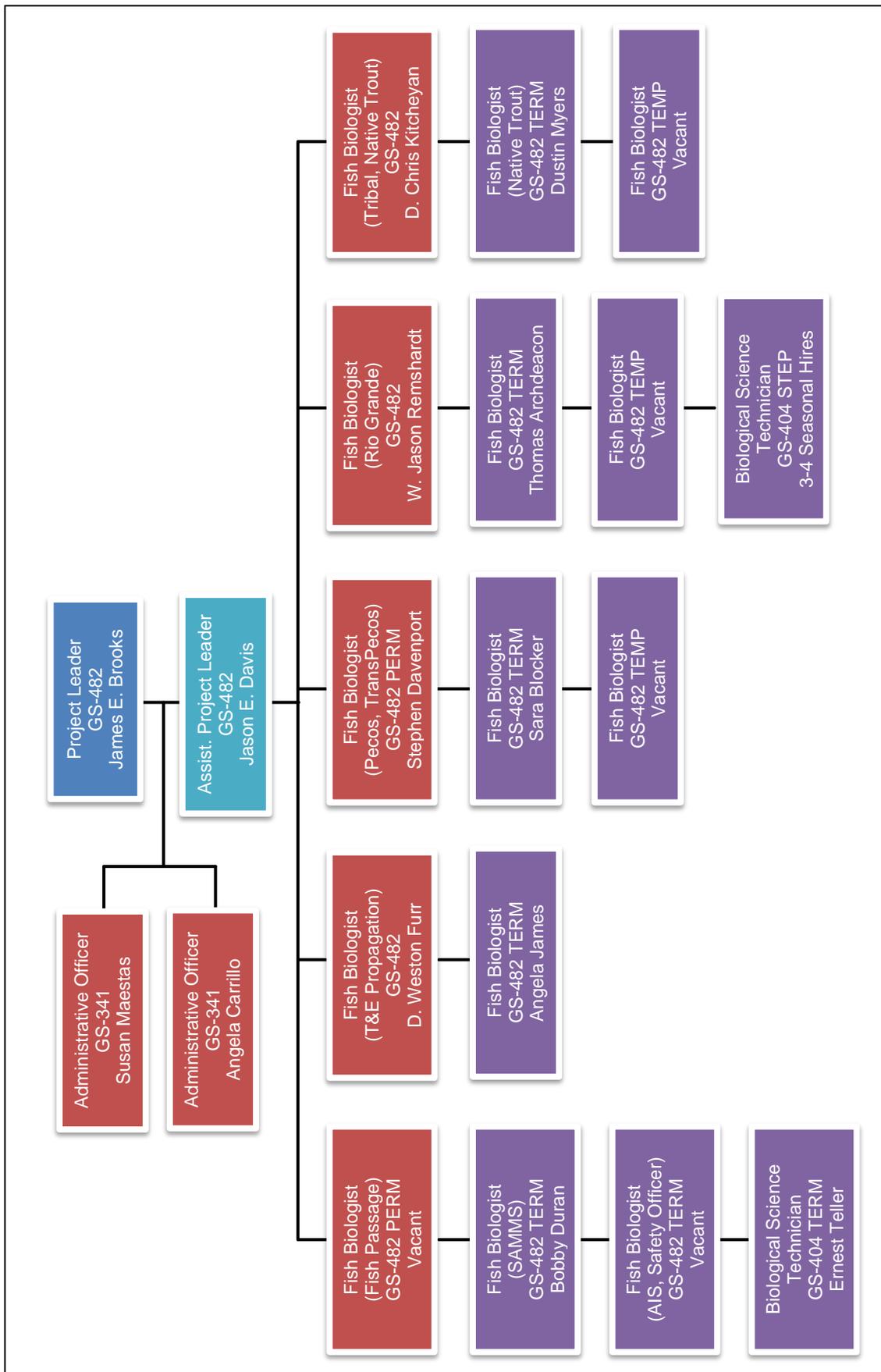


Figure 1. Approved Organizational Chart for New Mexico Fish and Wildlife Conservation Office (End of FY10)

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 FY09 contributed to the total for FY10.

Table 2. Annual Funding Allocations For NMFWCO, 2005-2009

<i>SUBACTIVITY</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
1113	0	0	37,250	0	0
1122	0	0	0	0	0
1130	0	0	0	5,000	0
1311	0	0	0	10,000	65,000
1313	0	0	0	0	0
1322	0	0	0	0	20,374
1331	18,100	45,000	8,000	0	0
1332	396,528	417,000	24,000	0	0
1334	0	0	577,000	676,025	720,038
1335	0	0	15,000	61,373	58,145
1342	0	0	20,000	0	0
1343	0	0	0	11,000	12,000
19XX	601,979	1,100,087	1,361,816	1,291,285	1,213,816
1938 (YCC)	0	0	17,405	2,459	2,459
9831 (YCC)	0	0	4,000	0	0
TOTAL	1,016,607	1,562,087	2,064,471	2,077,729	2,089,373

The NMFWCO functions have relied upon transfer funds from other agencies or other 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 exceeded half the budget for any given year. The National Fish Passage Program (NFPP) has provided considerable funding support to NMFWCO for approved projects. The National Fish Habitat Action Plan (NFHAP) has provided additional funding, all for projects related to native trout conservation.

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 2010. For management purposes, status and trends of the federally threatened Pecos bluntnose shiner *Notropis simus pecosensis* are tracked using two estimates of abundance: catch rate (Pecos bluntnose shiner /100 m²) and percent abundance (number of Pecos bluntnose shiner divided by all fish collected). Habitat restoration activities have also been implemented on the Pecos River to reconnect abandoned side channel and oxbows. 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.

Population and habitat monitoring strategies use two separate reaches of the Pecos River. These reaches are located between Fort Sumner, NM and Roswell, NM (Rangeland) and downstream of Roswell to Brantely Reservoir (Farmland). 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 m², ± 0.4 SE (Figure 3). In 2010, we collected 4,635 Pecos bluntnose shiner, sampled 26,978 m², and visited 16 sites. Cumulative catch-rate was 17.7 ± 1.6 fish/100 m² SE, and cumulative percent abundance was 14.1 ± 1.1% SE. Both metrics were similar to the previous year's metric. Pecos bluntnose shiner abundance varied seasonally; catch-rate ranged from 5.8 fish/100m² in March to 31.9 fish/100 m² in September. Percent abundance ranged from 7.7% in March to 25.8% in November/December. Greater estimates of abundance in September through December indicated that reproduction and recruitment were successful in 2010.

Overall catch rate was highest in both river sections in the September through December time period (24.3 ± 4.3 fish/100 m² SE in Rangeland river section and 22.5 ± 5.1 fish/100 m² SE in the Farmland river section). 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 2010, and extreme low flows, <1.0 ft³/sec, did not occur.

Pecos River restoration efforts at Bitter Lake NWR were monitored for larval and juvenile fish use by NMFWCO personnel. Pecos bluntnose shiner catch rates were highest at the sites where the Pecos River had not been channelized, and were higher in the restored river meander compared to a site in the channelized river section than in a control site within the channelized river section. Habitat use amongst larval and juvenile Pecos bluntnose shiner was greater in slower velocity water such as pools and backwaters (Figure 4).

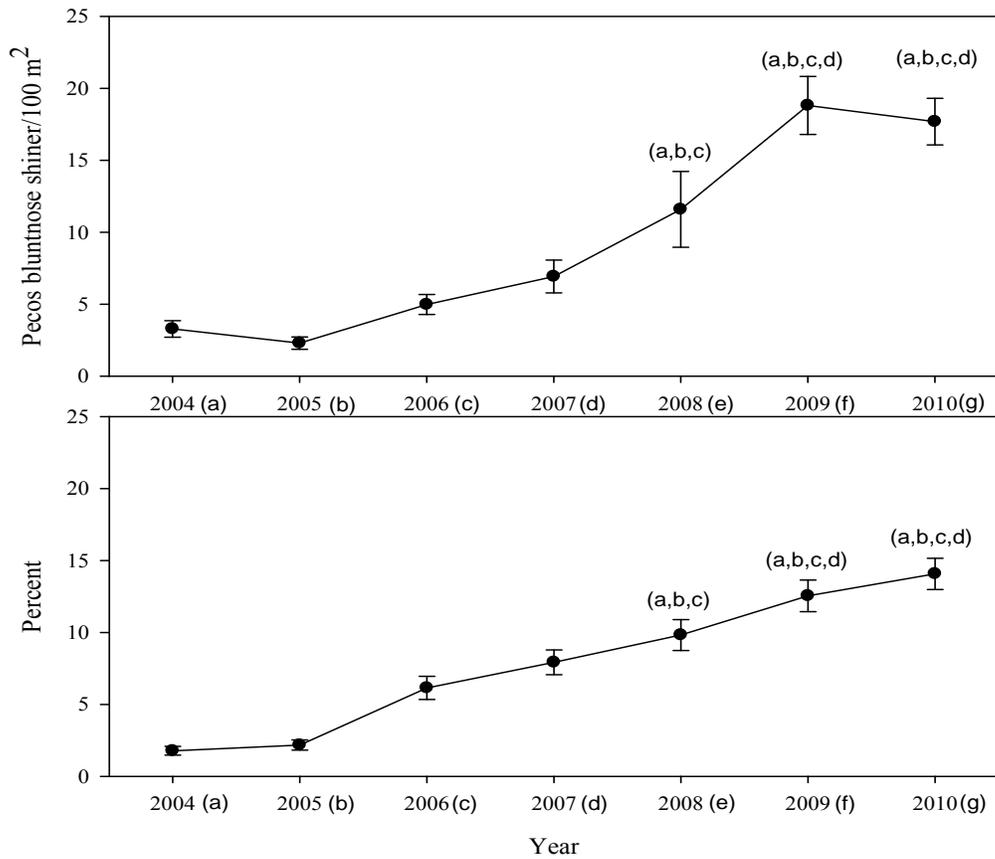


Figure 3. Pecos bluntnose shiner cumulative catch rate (top) and percent abundance (bottom) ± one standard error, 2004 through 2010 Pecos River New Mexico. Letters indicate years where significant differences were found (Kruskal-Wallis $p < 0.05$).

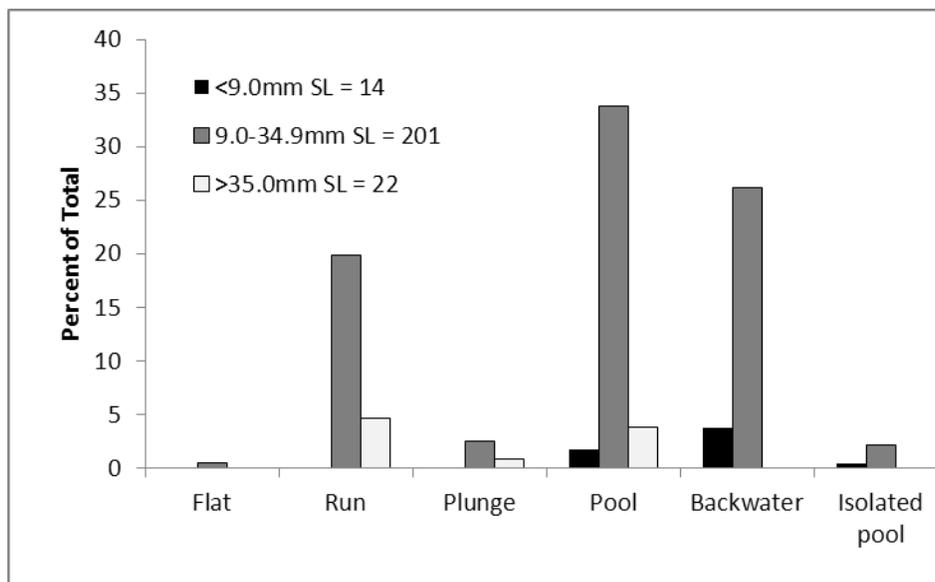


Figure 4. Distribution of Pecos bluntnose shiner larval (<9mm SL), juvenile (9.0-34.9mm SL) and adult (≥35mm SL) size classes within surveyed mesohabitats in June through September 2010. All sites were combined.

FY 2011 Proposed Activities

Pecos River fish community monitoring will proceed in FY 2011. Methods used in 2010 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.

In 2011, NMFWCO will coordinate with BOR and Dexter National Fish Hatchery and Technology Center (NFH&TC) to salvage 500-1,000 Pecos bluntnose shiner from the wild. This operation will provide a captive population held at Dexter NFH&TC through the irrigation season to prevent excessive loss to the wild population if river drying occurs.

In 2011, NMFWCO will assist BOR with selecting a second site where phase two of Pecos River restoration will occur. Sites at the Bureau of Land Management's (BLM) overflow wetlands Area of Critical Environmental Concern and several privately owned properties have been identified as potential areas for river restoration, as required under the 2006 FWS biological opinion.



The NMDGF and FWS personnel monitoring Pecos River fishes, Pecos River New Mexico, 2010.

Upper/Middle Rio Grande Basin

Rio Grande Silvery Minnow Augmentation and Monitoring

Following the revised 5-year Rio Grande silvery minnow augmentation plan (2008-2012) for the Middle Rio Grande, New Mexico, augmentation efforts continued to focus on Isleta and San Acacia reaches. Monitoring continuing results of previous stocking efforts in the Angostura Reach also continued. Monitoring for previously augmented fish continued monthly in FY10 at 3 sites within the Angostura and Isleta Reaches with no recaptures collected. Prior to fall 2009 stocking, it had been 2 years since the previous release, so the lack of recaptures was not surprising. This monitoring, along with monitoring conducted by us other researchers in the Middle Rio Grande, is combined to evaluate augmentation success based on recaptures and movement of released individuals.

In November of 2009, we released of 21,219 tagged Rio Grande silvery minnow at a single site within Bosque del Apache NWR. Through FY10, we have released 1,135,064 Rio Grande silvery minnow in the Middle Rio Grande, New Mexico. The catch rates from the fall 2009 monitoring were compared with the target catch rate of 1 RGSM / 100 m² for each site. All sites had catch rates over this target except for one, within Bosque del Apache NWR.



Rio Grande silvery minnow release Fall 2009 near Bosque del Apache National Wildlife Refuge.

Rio Grande Silvery Minnow Rescue and Salvage

Between June 28 and October 17, 2010, 28.2 miles of the main channel of the Middle Rio Grande became intermittent, in the Isleta (8.5) and San Acacia (19.7) reaches. An estimated total of 9,668 Rio Grande silvery minnow were salvaged from isolated pools, transported, and released alive at a location upstream within the same reach as they were salvaged. The take of 95 Rio Grande silvery minnow was attributed to water operations in the Middle Rio Grande during the 2010 irrigation season and assigned as incidental take. This level of observed incidental take was well below the legal limits established under the amended Biological Opinion of 255,390 individuals. The loss of 1,966 Rio Grande silvery minnow was attributed to U.S. Fish and Wildlife Service permitted activities.



Rio Grande at Neil Cupp pump site near Socorro, New Mexico during summer 2010.

Rio Grande Silvery Minnow Monitoring for Egg Entrainment into Irrigation Canals

In May 2010, NMFWCO conducted daily monitoring of 3 irrigation canals below two irrigation structures within the Middle Rio Grande, New Mexico, including the Isleta and San Acacia Diversion dams. A total of 12 RGSM eggs were collected throughout the month. No eggs were collected in the Socorro Main Canal below the San Acacia Diversion Dam. All eggs observed in irrigation canals in 2010 were found in both the east and west side irrigation ditches below the Isleta Diversion Dam, resulting from spawning activity late in May in the Albuquerque Reach. Relatively high river flows and low egg numbers measured in irrigation systems in 2010 suggested that egg entrainment was low.

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 October 2009, NMFWCO assisted in the release of 509,988 Rio Grande silvery minnow at four locations within the Big Bend Reach of the Rio Grande in Texas. This was the second of 5 years of planned releases, monitoring, and research to reestablish a population of Rio Grande silvery minnow. Staff conducted egg monitoring during March and April 2010 in Big Bend and collected Rio Grande silvery minnow eggs at several sites, indicating successful spawning of reintroduced fish. Staff also continued assisting with quarterly monitoring at the release sites. Rio Grande silvery minnow were captured during 3 of the 4 trips, including at least 1 young-of-year captured during the August 2010 sampling event that indicated successful reproduction of reintroduced individuals. In addition to the quarterly monitoring, staff also assisted U.S. Geological Survey (USGS) with a habitat survey associated with the Rio Grande silvery minnow reintroduction project. Habitat characteristics of release sites and areas where Rio Grande silvery minnow were captured were measured. The successful survival, spawning, and recruitment all are important evidence that suggest that reintroduction in Big Bend is at least minimally successful and may be achievable.



NMFWCO staff conducting surveys for Rio Grande silvery minnow in Big Bend, Texas.



Rio Grande silvery minnow captured during habitat surveys conducted with USGS in Big Bend, Texas.

PIT Tag Research Related to Albuquerque Fish Passage Structure

Phase II of a research project to assess the viability of Passive Integrated Transponder (PIT) tagging silvery minnow greater than 60 millimeters in standard length was completed in 2010. On June 15, 2009, 4,275 PIT-tagged Rio Grande silvery minnow were released at one of six locations in the Rio Grande, Albuquerque, New Mexico. From June 30, 2009, to June 14, 2010, we collected 169 records of Rio Grande silvery minnow on all scanners combined, representing 84 unique fish, or 2% of all PIT-tagged fish. Although the transceiver was operational, no fish were detected from June 15 to September 27, 2010. We conclude Rio Grande silvery minnow will use appropriately constructed fish passageways. Construction of passageways might help reduce some impacts of habitat fragmentation in the middle Rio Grande on Rio Grande silvery minnow.



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

Rio Grande Silvery Minnow Sanctuary

Collaboration continued in 2010 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 in the Rio Grande and 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 channel with various habitats, and has the ability to connect 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.



Inundation over the top of the relief spillway during summer 2010.

The final stage of major construction was finished in autumn 2009. However, the need for facility security was identified and a perimeter fence and camera surveillance system were installed in FY10. 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 inundate 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 2010 spring run-off were captured and returned to the river. Ninety-three adult Rio Grande silvery minnow were identified among the fish moved out of the Sanctuary.

Additionally, mechanical issues were identified concerning the various operational systems of the Sanctuary. Continued testing of the operational functionality of the entire Sanctuary may detect more limitations or problems that will need to be addressed prior to start-up operations beginning 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.



Rio Grande silvery minnow entrained inside Sanctuary during 2010 spring run-off.



Gravid Rio Grande silvery minnow removed from Sanctuary during 2010 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 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. The NMFWCO 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 was 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 from 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 18,700 channel catfish and 451 common carp were removed from 113.5 river miles in 2010. 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 91.2% from 22.4 fish/hour in 2001 to 2.0 fish/hour in 2010 while CPUE from Hogback Diversion to Shiprock Bridge has been reduced 88% from 57.7 fish/hour in 2003 to 7.0 fish/hour in 2010. Channel catfish catch rates in these sections were the lowest observed since the initiation of intensive nonnative fish removal. Majority of channel catfish and common carp were found in a 95 river mile section from Shiprock Bridge to Mexican Hat, Utah. Catch rates for channel catfish in this section increased in 2009 and was attributed to a high abundance of juvenile fish. However, catch rates declined in 2010 to values similar to those observed in 2008 (Figure 5). Common carp were collected infrequently throughout the study area with catch rates < 1 fish/hour in each of the three study sections.

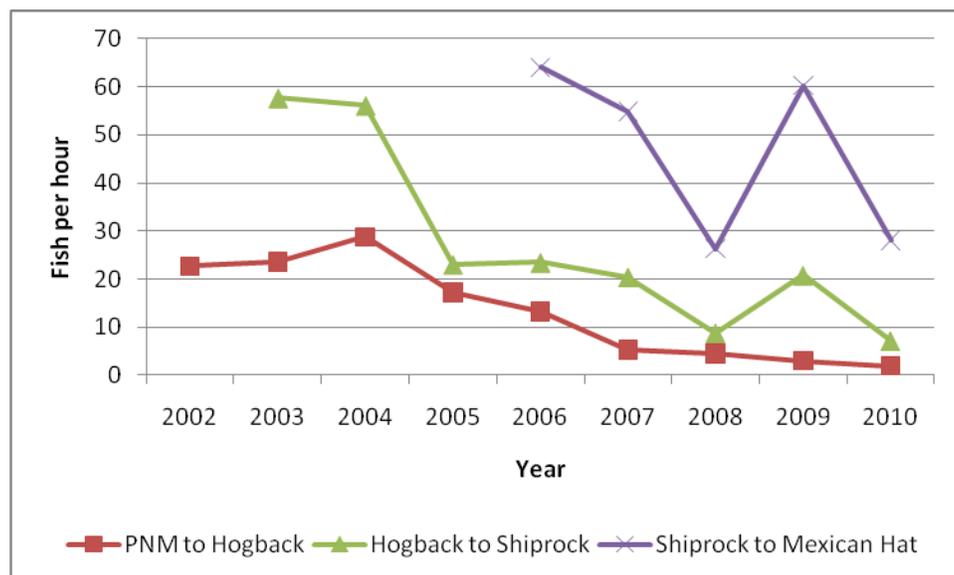


Figure 5. Channel catfish (CPUE; fish/hour) by individual removal section.

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 2,065 Colorado pikeminnow ranging in size from 64-770 mm total length were collected.

Twenty eight sub-adult and adult Colorado pikeminnow were collected including the 770 mm TL (30") Colorado pikeminnow, the 4th largest Colorado pikeminnow collected since 1997. The capture of this individual along with nine other adult Colorado pikeminnow represent the highest number of adults collected in a single year and is encouraging evidence that stocked juvenile Colorado pikeminnow are surviving to adulthood in the San Juan River. A total of 1,204 razorback sucker ranging 224-590 mm TL were collected in 2010 with 96 fish \geq 500 mm total length. Sixty four razorback sucker were collected that had been in the river 6+ years and one individual that had been in the river since 1995. Documentation of long term retention of adult razorback sucker suggests that suitable habitat and resources are available for survival of the species in the San Juan River. Data collected on these rare fishes were used to generate riverwide population estimates and movement patterns for both species were documented. This information is being utilized by the SJRIP to guide future management actions. All data collected during this study are provided to the SJRIP to be used to assess progress toward recovery for the two endangered fishes.



The 4th largest Colorado pikeminnow (30") collected in the San Juan River since 1997.

Rare fish augmentation

In 2010, NMFWCO and partners stocked a total of 353 age-2 (average 300 mm total length) Colorado pikeminnow into the San Juan River. The scheduled annual Fall stocking of \geq 300,000 age-0 and \geq 3,000 age-1+ Colorado pikeminnow was postponed due to the detection of Largemouth Bass Virus in bonytail chub and Gila topminnow lots at Dexter NFH&TC. These fish are being held over for stocking in spring/summer 2011, pending clean health certification.

A total of 28,485 razorback sucker were stocked in 2010. This represents the largest number of razorback sucker stocked in the San Juan River during a single year. With the assistance of NMFWCO, Uvalde National Fish Hatchery (NFH) stocked 20,280 razorback in 2010. Eight thousand one hundred forty-two of these fish were part of an experimental stocking strategy to test the relative success of stocking larger fish across seasons. These fish ranged 438-477 mm TL and are among the largest razorback sucker stocked into the river. An additional 8,205 fish were harvested and stocked from three ponds located on NAPI lands. These ponds are stocked with razorback sucker from Dexter NFH&TC for single season grow-out.



Age-2 Colorado pikeminnow being stocked into the San Juan River.

FY 2011 Proposed Activates

- Continue intensive nonnative fish removal throughout 113.5 river miles of the San Juan River.
- Initiate a mark/recapture study from Shiprock Bridge to Mexican Hat, UT to generate population estimates and exploitation rates of channel catfish.
- Work with the SJRIP in the development of specific metrics (i.e. catch curves and Beverton-Holt models) to measure the efficacy of nonnative fish removal.
- Author a manuscript summarizing nonnative fish removal efforts for publication in peer reviewed literature.
- 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 FWS - 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.

Gila River Basin

Recovery activities in the Gila River Basin focused primarily on the conservation and recovery of Gila trout *Oncorhynchus gilae*, as outlined in the *Gila Trout Recovery Plan-Third Revision* (Recovery Plan). The recovery of Gila trout is a collaborative effort with the U.S. Forest Service (USFS) - Gila National Forest, Mora NFH&TC, and NMDGF - Conservation Services Division, that agrees with the mission of the 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, natural disasters, and nonnative invasion. Recovery efforts focused on monitoring existing populations, mechanically and chemically removing nonnative fish species, monitoring fish health, supplementing existing populations, replicating relict lineages of Gila trout 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 (US Federal Register 2006; FR Doc. 06-6215).



Gila Trout (Oncorhynchus gilae)

Population Monitoring

The NMFWCO conducted backpack electrofishing surveys to determine the status and condition of Gila trout populations in Main Diamond, Little, Iron, and Sacaton creeks. Main Diamond Creek is a tributary of the East Fork-Gila River and contains one of the four known relict Gila trout populations. Main Diamond serves as a source for the establishment and augmentation of replicate Gila trout populations as well as providing broodstock for the “wild” based breeding program at Mora NFH&TC, as specified by the *Gila Trout- Genetic Broodstock Management Plan*. During FY10, 250 Gila trout < 150 mm TL were collected and transferred to Mora NFH&TC for broodstock development. The Gila trout population in Main Diamond appeared in good condition, and catch per unit effort (CPUE) averaged 2.46 fish/minute (Table 3). Multiple age classes were present, indicating successful recruitment and reproduction within the population (Figure 6). Based on Fulton’s condition factor (K_{TL}), individuals in the Main Diamond population were in “good” condition with an average condition factor over 1 (Table 3).

Table 3. Stream, date, lineage, sample size, size range (Total length, mm), catch per unit effort (fish/minute), and average condition factor (K_{TL}) of Gila trout in four streams surveyed during FY 2010 in Gila National Forest, New Mexico.

<i>Stream</i>	<i>Date</i>	<i>Lineage</i>	<i>Sample Size</i>	<i>TL Range</i>	<i>CPUE</i>	<i>AVG KTL</i>	<i>Comments</i>
Main Diamond Creek	5/26/10	Relict	252	47-240	2.46	1.06	Recruitment/Reproduction
Little Creek	7/28/10	Replicate - Main Diamond	4	152-178	0.06	1.09	High Flows High Turbidity
Iron Creek	7/12/10	Hybridized	233	55-223	4.98	1.09	Fin clips for genetic analysis
Sacaton Creek	5/13/10	Iron-replicate Extirpated	0	-	-	-	Fishless

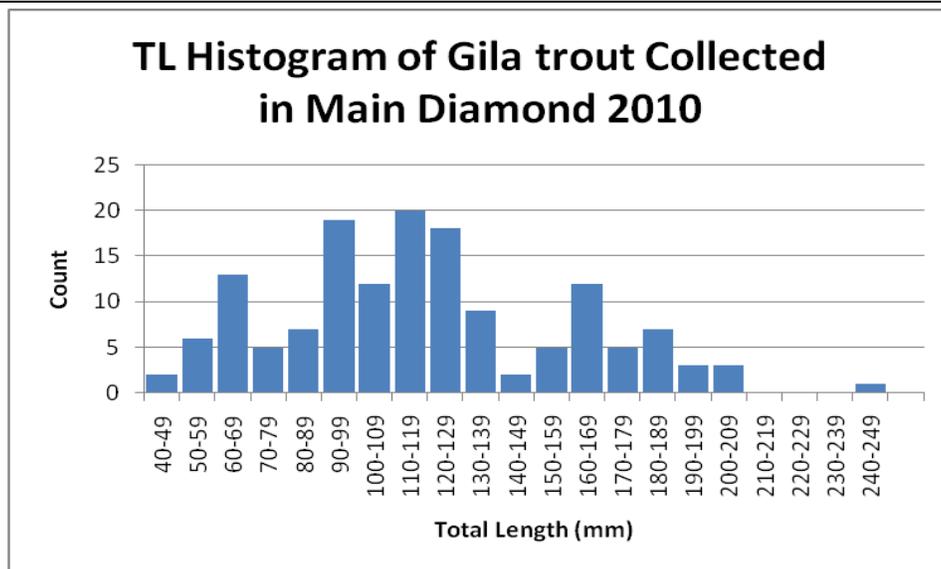


Figure 6. Total length histogram of 149 Gila Trout collected in Main Diamond Creek, May 2010

Little Creek is a tributary of the West Fork-Gila River (WFG) and contains a replicate population of Main Diamond Gila trout above an artificial concrete barrier. During sampling, heavy rains elevated flows in Little Creek, increasing turbidity, hindering visibility, and negatively affected catch rates. As a result, only four Gila trout were collected during this effort. Longfin dace *Agosia chrysogaster* and speckled dace *Rhinichthys osculus* were also present in Little Creek. Sampling Little Creek during lower flows will be conducted in FY11 to determine the current status of the population above the barrier.

Iron Creek is also a tributary of the WFG and was thought to be a relict Gila trout population until the mid-1990s when genetic testing indicated a low level of introgression with rainbow trout. In FY10, fin clips were collected from individuals in the upper reaches of Iron Creek above the barrier to determine the level of hybridization, and if any unique genetic traits were present that may warrant some level of management action. The Iron Creek lineage was replicated into several streams including Sacaton Creek, prior to this discovery of hybridization. Since the establishment of Gila trout in Sacaton Creek, severe wildfires and large rockslides scoured the creek, extirpating all fish above the barrier. Sacaton Creek is currently recovering and may be suitable for a small replicate population in the future.

Chemical Removal of Nonnative Trout

The NMFWCO, USFS, and NMDGF successfully completed the renovation of the upper West Fork Gila River (WFG) and its tributaries by eradicating all nonnative trout species above a barrier falls by application of the piscicide, CFT Legume™-rotenone (Figure 7). The watershed was treated at 1ppm of rotenone, for the duration of four hours. All piscicide was neutralized by the KMnO₄ neutralization station located at the downstream terminus of the project area. Ninety speckled dace, 9 brown trout, and 4 rainbow trout were killed during the treatment. Follow-up treatment and surveys produced no fish and the WFG watershed was deemed fishless. Aquatic macro-invertebrates were collected at 4 sites to examine the chemical effects on the aquatic community before and after chemical treatment.



Figure 7. Upper West Fork Gila (WFG) watershed; Green indicates established Gila trout populations. Bronze indicates streams that were treated with CFT Legumine, June 2010. McKenna Creek is the red stream and is targeted for future efforts to remove hybrid Gila X rainbow trout and reintroduction of Gila trout.

Renovation and repatriation of the upper WFG is vital for the recovery of Gila trout and provides an unique opportunity to gain valuable information on Gila trout demography, genetics, and movement that will directly aid future stockings efforts and ultimately the recovery of the species. The establishment of a WFG population will expand the range of Gila trout within the Gila River Recovery Unit (GRRU) by 34.25 km (21.26 mi), and reduce the susceptibility of localized extirpation from catastrophic events such as wildfires and climate change. Stocking of the upper WFG is scheduled for fall 2010. Repatriation is comprised of a multi-lineage metapopulation approach, in an attempt to restore some of the historical interactions and gene flow between the different lineages of Gila trout populations. Populations replicated from Main Diamond and Whiskey Creek populations are already established in the headwaters of the WFG above natural barriers providing the framework for a metapopulation (Figure 7 “Green”). The end result will be a panmictic occupation of the upper WFG by three Gila trout lineage. Repatriation of the WFG will be executed with pure Gila trout collected directly from “wild” source populations, not known to carry cutthroat trout virus (CTV, discussed below).

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*. In collaboration with USFS and NMDGF, NMFWCO resumed nonnative fish removal efforts on a three-mile stretch of the Gila River within the Heartbar Wildlife Management Area (WMA) and above the barrier in Black Canyon. Target species within the Heartbar WMA included: brown trout, rainbow trout, yellow bullhead *Ameiurus natalis*, black bullhead *Ameiurus melas*, smallmouth bass *Micropterus dolemieui*, green sunfish *Lepomis cyanellus*, flathead catfish *Pylodictis olivarius*, fathead minnow *Pimephales promelas*, red shiner *Cyprinella lutrensis*, western mosquitofish *Gambusia affinis*, and bullfrog *Rana catesbeiana*. In Black Canyon, efforts focused on the removal of nonnative brown trout that persist above the gabion barrier.

Cutthroat Trout Virus and Gila Trout Stockings

During FY10, 2,802 hatchery reared Gila trout were stocked into “recreational” streams for angling and into “recovery” streams to augment replicate populations as part of the Recovery Plan. Gila trout produced at Mora NFH&TC from 2009 spawning efforts were used to augment recovery populations, while 2008 and 2009 spawn fish were used for stocking recreational streams (Table 4).

In April, the Dexter Fish Health Unit (FHU) isolated Cutthroat Trout Virus (CTV) from the ovarian fluids of Main and South Diamond Gila trout broodstock collected during the 2010 spawn at Mora NFH&TC. Little is known about the effects of CTV on infected individuals and no mortality has been reported as a result of CTV. Undescribed until 1988, sequence analysis has revealed that the most closely related virus to CTV is the Hepatitis E virus and that CTV is most likely a new genus in the *Hepevirus* family. CTV is not identified as a pathogen of national concern by the FWS, and it is suspected to have entered the facility on a shipment of rainbow trout eggs from the Ennis NFH in Montana when rainbow trout were reared on station at Mora NFH&TC. Cutthroat Trout Virus is often found in facilities where large numbers of salmonids are raised and occasionally intentionally introduced to captive stocks to increase their resistance to more severe viruses, such as infectious hematopoietic necrosis virus (IHNV).

Table 4. Stocking sites, date stocked, spawn year, and mean total length (TL in.) of Main Diamond (MD) and South Diamond (SD) Gila trout to recovery and recreational streams during FY 2010.

<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>
Sapillo Creek	11/19/2009	2008	MD	Recreational	100	9.0"
	11/19/2009	2008	SD		100	9.0"
	2/18/2010	2008	SD		250	9.8"
Forks Area	12/2/2009	2008	MD	Recreational	373	10.0"
	12/2/2009	2008	SD		374	10.0"
	2/25/2010	2008	SD		495	9.8"
Sheep Corral Creek	11/20/2009	2009	MD	Recovery	100	4.0"
Black Canyon above the barrier	12/22/2009	2009	MD	Recovery	900	4.2"
Black Canyon below the barrier	12/22/2009	2008	MD	Recreational	110	11.7"
Total					2802	

Although most infected fish show no clinical signs of CTV, a concern was the possibility of CTV spread throughout other Gila trout waters through stocking activities. Further complicating the situation is the unknown impact of CTV on other native fish species and its persistence in the system. The presence of CTV in the captive stocks at Mora NFH&TC suspended stocking efforts for remainder of FY 2010, and the suspension will continue until the distribution of CTV in the “wild” is better known. During FY10, salmonid species were collected from Main Diamond, Little Creek, Willow Creek, Iron Creek, Black Canyon Creek, and the Gila River for CTV testing at Dexter FHU. The results are still pending, meanwhile, testing of wild Gila trout populations for the presence of CTV will continue in FY11.

Genetic and Macroinvertebrate Monitoring

The Recovery Plan recognizes the need to “continue to investigate the biology, ecology, life history, habitat, and genetics of the species that are important for the conservation of Gila trout.” To help satisfy this need, genetic and macroinvertebrate monitoring have become a standard part of NMFWCO recovery activities. Fin clips and aquatic macroinvertebrate collections are taken from current and potential recovery streams to develop baseline inventories and monitor any changes over time. All tissue samples are transferred to Tom Turner, PhD, at the University of New Mexico, for genetic analysis. Aquatic macroinvertebrate collections are transferred to Pete Diaz, Fish Biologist, Texas Fish and Wildlife Conservation Office, for identification and analysis.

Fire and Fish Evacuation

Fire is an imminent threat to Gila trout populations throughout the Gila Wilderness and poses the greatest threat to local and regional extirpation of populations. During FY10, fires were scarce in the Gila River basin and no fish evacuations were performed.

FY 2011 Proposed Activities

Conservation and recovery efforts scheduled for FY11 include; monitoring several Gila trout populations (Main Diamond , South Diamond , Sheep Corral , Mogollon , Big Dry, Little , McKnight , and Spruce Creeks); surveying potential recovery streams (McKenna, South Fork Whitewater); mechanically removing nonnative fishes (Black Canyon, Little Creek, and Gila river at Heartbar WMA); collection of wild trout for broodstock development (Main Diamond, South Diamond, and Spruce creeks); recreational stocking; augmentation of existing populations (Langstroth); monitoring of water temperature, macroinvertebrate community, genetic integrity, and fish health (CTV); participate in the annual Lake Roberts Kids Fishing Derby; and host the annual Gila Trout Recovery Team Meeting.

Aquatic Invasive Species

Beginning in 2005, NMFWCO received funding from FWS, Region 2 Fisheries and Aquatic Habitat Conservation Division; to initiate long-term monitoring for aquatic invasive species (AIS). Initial efforts focused on the identification of high priority water bodies to monitor for the presence/absence of zebra and quagga mussels. In addition to identifying specific water bodies for monitoring, NMFWCO was charged with developing cooperative partnerships with state, federal and tribal governments and private interests to assist the Service with these efforts.

During FY10, NMFWCO's role in AIS monitoring consisted of participation with the New Mexico Aquatic Invasive Species Advisory Council (NMAISAC), education and outreach, and instruction of Level I and II Boat Inspection and Decontamination Training. Additionally, NMFWCO staff volunteered to coordinate the collection and shipment of water samples from various water bodies within the State of New Mexico to BOR Denver laboratory for microscopic and Polymerase Chain Reaction (PCR) testing.

The NMFWCO staff provided two trainings to personnel from New Mexico State Parks (NMSP) and NMDGF on plankton tow net sampling protocols for early detection of zebra and quagga mussel veligers. The first of these trainings was conducted at the request of NMDGF and was at Eagle Nest Lake State Park in October 2009 while second training was offered in April 2010 at Conchas Lake State Park. Since the State of New Mexico has the legislative authority for management and enforcement of AIS it was imperative that personnel from these agencies were trained in the proper collection and preservation techniques of water samples. Staff at NMFWCO had the expertise and knowledge from previous years' work to conduct these trainings.

In 2010, NMFWCO was the designated repository of water samples collected by NMDGF personnel and, through a Cooperative Agreement with the University of New Mexico, Museum of Southwest Biology, these hazardous (samples are preserved in ethanol alcohol), samples were shipped to the BOR laboratory in Denver for PCR and microscopic analysis. Samples were tested by BOR personnel for zebra and quagga mussel genetic material (DNA) and visually examined using cross-polarization. Results from analyses were then provided to NMFWCO and the NMAISAC Coordinator. To date, no water sample has resulted in a positive test for either zebra or quagga mussel.

During FY09, NMFWCO staff conducted eight Level I Boat Inspection and Decontamination trainings. The majority of these trainings were at the request of partners and over 200 individuals from both federal and state agencies were certified as Level I Watercraft Inspectors. As a result of these trainings and additional Level II Inspectors present in the State, the number of training requests submitted to NMFWCO staff in FY10 was limited.

The NMFWCO provided educational outreach in the form of power-point presentations, signs, and word of mouth. A presentation was provided to the Southwest Tribal Fisheries Commission in January 2010 and focused on an AIS update for tribes in New Mexico. A presentation on the development of decontamination protocols for field biologists was delivered at the Amphibian and Reptile Conservation Conference on March 2010. A similar presentation was conducted at the BOR Albuquerque field office in April 2010 to help their staff develop decontamination protocols for equipment used in aquatic projects. Copies of several power point presentations were conveyed to Indian Health Services for information for a environmental health conference held June 2010.

FY 2011 Proposed Activities

With the assistance of NMFWCO, the NMAISAC has been successful in bringing both state and federal partners together in a concerted effort to monitor water bodies in the State of New Mexico for the presence of zebra and quagga mussels. As these agencies continue to shoulder more of the monitoring work it is anticipated that NMFWCO will serve primarily in an advisory role to the NMAISAC. It is anticipated that future funding allocated to NMFWCO will be used to develop information and outreach materials and the dissemination of those materials. In coordination with Region 2 Aquatic Invasive Species Coordinator, NMFWCO will work at identifying funding sources that may assist the State of New Mexico's current and future monitoring efforts. Attendance and participation by NMFWCO staff with NMAISAC is expected to continue during FY11.

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 on their homelands. 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.

Southwest Tribal Fisheries Commission

The NMFWCO personnel continued participation in Southwest Tribal Fisheries Commission (SWTFC) quarterly meetings and provided updates on fish distributions, training opportunities, ESA issues, and Tribal fisheries management plans. 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.

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 Zia and Pueblo of Picuris. 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.

The NMFWCO conducted spring lake surveys on waters of Pueblo of Acoma, Pueblo of Nambe, Pueblo of Zuni, Pueblo of Laguna, 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 (W_r) for brown trout, rainbow trout, channel catfish, and largemouth bass.



A 3-pound brown trout collected in Nambe Reservoir during 2010 spring lake surveys.

On three separate occasions NMFWCO continued to provide technical 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 via 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 and Pueblo of Laguna (POL)-Department of Natural Resources assessed the two fish passage crossings constructed in 2009 and the fish community. Eight-five cutthroat trout were collected, ranging from 50 to 311-mm TL. In comparison to the previous two years, young-of-year were collected for the first time in this reach. Unfortunately, monsoon rains in July 2010 caused flash flooding in the canyon, eroded canyon draws, washed out the road to access the second fish passage crossing, and deposited large amounts of sediment onto the first fish passage crossing.



Young-of-year cutthroat trout collected in Rio Paguete.

The NMFWCO, New Mexico Department of Fish and Game, Zuni Pueblo Fish and Wildlife Department were limited to conducting only ocular surveys on the Zuni Indian Reservation to determine species presence. The use of electrofishing gear to conduct non-native removal and annual monitoring was prohibited because of the ongoing controversy of electrofishing in Grand Canyon National Park.

Nonnative Fish Removal

Prior to Pueblo prohibition of use of electrofishing, the Pueblo of Zuni's Fish and Wildlife Department and NMFWCO continued mechanical removal efforts in 2 spring-fed ponds. Staff used an electrofishing raft and removed 47 goldfish from Dog Springs in July 2010. After the completion of the fourth electrofishing pass, no goldfish were observed or collected. 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 164 goldfish in May 2010. All goldfish were transported to the Eagle Aviary for bald and golden eagles to utilize as a food source. Well Springs was sampled again in July but no goldfish were observed.

Recreational Fisheries Program

Paramount to supporting fish stocking from Alchesay NFH is the repair of aging water supply system, which includes a temporary curtailment of fish production. The Mescalero Apache Tribal Fish Hatchery and Inks Dam NFH provided assistance to Alchesay-Williams Creek NFH in the rearing the rainbow trout. Beginning October 2009 and continuing through June 2010, all 3 hatcheries collaborated and distributed approximately 50,000 catchable rainbow trout (8 to 10 inches) to 8 tribes/pueblos in New Mexico. Inks Dam NFH distributed approximately 37,008 channel catfish (8 to 10 inches) from April through May, 2010, to the Navajo Nation, Pueblo of Zuni, Pueblo of Zia, Ohkay Owingeh, and Jicarilla Apache Tribe. 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, NMFWCO staff continued to monitor the abundance and distribution of Rio Grande silvery minnow. Monitoring was conducted monthly at designated sampling sites along the Rio Grande on tribal lands. All data collected on tribal lands remained with the Pueblo.

Education Outreach

The NMFWCO participated with the New Mexico Forestry Camp on June 9, 2010, at Seven Springs State Fish Hatchery, Southwest Region – Native American Fish and Wildlife Youth Practicum at Hermosa Ranch, and the 2010 Tribal Youth Environmental Summer Camp at Nambe Pueblo recreational facility to present information on usage of electrofishing (i.e., backpack and electrofishing boat) and aquatic macro-invertebrates. At the request of the ranch manager at Hermosa Ranch, Native American youth collected 86 Rio Grande suckers *Catostomus plebeius* from Palomas Creek and transferred these fish upstream above a natural fish barrier.



2010 TYESC Youth holding a rainbow trout collected in Nambe Reservoir.

In addition, NMFWCO assumed primary responsibility for overseeing the Youth Conservation Corp (YCC) program at the Mescalero Tribal Fish Hatchery, Mescalero Apache Indian Reservation. The Tribal YCC program was entering its fourth year. In comparison to 2009, the number of Native American youth participating in the Tribal YCC program doubled in size. Twelve tribal youths worked from June 6, 2010, to August 28, 2010, and engaged in multiple projects ranging from daily hatchery operations and maintenance, trail construction, stream and riparian restoration, and spring renovation.



2010 Tribal YCC program at Mescalero Tribal Fish Hatchery.

Rio Grande Cutthroat

The NMFWCO participated in several Rio Grande cutthroat trout (RGCT) Working Group meetings, Range-Wide RGCT, and RGCT Strategic Working Group. The RGCT Strategic Plan is a collaborative effort with the FWS, USFS - Colorado and New Mexico, NMDGF, Jicarilla Apache Nation, and Mescalero Apache Tribe to develop range-wide management strategies and partnerships for the conservation of RGCT against environmental threats such as climate change, natural disasters, and nonnative invasion.

Santa Clara Pueblo and NMFWCO continued mechanical removal efforts in the headwaters of the Santa Clara Creek Drainage. Approximately 1,000 non-native trout were transplanted downstream of Pond 3. The Bureau of Indian Affairs – Northern Pueblos Agency in collaboration with NMFWCO completed the Biological Assessment to conduct chemical removal of non-native trout from the headwaters. Chemical treatment was scheduled for October 2010. However prior to chemical treatment, Santa Clara Pueblo hosted the National Conservation Training Center (NCTC) course entitled “Rotenone and Antimycin Use in Fish Management” at Santa Claran Casino and Resort in Espanola, New Mexico. This was the first time a NCTC course had been hosted by a Native American Tribe and the primary target audience was Native American fisheries biologists. Tribal participants were from Jicarilla Apache Nation, Navajo Nation, Santa Clara Pueblo, Nambe Pueblo, Southern Ute Tribe, and Mescalero Apache Tribe. Non-tribal staff from FWS and NMDGF also participated. The course was held on August 16-20, 2010, and taught by staff from NMFWCO, NMDGF, and BOR.



Instructor informing class participants on the procedures for setting up a station drip along Santa Clara Creek.



Instructors and students who participated in the 2010 NCTC course entitled "Rotenone & Antimycin Use in Fish Management."

In August 2009, NMFWCO and Jicarilla Apache Tribal Game & Fish Department collected 60 cutthroat trout from Willow and Poso creeks to evaluate the genetic purity. The genetic analysis, conducted by Dexter NFH&TC in February 2010, concluded RGCT from Poso Creek had very low levels of rainbow trout introgression and higher levels of Yellowstone cutthroat *O. clarki bouvieri* introgression. In Willow Creek, rainbow trout were present and evidence concluded rainbow trout were hybridizing with RGCT.

The NMFWCO, Mescalero Apache Tribe, and New Mexico State University convened at the Mescalero Apache Tribal Fish Hatchery to discuss goals, objectives, and tasks for restoring the Rio Ruidoso Drainage in efforts to support RGCT into this watershed. The Mescalero Apache Tribe was awarded a Tribal Wildlife Grant in 2008 and the Tribe contracted New Mexico State University to assess the suitability of the drainage.

FY 2011 Proposed Activities

Conservation and recovery efforts scheduled for FY 2011 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; repairing fish passage crossing on Rio Paguete; chemically treating the headwaters in the Santa Clara Creek Drainage; and assessing the Rio Ruidoso Drainage for the reestablishment of Rio Grande cutthroat trout.

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, the 27th Annual Southwest Region Native American Fish and Wildlife Conference, Tribal Youth Conservation Corp (YCC) programs at Mescalero Apache Tribe, Santa Clara Pueblo, and Middle Rio Grande Pueblos (Isleta Pueblo, Sandia Pueblo, and Santa Ana Pueblo). Staff will continue to coordinate with Alchesay-Williams Creek NFH Complex and Inks Dam NFH on annual fish distribution to the New Mexico Tribes.

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. 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 either halted or restricted in timing and location. Most of our efforts to date have concentrated in the State of Chihuahua. We continue to work closely with peers at the Universidad de Sonora, Hermosillo, Mexico, on native fishes inventory, monitoring, threats assessment and reporting results to appropriate Mexican federal and State agencies.



Map of Mexico Illustrating the extensive Region 2 “Borderlands”

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

Personnel from NMFWCO did not participate in the 12th Annual Meeting of the Canada-Mexico-U.S. Trilateral Committee for Wildlife and Ecosystem Conservation and. However, management 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

Results of the inventory of the Rio Tutuaca Basin, including discovery of a remnant population of the native Yaqui catfish *Ictalurus pricei*, were combined with work performed under the direction of Dr. Alejandro Varela Romero, Universidad de Sonora, Hermosillo. Alejandro’s work included an inventory and review of the genetics of catfish inhabiting Pacific-flowing streams of the Sierra Madre Occidental. This has resulted in a recent publication in *The Southwestern Naturalist* on the status of the species in the U.S. and northwestern Mexico.



Rio Tutuaca Yaqui Catfish

International Conservation Strategic Planning Initiative

The FWS’s Division of International Affairs (IA) came to the regions during FY10 to solicit input into the International Conservation Strategic Planning Initiative. This initiative is intended to clearly and comprehensively address Service roles and responsibilities for international conservation programs and efforts. We participated in the Region 2 Focus Group Session in Phoenix, AZ, on April 13, 2010. This session included an overview of the planning process and use of breakout to respond to five questions designed to elicit answers that would facilitate definition of the Service’s role in the future.

It was noted in session discussions that Region 2 has extensive borderlands responsibilities, yet there is the need for a centralized and prominent role for international conservation of shared natural resources.

International Affairs activities in Region 2 are handled by a variety of programs, both in the Region and field offices, and do not represent a coordinated response to borderlands issues and responsibilities. Those attending the session generally agreed that a more formal role and expanded effort by Region 2 in International Affairs responsibilities was necessary to coordinate and respond to the variety of needs and borderland priorities.

FY 2011 Proposed Activities

Basic fish community surveys may be resumed, but will be evaluated on a case by case basis. State of Sonora holds best potential for unimpeded sampling efforts. Continuation of cooperative management activities with ejidos will be difficult to continue. NMFWCO personnel expect to attend and participate in the 2011 annual meeting of the Desert Fishes Council, to be held in Hermosillo, Sonora, MX during November.

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 NFHI.

Some problems with operations exist, however and center on the coordination and administration of WNTI. As allowed by the FWS, WNTI is operated under the direct auspices of the Western Association of Fish and Wildlife Agencies and not necessarily as a NFHAP Partnership. 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.

The barrier reconstruction project at Alamitos Creek was completed. This project resulted in the replacement of a dilapidated wood and concrete structure that was the primary diversion point for two acequias and also acted as a barrier to upstream movement of nonnative brown trout into a Rio Grande cutthroat trout-occupied stream.



NFHAP-supported diversion structure and fish migration barrier constructed on Alamitos Creek.

During FY10, we allocated considerable resources to WNTI meetings, conference calls, document review, and inter-regional (FWS) coordination. As part of NFHAP funding mechanisms for WNTI, FONS is the proposal submission process.

The NMFWCO staff coordinated the direct production and input and review and ranking 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.

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.

Tularosa Creek

A road crossing on Tularosa Creek in the Gila River Drainage was modified by extending a gunite apron downstream of road crossing. Slots were cut into the existing concrete slab to make upstream movement possible at lower flows. The project will benefit loach minnow, speckled dace, sonora sucker and desert sucker. The NMFWCO will spend the remainder of the funds for assessment/monitoring of the fish community, habitat assessments, and stream bank revegetation.

Pickering Ditch Diversion

The NMDGF is replacing the existing Pickering Ditch diversion structure on La Plata River, San Juan County, New Mexico. The diversion provides water to Jackson Lake Wildlife Management Area, a recreational area owned by NMDGF. Pickering Ditch is not functioning as a diversion currently, and acts as a barrier to fish movement.

Laguna Pueblo

Two road crossings on Paquate Creek that were improved with Fish Passage funds were damaged by summertime floods in 2010. The road crossings were improved using Geoweb road bed stabilization material. The Geoweb material was exposed and damaged by flood waters. Funds were obtained to repair damaged road crossings.

Middle Ponil Creek

The NMDGF has completed environmental compliance and hired contractors for this project located at Barker State Wildlife Area in northeastern New Mexico. In summer 2011, construction will begin on three road crossings. These road crossings will benefit Rio Grande cutthroat trout.

FY 2011 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.

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 \$14,207 was spent during FY10 for the maintenance of personal property with the majority of these costs associated with vehicle maintenance and repair. Of this money, \$11,954 was spent on material costs including off-station labor. The NMFWCO staff spent 54 hours on maintenance activities at a cost to the station of \$1,301. 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 FY2010 Accomplishments in FIS is located in Appendix A.

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 NFH&TC. 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.

Accomplishments

The NMFWCO office modified a fully functioning recirculation system in FY09. The recirculation system was designed to enhance habitat complexity and mimic the Gila trout's natural environment consisting of cover, tank color, substrate, light, and monitoring of fish behavior. 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. To complement the tanks appearance, additional methods such as maintaining near wild densities (0.01-0.02lbs/ft³), varied natural feed diet, and polyculture (rearing multiple species) were utilized. In FY10, to minimize hatchery learned behavior of surface feeding and reduce labor, an underwater aerated feeding system was developed to deliver frozen natural feed within the water column to the fish.



A Gila trout from the naturalized rearing system released into Little Creek, Gila National Forest.

To evaluate husbandry techniques associated with naturalized rearing, 40 Gila trout (Main Diamond 2009) were introduced into the system in December 2009. For polyculture purpose, 15 Sonora suckers *Catostomus insignis* and 15 desert suckers *Catostomus clarki* were collected from the West Fork Gila River and introduced to the system in May 2009. The Gila trout initially displayed common hatchery characteristics of pale coloration, non-predator avoidance, surface feeding, and failure to use habitat structure. At the end of FY10, 17 of 40 (42.5%) Gila trout remained. Of 40 Gila trout, 23 were lost within the first month, 3 due to jumping from the tanks and 20 due to cannibalism/aggression. The trout were size-graded at the end of one month and no additional loss was recorded through July 2010. However, during the initial month the trout were already developing cryptic coloration. By July 2010, the trout displayed additional wild characteristics such as predation on native suckers and staging below riffles for feed.

Table 5. Average monthly growth and condition factor (K) values for Gila trout in the naturalized system.

<i>Month-2010</i>	<i>Average Monthly Growth (mm)</i>	<i>Condition Factor</i>
January	9.3	1.1
February	9.0	1.1
March	9.6	1.0
April	5.9	1.0
June	3.5	1.0
July	3.3	1.0

The average range of growth for Gila trout on natural feed was 3.3 - 9.6 mm/month compared with Mora production rates of 12.7 mm/month (commercial feed). Declining growth rates during summer months was contributed to rising water temperatures. Condition factors (K) for trout in the naturalized system ranged from 1.0-1.1 compared to recorded values of 0.4 - 1.2 for wild trout. Preliminary results suggest that the naturalized system can maintain growth rates and fish condition (K) of Gila trout brought into captivity by integrating hatchery and naturalized rearing techniques.

FY 2011 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 hatchery reared Gila trout. The Gila trout will continue to be reared in the naturalized system for up to a year. Lessons learned from the first year will be incorporated in a second attempt to rear hatchery Gila trout to increase survival and stabilize growth rates. Suspected problem areas to be addressed are temperature control and implementing regular interval size-grading. The system will be on stand-by as of August 2011 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.

Chiricahua Leopard Frog

Three populations of Chiricahua leopard frog and one population of northern leopard frog were held or reared at New Mexico Ecological Services Field Office (NMESO) facilities. The Chiricahua leopard frogs at the NMESO facility consisted of one population of wild collected tadpoles, one captive adult population, and one captive laid egg mass. The northern leopard frog population consisted of wild collected tadpoles.

The NMFWCO staff provided assistance to NMESO with the care and maintenance of Chiricahua and northern leopard frogs and tadpoles. Care and maintenance included completing daily water changes and water quality testing, routine equipment inspections to ensure proper operation and filtration, and feeding.

The Chiricahua leopard frogs and tadpoles continue to be held as refugium populations and for testing and treatment of Chytrid fungus. Metamorphosed northern leopard frogs were used to establish a wild refugium site that will be used for additional wild augmentation efforts. As tadpoles and frogs are reared through metamorphosis and cleared of *Chytrid* fungus they may be housed on site, moved to another refugium, or released back to the wild.



Chiricahua leopard frog held at the NMESO.

Piscicide Use and Fisheries Management

The primary roles of NMFWCO in piscicide use in fisheries management in Region 2 are field application projects for fish population restoration activities and to provide piscicide use-related 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 integrate course revision requirements into the syllabus.

Use of piscicides is regulated by the Federal Insecticide, Fungicide, Rodenticide Act. This act requires product 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.

The NCTC sponsored course was taught in Espanola, NM, and the classroom facilities provided by the Santa Claran Casino and Resort. This class was unique in that it was attended primarily by biologists and technicians from Native American tribes (Jicarilla, Mescalero, Nambe, Navajo, Santa Clara, Southern Ute). Other class attendees were from NMDGF and FWS. Class field exercises were performed at Santa Clara Creek, site of a NFHAP restoration project, and the data collected during the class were subsequently used in calculations required for piscicide delivery, dilution and neutralization applications.



Classroom session during piscicide class at Santa Clara Pueblo, August 2010.

FY 2011 Proposed Activities

The FY 2011 piscicide activities will center on initiation of new stream assessments for future piscicide applications to restore Gila trout and completion of a project to restore Rio Grande cutthroat trout to the Upper Santa Clara Creek watershed at Santa Clara Pueblo. The NCTC-sponsored piscicide class will be updated by instructors during spring 2011 and the class will be taught during the first week of October at NCTC, Shepardstown, West Virginia.

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
- Caldwell, C.A., S. Cho, and W.J. Remshardt. 2010. Effects of Propagation, augmentation, and rescue activities on recovery and survival of Rio Grande silvery minnow (*Hybognathus amarus*). Final Report for the Middle Rio Grande Endangered Species Collaborative Program, submitted to U.S. Bureau of Reclamation, Albuquerque, New Mexico. 97 pp.
- Davis, J.E., B.R. Duran, and E. Teller. 2010. Nonnative species monitoring and control in the upper San Juan River: 2009. Final Report for the San Juan River Basin Recovery Implementation Program, U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 46 pp.
- Davis, J.E. 2010. Passive Integrated Transponder (PIT) tagging methodologies for the San Juan River Basin Recovery Implementation Program. Final Standard Operating Procedure Document submitted to U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 7 pp.
- Davenport, S.R. 2010. Status and trends of Pecos bluntnose shiner *Notropis simus pecosensis* Pecos River, New Mexico 2009. Final Report submitted to U.S. Bureau of Reclamation, Albuquerque Area Office. 56 pp.
- Hoagstrom, C.W., W.J. Remshardt, J.R. Smith, and J.E. Brooks. 2010. Changing fish faunas in two reaches of the Rio Grande in the Albuquerque Basin. *The Southwestern Naturalist* 55:78-88.
- Hoagstrom, C.W., N. D. Zymonas, S.R. Davenport, David L. Propst, and James E. Brooks. 2010. Rapid species replacements between fishes of the North American plains: a case history from the Pecos River. *Aquatic Invasions*. 5: 141-153
- Kitcheyan, D. C. 2010. Recreational Fisheries Management Plan – Pueblo of Zia, 2011-2015. Final Report submitted to U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 13pp.
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- Osborne, M.J., S.R. Davenport, C.W. Hoagstrom, and T.F. Turner. 2010. Genetic effective size, N_e , tracks density in a small fresh water cyprinid, Pecos bluntnose shiner (*Notropis simus pecosensis*). *Molecular Ecology*. Available online DOI:10.1111/j.1365X2010.04695.x

Remshardt, W.J. 2010. Rio Grande silvery minnow augmentation in the Middle Rio Grande, New Mexico, 2008. Annual Report for the Middle Rio Grande Endangered Species Collaborative Program, submitted to U.S. Bureau of Reclamation, Albuquerque, New Mexico. 54 pp.

Remshardt, W.J. 2010. Rio Grande silvery minnow rescue and salvage, 2009. Annual Report for the Middle Rio Grande Endangered Species Collaborative Program, submitted to U.S. Bureau of Reclamation, Albuquerque, New Mexico. 36 pp.

Varela-Romero, A., D.A. Hendrickson, G. Yepiz-Plascencia, J.E. Brooks, and D.A. Neely. In Press. Status of the Yaqui catfish (*Ictalurus pricei*) in the United States and Northwestern Mexico. *Southwestern Naturalist* 56(2). June 2011.

Technical Presentations at Meetings and Symposia

Davis, J.E. 2010. Nonnative species monitoring and control in the upper/middle San Juan River: 2009. Presentation to Biology Committee at the Annual Researchers Meeting of the San Juan River Basin Recovery Implementation Program, Farmington, NM.

Davis, J.E. 2010. Nonnative species monitoring and control in the upper/middle San Juan River: 2009. Presentation to Coordination and Biology Committees at the Annual Review Meeting of the San Juan River Basin Recovery Implementation Program, Durango, CO.

Davis, J.E. 2010. The use of selective fish passage to remove nonnative fishes and facilitate range expansion of Colorado pikeminnow *Ptychocheilus lucius* and razorback sucker *Xyrauchen texanus* in the San Juan River, New Mexico. Presentation to Coordination and Biology Committees at the Annual Review Meeting of the San Juan River Basin Recovery Implementation Program, Durango, CO.

Davis, J.E. 2010. Nonnative species interactions: summary of past and present work in the San Juan River, 1991-2010. Presentation at the San Juan River Basin Recovery Implementation Program's Nonnative Fish Workshop, Albuquerque, NM.

Davis, J.E. 2010. Mechanical removal of large bodied nonnative fishes in the upper/middle San Juan River, 2001-2009. Presentation at the San Juan River Basin Recovery Implementation Program's Nonnative Fish Workshop, Albuquerque, NM.

Davis, J.E. 2010. The use of selective fish passage to remove nonnative fishes and facilitate range expansion of Colorado pikeminnow *Ptychocheilus lucius* and razorback sucker *Xyrauchen texanus* in the San Juan River, New Mexico. Presentation at Western Division of the American Fisheries Society Meeting, Salt Lake City, UT.

Davenport, S.R. 2010. Pecos bluntnose shiner status and trends update 2009. Presented at U.S. Bureau of Reclamation's annual Pecos River stake holders meeting, Roswell, New Mexico, and to Pecos River Engineer's Advisors meeting Albuquerque, New Mexico.

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- Duran, B.R., J.E. Davis, D.W. Furr, and E. Teller. 21 November 2009. Mechanical removal of nonnative fishes as a management tool for the recovery of Colorado pikeminnow, *Ptychocheilus lucius*, and razorback sucker, *Xyrauchen texanus*, in the San Juan River – New Mexico, Colorado and Utah. 41st Annual Meeting of the Desert Fishes Council, Death Valley, California.
- James, A. P. January 2010. Designing a Naturalized Rearing System for Gila Trout, *Oncorhynchus gilae*, Recovery: A Work in Progress. Annual Region 2 Fisheries Biologist Workshop. San Marcos, Texas.
- James, A. P. July 2010. Naturalized Rearing Systems: a Tool for Recovery. 25th Annual Native American Fish and Wildlife Society Southwest Regional Conference. Scottsdale, Arizona.
- Kitcheyan, D. C. U.S. Fish and Wildlife Service Update. Southwest Tribal Fisheries Commission, Quarterly Meeting, October 30, 2009, Bureau of Indian Affairs, Albuquerque, New Mexico, United States.
- Kitcheyan, D. C. U.S. Fish and Wildlife Service Update. Southwest Tribal Fisheries Commission, Quarterly Meeting, February 5, 2010, Bureau of Indian Affairs, Albuquerque, New Mexico, United States.
- Kitcheyan, D. C. U.S. Fish and Wildlife Service Update. Southwest Tribal Fisheries Commission, Quarterly Meeting, April 23, 2010, Bureau of Indian Affairs, Albuquerque, New Mexico, United States.
- Kitcheyan, D. C. Western Native Trout Initiative: Challenges Tribes may face in working in a Fish Habitat Partnerships – Giving Tribes an Active Voice in Native Fish Conservation in the Western United States. June 6-10, 2010, 28th Annual National Conference - Native American Fish and Wildlife Society, Fond du Lac Band of Lake Superior Chippewa.
- Kitcheyan, D. C. U.S. Fish and Wildlife Service Update. Southwest Tribal Fisheries Commission, Quarterly Meeting, July 26, 2010, Talking Stick Resort, Scottsdale, Arizona, United States.
- Kitcheyan, D. C. and A.P. James. 2010. Fish Population and Habitat Assessment. 16th Annual Native American Youth Practicum, July 22-23, 2010, Hermosa Ranch, New Mexico, United States.
- Remshardt, W.J. 15 December 2010. Investigating the use of Passive Implantable Transmitter (PIT) tags on the Rio Grande silvery minnow. Presentation to the Science Workgroup, Middle Rio Grande Endangered Species Collaborative Program, Albuquerque, New Mexico.
- Remshardt, W.J. 9 August 2010. May 2010 irrigation canal monitoring for Rio Grande silvery minnow eggs. Annual memorandum and data report for Middle Rio Grande Endangered Species Collaborative Program, submitted to U.S. Bureau of Reclamation, Albuquerque, New Mexico.

Remshardt, W.J., S.R. Davenport, D.L. Propst, S.M. Carrman, R.K. Dudley, and S.P. Platania. 21 November 2009. Native fish conservation and management in the upper/middle Rio Grande basin, Pecos River, Canadian River, Tularosa and Guzman basins, New Mexico during 2009. 41st Annual Meeting of the Desert Fishes Council, Death Valley, California.

Remshardt, W.J. and G.P. Garrett. 21 May 21 2010. Update on Rio Grande silvery minnow in Big Bend. Science committee for Rio Grande rehabilitation, Big Bend Conservation Cooperative, Sul Ross State University, Alpine, Texas.

Appendix

Appendix A. FY 2010 Accomplishments



U.S. Fish and Wildlife Service Fisheries Information System

FY 2010 Accomplishments

22330-A-042 - [Renovation of Barrier to Protect RG Cutthroat Trout in Tio Grande Creek per WNTI Priorities](#)

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.

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

Primary 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 Fish Passage

Project Number 22330-A-042

Partners

- New Mexico Department of Game and Fish(\$12000)
- Trout Unlimited(\$7500)
- U. S. Forest Service(\$5000)

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	1.0
Total number of population assessments completed	1

Accomplishment Summary

FY2010: This project was transferred from Tio Grande to Tanques Creek at the request of NMDGF and USFS biologists (higher priority). Preliminary site survey data and engineering drawings for barrier reconstruction were reviewed and on-site investigations completed. A vendor has been selected for materials acquisition, drawings by FWS Engineering commissioned, and RFP process to select contractor initiated.

Description

The importance to the Resource:

Without continued efforts to conserve Rio Grande cutthroat trout, threats posed by nonnative species and habitat degradation may place this species in jeopardy; Rio Grande cutthroat trout is a candidate species under ESA.

The problem:

Historical fisheries management programs have emphasized use of nonnative salmonids to the detriment of natives through hybridization, predation, and competition impacts. In addition, land use practices by public agency and private landowners have contributed to habitat degradation.

The objective:

This project would replace a dilapidated barrier in Tio Grande Creek with a permanent structure and increase security of a core conservation population of Rio Grande cutthroat trout.

The method:

The existing barrier will be removed and a permanent structure installed. If existing barrier is not replaced, non-native trout will obtain access to currently occupied habitat. This barrier will help to protect a core conservation population of Rio Grande cutthroat trout to be used as a donor population for population expansion projects.

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

Further description:

The Tio Grande Creek watershed is predominantly owned by Carson National Forest. Tio Grande contains a small, isolated population of Rio Grande cutthroat trout that is vital to range-wide recovery efforts. Protection of this habitat from non-native trout encroachment has been identified as a priority by project partners. All environmental compliance to construct the original barrier is complete. Additional environmental compliance and archaeological permits are expected to be obtained in 2009. Additional support to cooperators is required to ensure timely completion of the project which satisfies WNTI's goal of supporting collaborative conservation efforts.

Pictures

No pictures have been uploaded for this project

22330-A-004 - [Rio Grande Silvery Minnow Recovery](#)

- Objective** Recover fish and other aquatic resource populations protected under the Endangered Species Act.
- Primary Benefited Species** Rio Grande silvery minnow ([Hybognathus amarus](#))
- Primary Benefited Population** [Middle Rio Grande Basin NM-2](#) [[Endangered](#)]
- Plans**
 - Rio Grande Silvery Minnow Recovery Plan
 - Rio Grande silvery minnow - Big Bend Implementation and Monitoring Plan
 - Rio Grande silvery minnow Augmentation Plan
 - Rio Grande silvery minnow Genetics Management and Propagation Plan
- Partners**
 - City of Albuquerque
 - New Mexico Department of Game and Fish
 - U.S. Army Corps of Engineers(\$5000)
 - U.S. Bureau of Reclamation(\$1000)
 - University of New

Accomplishment Summary

FY2010: Stocked 21,218 Rio Grande silvery minnow into Middle Rio Grande, New Mexico in November 2009. Conducted monthly monitoring at 7 sites within Pueblo boundaries to collect information on survival, movement, and habitat use. Released 509,988 fish into Big Bend, Texas in October 2009 for reintroduction effort. Conducted salvage on 20 miles of dry river. Conducted egg monitoring in irrigation systems. Released 4,274 PIT tagged fish to monitor fish passage. Began pre-operation of RGSM Sanctuary.

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.

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:

Accomplishments

2010 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 Fishery Management Plans (Fisheries PART)	9
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	9
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	9
Number of Recovery Plan tasks implemented by the Fisheries Program-F	7
Number of Recovery Plan tasks implemented by the Fisheries Program-H	7
Number of Recovery Plan tasks implemented by the Fisheries Program-W	7
Number of aquatic outreach and education activities and/or events (NFHS)	2
Number of aquatic outreach and education activities and/or events (FWMA)	2
Number of training session to support Tribal fish & wildlife conservation	2
Number of consultations conducted to support Tribal fish & wildlife conservation	2
Number of School Curriculum activities and/or events targeting children only	2

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-038 - [NFPP training and collaboration workshops for partners and stakeholders in New Mexico.](#)

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.

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

Primary Benefited Population [Cutthroat trout](#)

Accomplishment Summary

FY2010: The National Fish Passage Program was introduced to Tribal partners in New Mexico in June 2010. The meeting was held at Santa Clara Pueblo and was attended by multiple New Mexican tribes. Information on the program and types of projects that could be funded was presented. The outcome of the meeting included the identification of several projects on tribal land. A second workshop is scheduled for early FY 2011 and will include the Carson National Forest

Description

The importance to the Resource:

To provide training and information on the National Fish Passage Program to USFWS

Plans

Partners Jicarilla Apache Nation
Mescalero Apache Tribe
New Mexico Department of Game and Fish
Pueblo of Laguna
Pueblo of Nambe
Pueblo of Santa Clara
Pueblo of Zuni
Rio Grande Pueblos
Trout Unlimited
Turner Enterprises, Inc.
U. S. Forest Service

Accomplishments

2010 performance measures

This project has not yet specified any performance measures this fiscal year

partners, especially Native American Tribes, agencies or private landowners that do not have knowledge of the program

The problem:

Many Native American Tribes and other USFWS partners did not have adequate knowledge of NFPP to develop projects on their property.

The objective:

Identify partners within New Mexico that have high priority for NFPP projects. These partners were selected because their properties had barriers to fish passage that could be removed.

The method:

We will hold meetings with focal groups to develop partners to address fish passage projects. These meetings will be held for focal groups, who will be provided information on the NFPP, so they can develop projects to remove barriers to fish passage.

Pictures

No pictures have been uploaded for this project

22330-A-039 - [NFPP: Fish Passage on Tularosa Creek, New Mexico](#)

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

Primary Benefited Species Loach minnow ([Rhinichthys cobitis](#))

Primary Benefited Population [Tularosa Creek](#) [[Threatened](#)]

Plans Loach Minnow Recovery Plan

Partners New Mexico Department of Game and Fish
New Mexico State University
Trout Unlimited(\$94000)
U. S. Forest Service(\$3000)

Accomplishment Summary

FY2010: A road crossing on Tularosa Creek in the Gila River Drainage was modified by extended a gunite apron downstream of road crossing. Slots were cut into the existing concrete slab to make upstream movement possible at lower flows. The project will benefit loach minnow, speckled dace, sonora sucker and desert sucker. NMFWCO will spend the remainder of the funds for assessment/monitoring of the fish community, habitat assessments, stream bank revegetation (our labor and purchases added to USFS) .

Description

The importance to the Resource:

Removal of this barrier will open up 9 miles of stream habitats to the threatened loach minnow and associated native fish community.

The problem:

The barrier to fish passage is caused by a concrete slab-based road crossing that covers the stream bed.

The objective:

The objective of this project is to modify the existing road crossing to allow upstream movement of resident fishes during low flow conditions.

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	1.0
Total number of fish passage barriers removed or bypassed	1
Number of miles re-opened to fish passage - FWMA	9.0

Total number of population assessments completed	1
Number of Recovery Plan tasks implemented by the Fisheries Program-F	2
Number of Recovery Plan tasks implemented by the Fisheries Program-H	2
Number of Recovery Plan tasks implemented by the Fisheries Program-W	2

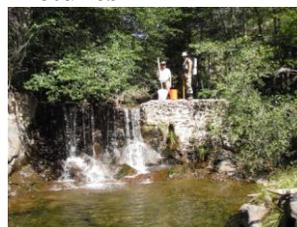
The method:

The existing structure will be modified by the addition of an extended gunnite apron on the downstream side. Slots will be cut into the existing concrete slab to allow upstream fish movement during low-flow periods. Adjacent shoreline areas will be revegetated.

Further description:

Trout Unlimited, in close cooperation with the U.S. Forest Service and the Gila Restoration Project Coalition, has obtained CRFP funding that has been applied to satisfaction of engineering and design of the modifications, NEPA and ESA compliance, and local contractors. Funds are limited and inadequate to finish the existing project due to unexpected cost increases. NMFWCO has an existing cooperative agreement with U.S. Forest Service that can be used to quickly obligate and expend funds for construction activities by local contractors.

Pictures



Caption:

Diversion Dam

Credit:

USFWS

Description:

Example of a barrier to fish movement in the Gila National Forest, New Mexico



Caption:

loach minnow, *Tiaroga cobitis*

Credit:

USFWS

Description:

Native fish of the Gila River, New Mexico

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

Primary Benefited Species Roundtail chub ([*Gila robusta*](#))

Primary Benefited Population San Juan River Roundtail chub

Plans Razorback Sucker Recovery Plan

Partners New Mexico Department of Game and Fish(\$10000)

Accomplishments

2010 performance measures

Number of miles re-opened to fish passage - FWMA	10.0
Number of Recovery Plan tasks implemented by the Fisheries Program-F	6
Number of Recovery Plan tasks implemented by the Fisheries Program-H	6
Number of Recovery Plan tasks implemented by the Fisheries Program-W	6

Accomplishment Summary

FY2010: New Mexico Department of Game and Fish is replacing the existing Pickering Ditch diversion structure on La Plata River, San Juan County, New Mexico. The diversion provides water to Jackson Lake Wildlife Management Area, a recreational area owned by NMDGF. Pickering Ditch is not functioning as a diversion currently, and acts as a barrier to fish movement.

Description

The importance to the Resource:

La Plata River supports several native species of fish including the roundtail chub, protected by state of New Mexico, and listed as endangered by the Navajo Nation. Instream barriers do not allow movement of individuals. These barriers exclude roundtail chub from upstream reaches where they can seek higher quality habitat.

The problem:

Roundtail chub exists in small, isolated populations in tributaries of the upper San Juan basin. Man-made barriers to fish movement help maintain isolation. Isolation can limit gene flow, remove access to habitat refugia during times of environmental stress, and concentrate populations downstream of barriers.

The objective:

The objective of the project is to include a Denil fish passage structure on the newly constructed Pickering diversion structure. We hope to benefit the native fish community through increased longitudinal movement in La Plata River.

The method:

If funds are secured, a USFWS engineer will design a Denil fish passage structure into the construction plans for the new Pickering diversion structure. It is an opportune time to include fish passage into the plans for the new structure. This will allow for continued recreational activities in the area as well as providing fish passage

Pictures



Caption:

Roundtail chub

Credit:

A. Lapahie, Navajo Nation Department of Fish and Wildlife

Description:

Primary species that will benefit from this project

22330-A-030 - [NFPP: Fish Passage on South Ponil Creek for Rio Grande Cutthroat Trout at Philmont Scout Ranch.](#)

- Objective** Maintain diverse, self-sustaining fish and other aquatic resource populations.
- Primary Benefited Species** Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*)
- Primary 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
- Partners** New Mexico Department of Game and Fish

Accomplishment Summary

FY2010: Sites were visited where proposed low water stream crossings will be constructed. Road crossings were evaluated, and types of low water road crossings to be installed were finalized. Construction was scheduled for October 2010. The Scout Ranch, a separate and subsidized business under Boy Scouts America had been difficult to work with due to unresponsiveness, but progress has been made. Our future activities will include intensive project monitoring during construction phase. *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 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.

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

Accomplishments

2010 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 population assessments completed	1
Number of all tasks implemented, as	5

prescribed in Fishery Management Plans (Fisheries PART)	
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

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.

Pictures

No pictures have been uploaded for this project

22330-A-001 - [Gila trout recovery](#)

Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Gila trout (Oncorhynchus gilae)
Primary Benefited	Gila trout - Whiskey Creek [Threatened]

Accomplishment Summary

FY2010: NMFWCO fisheries activities for the recovery of Gila trout *Oncorhynchus gilae*, focused on monitoring existing populations, mechanically (Little, Black Canyon, HB WMA) and chemically (Upper WFG) removing nonnative fish species from “recovery” streams, supplementing existing recovery and recreational populations, assisting Mora NFHTC with the Gila trout spawn, surveying potential recovery streams, and

Population

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

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	8.0
Total number of miles of in-stream and shoreline habitat assessed	35.0
Total number of in-stream/shoreline miles restored in U.S.	21.0
Total number of population assessments completed	6
Number of Recovery Plan tasks implemented by the Fisheries Program-F	11
Number of Recovery Plan tasks implemented by the Fisheries Program-H	11
Number of Recovery Plan tasks implemented by the Fisheries Program-W	11
Number of activities conducted to support the management and control of aquatic invasive species (Fisheries)	6
Number of activities conducted to support the management and control of aquatic invasive species (FWMA)	6
Number of risk assessments conducted to evaluate potentially invasive aquatic species - annual	1

hosting the annual Gila Trout Recovery Team Meeting.

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, 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.

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:
Gila trout in Heartbar Wildlife Management Area

Credit:
Dustin Myers, USFWS

Description:
Retired Gila trout broodstock stocked under the 4-d rule.



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-013 - [Aquatic nuisance species](#)

Objective	Prevent new introductions of aquatic nuisance species.
Primary Benefited Species	(0) Multiple Species ()
Primary Benefited Population	Not specified
Plans	ANS Task Force Strategic Plan 100th Meridian Initiative
Partners	New Mexico Department of Environment New Mexico Department of Game and Fish New Mexico State Parks Division U.S. Army Corps of Engineers U.S. Bureau of Reclamation University of New Mexico

Accomplishment Summary

FY2010: New Mexico FWCO's involvement with ANS in 2010 primarily focused on providing technical assistance to the New Mexico Aquatic Invasive Species Advisory Council. NMFWCO was the lead office charged with the coordination and collection of water samples for PCR analysis. Through a cooperative agreement with the University of New Mexico, Museum of Southwestern Biology, water samples collected by NM Department of Game and Fish were shipped to the Bureau of Reclamation's Denver laboratory.

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.

Accomplishments

2010 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 activities conducted to support the management and control of aquatic invasive species (Fisheries)	5
Number of activities conducted to support the management and control of aquatic	5

invasive species (FWMA)	
Number of risk assessments conducted to evaluate potentially invasive aquatic species - annual	2
Number of invasive species partnerships established and maintained	10
Number of activities conducted to address priority pathways (ANS)	2
Number of ANS related outreach/education activities conducted	2
Number of technical assistance/coordination activities conducted (ANS)	5

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.

Pictures



Caption:

Boat inspection

Credit:

USFWS

Description:

Routine boat and trailer inspections are conducted to prevent the introduction of ANS into New Mexico waterbodies



Caption:

Plankton tow net sample

Credit:

USFWS

Description:

Water samples are analyzed to determine the presence of mussel veligers.



Caption:

Quagga mussel on houseboat, Navajo Lake State Park

Credit:

USFWS

Description:

Houseboat infested with quagga mussel. Training of State Park personnel and private marine owners enabled the identification prior to launching at Navajo Lake State Park.

22330-A-035 - [NFPP: Monitor Pecos Bluntnose Shiner and Rio Grande Silvery Minnow In Reponse To Federal Water Ops.](#)

Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Rio Grande silvery minnow (Hybognathus amarus)
Primary 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
Partners	New Mexico Department of Game and Fish New Mexico Interstate Stream Commission

Accomplishment Summary

FY2010: 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 structures and seasonal and longitudinal fish movement. Rio Grande silvery minnow were assessed for implantation of individual PIT tags in order to study movement. Status and trends of Pecos bluntnose shiner was presented at annual Pecos River stake holders meeting

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 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

Texas Parks and Wildlife
 Department
 U.S. Bureau of Reclamation
 University of New Mexico
 Western Native Trout Initiative

Accomplishments

2010 performance measures

Total number of population assessments completed	2
Number of Recovery Plan tasks implemented by the Fisheries Program-F	2
Number of Recovery Plan tasks implemented by the Fisheries Program-H	2
Number of Recovery Plan tasks implemented by the Fisheries Program-W	2

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 information 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.

Pictures



Caption:

Pecos bluntnose shiner

Credit:
USFWS
Description:
Adult Pecos bluntnose shiner

22330-A-005 - [Restoration of Rio Grande Cutthroat Trout](#)

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

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

Primary 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

Partners Bureau of Indian Affairs
Dexter National Fish Hatchery & Technology Center
Mescalero Apache Tribe
New Mexico Department of Game and Fish
Pueblo of Santa Clara
Southwest Tribal Fisheries Commission
Taos Pueblo

Accomplishment Summary

FY2010: Continued to provide technical assistance to Mescalero Apache Tribe, Jicarilla Apache, Santa Clara Pueblo, Laguna Pueblo, and Nambe Pueblo to assess fish populations and stream habitat on 7 streams. Participated in 3 RGCT working group meetings hosted by NMDGF and range-wide meeting at Taos, NM; provided updates on 5 tribal projects. *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 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.

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	6.0
Total number of miles of in-stream and shoreline habitat assessed	12.0
Number of miles re-opened to fish passage - FWMA	1.0

Total number of population assessments completed	7
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

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:
Potential Fish Barrier

Credit:
Angela James, USFWS-NMFWCO

Description:
A potential fish barrier located on the Rio Paguete.



Caption:
Suspected cutthroat trout species

Credit:
Angela James, USFWS-NMFWCO

Description:
Suspected cutthroat trout species captured during fish surveys on the Rio Paguete.

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

Objective Provide employees with opportunities to maintain competencies in the expanding

Accomplishment Summary
FY2010: 12 Native American Youth students were employed at Mescalero Tribal Fish (MTFH). Amongst the essential tasks, YCC

knowledge and technologies needed to improve opportunities for professional achievement, advancement and recognition.

Primary Benefited Species (0) Can Not Assign ()

Primary Benefited Population Not specified

Plans The Service's Native American Policy

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

crew successfully completed: Hatchery Operations, Angler Access, Riparian and Stream Restoration, Springs Renovation, River Surveys, and Pond Development. On the final full week of the program, YCC toured and visited staff at Dexter National Fish Hatchery and Technology Center.

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 Cienigeta, Rio Ruidoso, and Eagle Creek watersheds. The YCC constructed 8 stream 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 7, 2010 through September 30, 2010. The duties performed by YCC personnel ranged from hatchery operations, stream/riparian restoration, spring renovation, and various signage.

Further description:

YCC enrollees constructed about ¾ mile of trail, removed over 8 tons of woody debris and vegetation, laid down 1,100 feet of landscape liner, spread out 5 tons of gravel fines and more than 4 tons of rock to improve existing trails or construct new trails along Kirgan Park. YCC assisted with the construction and placement of an 8ft x 4ft concrete intake structure and installation of 3,200ft of 6 inch PVC pipe, and 600ft of 8ft PVC for a bypass channel to reduce the threat of surface water damage due flooding, as well as provide a platform to introduce pond culture. Enrollees

Accomplishments

2010 performance measures

Total number of miles of in-stream and shoreline habitat assessed	2.0
Total number of in-stream/shoreline miles restored in U.S.	2.0
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 consultations conducted to support Tribal fish & wildlife conservation	2
Number of acres of wetland habitat assessed	1.0
Number of instream miles enhanced	2.0
Number of riparian miles enhanced	2.0
Number of wetland areas restored/enhanced	1.5

participated in the development of a 1.5 acre settling pond below the hatchery to improve water quality downstream and provide a recreational asset adjacent to the Headstart trail. YCC crew enhanced and improved 2.1 miles of trail, and completed 4 instream improvement structures on the Rio Ruidoso. YCC constructed a handicap access ramp up to the new administration building by making forms and pouring and finishing cement in an area 40ft long by 6ft wide cover a gradient height of 3.0ft. YCC had the opportunity to visit with staff at Dexter NFH&TC.

Pictures



Caption:
Stream Riparian Work

Credit:
Mike Montoya, Mescalero Tribal Fish Hatchery

Description:
YCC enrollees removing large woody debris and vegetation on Kirgan Springs.



Caption:
Stuart Leon, FWS-YCC, and New Mexico YCC

Credit:
Mike Montoya, Mescalero Tribal Fish Hatchery

Description:
Stuart Leon visiting the YCC staff and New Mexico YCC staff at Mescalero Tribal Fish Hatchery.



Caption:

YCC Enrollees

Credit:

Mike Montoya, Mescalero Tribal Fish Hatchery

Description:

YCC enrollees constructing trails along the Rio Ruidoso.

22330-A-027 - [NFPP - Assessment of Fish Passage needs for the Rio Grande Basin Headwaters](#)

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

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

Primary 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

Accomplishment Summary

FY2010: Funds were used for overall coordination of New Mexico FWCO's National Fish Passage Program, This included, travel costs for site visits, filed assessments, technical training, attending professional society meetings, annual review of documents and reporting of NFPP projects in New Mexico and at national level.

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 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

Accomplishments

2010 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

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 corrective measures 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.

Pictures

No pictures have been uploaded for this project

22330-A-011 - [Nonnative Species Control and Monitoring on the San Juan River](#)

Objective

Recover fish and other aquatic

Accomplishment Summary

FY2010: Multiple-pass electrofishing resulted

resource populations protected under the Endangered Species Act.

Primary Benefited Species

Colorado pikeminnow (*Ptychocheilus lucius*)

Primary 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 River Basin Recovery Implementation Program
Long-range Plan

Partners

American Southwest Ichthyological Reseachers, L.L.C.
Bureau of Indian Affairs (\$10000)
Ecological Services
Mr. and Mrs. Buck Wheeler; Hogback, NM
Navajo Nation Department of Fish and Wildlife
New Mexico Department of Game and Fish
New Mexico State University
U.S. Bureau of Reclamation
Utah Division of Wildlife Resources

Accomplishments

2010 performance measures

Total number of population assessments completed	32
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	6

in the removal of over 10,000 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. *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

Further description:

Nonnative species have been introduced into the San Jaun 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.

(FWMA)	
Number of Recovery Plan tasks implemented by the Fisheries Program-F	2
Number of Recovery Plan tasks implemented by the Fisheries Program-H	2
Number of Recovery Plan tasks implemented by the Fisheries Program-W	2
Number of activities conducted to support the management and control of aquatic invasive species (Fisheries)	12
Number of activities conducted to support the management and control of aquatic invasive species (FWMA)	12
Number of surveys conducted for aquatic invasive species baseline/trend information for aquatic invasive species	12

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-034 - [NFPP: Barker State Wildlife Area Stream Road Crossing Improvements](#)

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.

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

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

Accomplishment Summary

FY2010: Environmental compliance was accomplished by New Mexico Department of Game and Fish. Types of low water stream crossings to construct were evaluated, and construction has been scheduled for September 2010. A private contractor has been secured to construct crossings

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

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

Partners New Mexico Department of Game and Fish
U. S. Forest Service

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	1.0
Total number of miles of in-stream and shoreline habitat assessed	3.0
Total number of population assessments completed	1
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

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 clarki 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, 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-022 - [Recreational Fisheries Management and Technical Assistance to Tribes](#)

Objective	Provide support to States, Tribes, and other partners to identify and meet shared or complementary recreational fishing and aquatic education and outreach objectives.
Primary Benefited Species	Rainbow trout (<i>Oncorhynchus mykiss</i>)
Primary 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
Partners	Acoma Pueblo Alchesay and Williams Creek NFH Complex Bureau of Indian Affairs Dexter Fish Health Unit Ecological Services Inks Dam National Fish Hatchery

Accomplishment Summary

FY2010: Provided technical assistance to 11 tribes; completed 2 draft FMPs. Conducted 9 spring lake surveys on 5 reservations to assess fish community. Inspected 5 hatchery loads for non-target organisms prior to each warmwater stocking. Participated in 2 Native American Youth programs to demonstrate electrofish techniques. Assisted NMDGF with Zuni bluehead sucker fish monitoring surveys. Mechanically removed 200 goldfish from 2 scared sites. Participated in 4 SWTFC meetings and SW Region NAFWS meeting. *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 scared 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

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

Accomplishments

2010 performance measures

Total number of population assessments completed	9
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 risk assessments conducted to evaluate potentially invasive aquatic species - annual	1
Number of surveys conducted for aquatic invasive species baseline/trend information for aquatic invasive species	1
Number of surveys conducted for early detection and rapid response for aquatic invasive species	1.0
Number of aquatic outreach and education activities and/or events (NFHS)	5
Number of aquatic outreach and education activities and/or events (FWMA)	5
Number of training session to support Tribal fish & wildlife conservation	6
Number of consultations conducted to support Tribal fish & wildlife conservation	12
Number of surveys conducted for early detection (ANS)	1
Number of technical	1

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 monitor effect of stocking numbers on angler harvest.

Pictures



Caption:

Jicarilla Apache staff weighing RBT

Credit:

Chris Kitcheyan, USFWS-NMFWCO

Description:

Annual spring lakes surveys that are conducted on the Jicarilla Apache Indian Reservation. This 27-inch rainbow was captured with a

assistance/coordination activities conducted (ANS)	
Number of School Curriculum activities and/or events targeting children only	3
Number of Fishing activities and/or events targeting children only	1
Number of Fishing activities and/or events for adults and children	1

trammel net. The RBT was stocked by Alchesay-Williams Creek National Fish Hatchery Complex and stocked as a 6-inch RBT.



Caption:

SW-Native American Youth Practicum

Credit:

Steve Dobrot, Manager, Ladder Ranch

Description:

USFWS-NMFWCO showing Native American Youth the different native fishes present on the Hermosa Ranch. Native American high school students from various tribes throughout the southwest attended the practicum.

22330-A-012 - [Pecos bluntnose shiner conservation](#)

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

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

Primary Benefited Population Not specified

Plans Pecos Bluntnose Shiner Recovery Plan
Pecos Bluntnose Shiner Recovery Plan

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

FY2010: In 2010, Pecos bluntnose shiner population monitoring was conducted monthly at 14 sites as directed by current 10 year Biological Opinion. Status and trends data for Pecos bluntnose shiner was provided to multiple agencies. Activities included data management and analysis, specimen processing and curation, and dispersal of electronic data files to cooperators. Pecos bluntnose shiner status and trends was presented to the funding agency: U.S. Bureau of Reclamation, Albuquerque, Area Office.

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

Accomplishments

2010 performance measures

Total number of miles of in-stream and shoreline habitat assessed	280.0
Total number of population assessments completed	12
Number of Recovery Plan tasks implemented by the Fisheries Program-F	7
Number of Recovery Plan tasks implemented by the Fisheries Program-H	7
Number of Recovery Plan tasks implemented by the Fisheries Program-W	7
Number of risk assessments conducted to evaluate potentially invasive aquatic species - annual	2
Number of surveys conducted for aquatic invasive species baseline/trend information for aquatic invasive species	2
Number of acres of wetland habitat assessed	60.0

endemic fish.

The problem:

Habitat fragmentation and dessication 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.

Pictures



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:

Pecos bluntnose shiner

Credit:

Stephen Davenport, USFWS

Description:

Adult Pecos bluntnose shiner, Pecos River New Mexico



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-040 - [NFPP: Fish Passage on Whitewater Creek, New Mexico](#)

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

Primary Benefited Species Loach minnow ([Rhinichthys cobitis](#))

Accomplishment Summary

FY2010: A concrete slab road crossing was removed, and the road through Whitewater Creek was decommissioned this FY. The existing slope of the river bed was graded to facilitate fish movement. Two miles of river were opened to fish passage. The funds

Primary Benefited Population [Loach minnow - San Francisco \[Threatened\]](#)

Plans Loach Minnow Recovery Plan

Partners New Mexico Department of Game and Fish
New Mexico State University
Trout Unlimited(\$160000)
U. S. Forest Service(\$3000)

Accomplishments

2010 performance measures

Total number of fish passage barriers removed or bypassed	1
Number of miles re-opened to fish passage - FWMA	2.0
Number of Recovery Plan tasks implemented by the Fisheries Program-F	3
Number of Recovery Plan tasks implemented by the Fisheries Program-H	3
Number of Recovery Plan tasks implemented by the Fisheries Program-W	3

obligated were not used for this project (\$50K) however. At the beginning of the year we anticipated another transfer to USFS, but they declined, saying that they were in process of wrapping up. Funds may be rerouted to another project

Description

The importance to the Resource:

Removal of this barrier will provide access to permanently flow reaches for a downstream population of loach minnow in the San Francisco River, thereby increasing occupied range of this federally protected species.

The problem:

The existing road crossing is constructed of a concrete slab that covers the entire stream bed and causes a vertical drop that prevents upstream movement of fishes.

The objective:

The objective of this project is to remove the road crossing, decommission the road, and provide passage to upstream reach of Whitewater Creek.

The method:

The concrete slab will be broken up and removed from the stream bed. Grading of the stream bed will occur and adjacent shoreline areas of the area will be revegetated.

Further description:

Trout Unlimited, in close cooperation with the U.S. Forest Service and the Gila Restoration Project Coalition, has obtained CRFP funding that has been applied to satisfaction of engineering and design of the modifications, NEPA and ESA compliance, and local contractors. Funds are limited and inadequate to finish the existing project due to unexpected cost increases. NMFWCO has an existing cooperative agreement with U.S. Forest Service that can be used to quickly obligate and expend funds for construction activities by local contractors.

Pictures



Caption:
Diversion Dam

Credit:
USFWS

Description:
Example of a barrier to fish movement in the Gila National Forest, New Mexico



Caption:
loach minnow, *Tiaroga cobitis*

Credit:
USFWS

Description:
Native fish of the Gila River, New Mexico

22330-A-024 - [NFPP: Increase Fish Passage to 1.5 miles of Paguate Creek, Pueblo of Laguna](#)

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.

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

Primary Benefited Population [Cutthroat trout](#)

Plans The Service's Native American Policy

Accomplishment Summary

FY2010: Completed fish surveys to assess fish population and 2 stream crossings after construction was completed in July 2009. 92 trout ranging from 71-273mm TL were collected in November 2009; 95 trout ranging from 71-273mm TL were collected in July 2010. 5-Young-of-year were collected for the 1st time in the Rio Paguate below 1st stream crossings. Monsoon rains caused flooding which eroded the geoweb material and deposited large amounts of sediments. Fish passage crossings are being reevaluated.

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

Tribal Fisheries Management
Plan for Pueblo of Laguna

Partners Pagate Village
Pueblo of Laguna

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	2.0
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
Number of miles re-opened to fish passage - FWMA	1.5
Total number of population assessments completed	2
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

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 impacting salmonid growth and survival in Paguate Creek. Conduct follow-up fish surveys to evaluate the fish community after construction.

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 create 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 and Village of Paguate.

Pictures



Caption:

Rio Paguate - 1st stream crossing

Credit:

Frank Cerno, Pueblo of Laguna

Description:

Monsoon rain events causing flooding in the Rio Paguete which eroded and tore the geo-web material at the 1st stream crossing. Large amounts of sediment were deposited on the geo-web.



Caption:

Rio Paguete stream assessment

Credit:

USFWS-NMFWCO

Description:

USFWS-NMFWCO and Pueblo of Laguna-Environmental Department surveying Rio Paguete to evaluate the fish community after the construction of the 2 fish passage crossings that were installed in summer of 2009.



Caption:

Suspected cutthroat trout species

Credit:

USFWS-NMFWCO

Description:

Suspected cutthroat trout species captured during spring surveys to assess fish community and stream crossings that were constructed in the summer of 2009.

22330-A-033 - [NFPP: Monitoring fish passage at a Denil fish passageway at Garanbullo Diversion Dam, NM](#)

Objective

Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative

Accomplishment Summary

FY2010: Private landowner access was granted, three trips to monitor fish passage structure are scheduled for September and October of 2010. The existing fish passage structure is undergoing minor repairs and monitoring will occur after repairs are done.

conservation strategies for aquatic resources.

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

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

Plans Pecos Bluntnose Shiner Recovery Plan
Pecos Bluntnose Shiner Recovery Plan

Partners Ecological Services

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	1.0
Total number of miles of in-stream and shoreline habitat assessed	1.0
Total number of population assessments completed	1

FY2009: Private land owners were contacted and 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-031 - [NFHAP: Black Canyon barrier rehabilitation for Gila trout restoration per WNTI management priorities](#)

Objective	Maintain diverse, self-sustaining fish and other aquatic resource populations.
Primary Benefited Species	Gila trout (Oncorhynchus gilae)
Primary Benefited Population	Gila trout - Black Canyon Creek [Threatened]
Plans	Gila Trout Recovery Plan
Partners	New Mexico Department of Game and Fish Trout Unlimited U. S. Forest Service

Accomplishments

2010 performance measures

This project has not yet specified any performance measures this fiscal year

Accomplishment Summary

FY2010: Project completed. NFHAP funds expended by USFS for reconstruction activities. Field review and assessment of barrier reconstruction completed. No further work on this project expected.

FY2009: All environmental compliance was 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-006 - [Development of Fishery Management Plans on Native American Reservations in New Mexico](#)

Objective

Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to

Accomplishment Summary

FY2010: Consulted with 5 remaining New Mexico Tribes/Pueblos individually and during Southwest Tribal Fisheries Commission meeting about updating their tribal fisheries management plans(FMP). Completed two draft

	develop collaborative conservation strategies for aquatic resources.
Primary Benefited Species	Rainbow trout (<i>Oncorhynchus mykiss</i>)
Primary 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
Partners	Bureau of Indian Affairs Picuris Pueblo Pueblo of Laguna Pueblo of Nambe Pueblo of Santa Clara Sandia Pueblo Southwest Tribal Fisheries Commission Zia Pueblo

Accomplishments

2010 performance measures

Total number of population assessments completed	4
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 risk assessments conducted to evaluate potentially invasive aquatic species - annual	1
Number of consultations conducted to support Tribal fish & wildlife conservation	5

recreational FMPs for Pueblo of Zia and Pueblo of Picuris. NMFWCO and AzFWCO are still collaborating on Navajo Nation FMP to develop an outline of goals & tasks, and identify each field station's responsibilities & duties.

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 will 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.

Pictures

No pictures have been uploaded for this project

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

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

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

Primary 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

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

Accomplishment Summary

FY2010: Continued cooperative efforts with Trout Unlimited, US Forest Service and NM Dept. Game and Fish to complete barrier reconstruction. Contractor was selected and completed new structure capable of diverting acequia flows and preventing upstream movement of nonnative trout. Barrier subsequently compromised by flooding and is currently under consideration for disaster relief funding to complete project. Potential exists to completely remove the structure and relocate to better site for barrier.

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.

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

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	2.0
Total number of miles of in-stream and shoreline habitat assessed	3.0
Total number of in-stream/shoreline miles restored in U.S.	3.0
Number of all tasks implemented, as	5

prescribed in Fishery Management Plans (Fisheries PART)	
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
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
Number of surveys conducted for aquatic invasive species baseline/trend information for aquatic invasive species	1

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.

Pictures



Caption:

Alamitos Creek barrier

Credit:

Jim Brooks, USFWS

Description:

Upstream to downstream view of new barrier and diversion with cooperators in foreground.



Caption:

Alamitos Creek diversion

Credit:

Jim Brooks, USFWS

Description:

Downstream view of new structure diversion into acequia channel.

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

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

Accomplishment Summary

FY2010: Tsikumuu Pond was drained in October 2009 to allow renovation to the spillway structure. Santa Clara Pueblo and

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

Primary 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

Partners Bureau of Indian Affairs
 New Mexico Department of Game and Fish
 Pueblo of Santa Clara
 Southwest Tribal Fisheries Commission
 Trout Unlimited

Accomplishments

2010 performance measures

Number of habitat assessments completed (not acres)	2.0
Total number of miles of in-stream and shoreline habitat assessed	4.0
Total number of population assessments completed	9
Number of all tasks implemented, as prescribed in Fishery Management Plans (Fisheries PART)	7
Number of all tasks implemented, as prescribed in Fishery Management Plans (NFHS)	7
Number of all tasks implemented, as prescribed in Fishery Management Plans (FWMA)	7
Number of aquatic outreach and education activities and/or events (NFHS)	1

NMFWCO mechanically removed 1,600 non-native trout above Tsikumuu Pond to the headwaters. All trout were transplanted below Nana Ka Pond. Santa Clara Creek headwaters was inventoried to identify springs, seeps, and ponds before October 2010 chemical treatment. Rotenone & Antimycin NCTC course was hosted by Santa Clara Pueblo; 13 tribal and 6 non-tribal individuals participated. *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 nonative trout and constructed 20 pool habitats in a one mile reach. Participated in council meetings to designate entire headwaters as RGCT. Assited 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

Number of aquatic outreach and education activities and/or events (FWMA)	1
Number of training session to support Tribal fish & wildlife conservation	4
Number of consultations conducted to support Tribal fish & wildlife conservation	4
Number of School Curriculum activities and/or events targeting children only	1

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. Results from genetic analysis have concluded the Santa Clara Creek population was hybridized with rainbow trout. Santa Clara Pueblo and NMDGF are developing a MOU and in the process of finalizing the document. The NMDGF would supply pure RGCT to the Pueblo.

Pictures



Caption:

Spillway at Tsikumuu Pond

Credit:

Chris Kitcheyan, USFWS-NMFWCO

Description:

Spillway structure at Tsikumuu Pond which is scheduled to be renovatted/repared to prevent the upstream movement of non-native salmonid into the future site which will be occupied by RGCT.



Caption:

Tsikumuu Pond

Credit:

Chris Kitcheyan, USFWS-NMFWCO

Description:

As part of the RGCT restoration project on Santa Clara Pueblo, Tsikumuu Pond was drained in October 2009 to allow contractors to begin construction work on the spillway to prevent the upstream movement of non-native salmonids.



**U.S. Department of the Interior
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**Fisheries and Aquatic Resource Conservation
New Mexico Fish and Wildlife Conservation Office**

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