

# RECLAMATION

*Managing Water in the West*

## Calendar Year 2009 Report to the Pecos River Commission

---

**NEW MEXICO**

James D. Renfrow

**TEXAS**

Julian W. Thrasher, Jr.

---

**FEDERAL CHAIRMAN**

Vacant

---



Department of the Interior  
Bureau of Reclamation  
Upper Colorado Region  
Albuquerque, New Mexico

February 2010

## MISSION STATEMENTS

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

# RECLAMATION

*Managing Water in the West*

## **Calendar Year 2009 Report to the Pecos River Commission**

Department of the Interior



Bureau of Reclamation  
Upper Colorado Region  
Albuquerque, New Mexico

February 2010

*Information contained in this document regarding commercial products or firms may not be used for advertising or promotional purposes and is not an endorsement of any product or firm by the Bureau of Reclamation.*

*The information contained in this document was developed for the Bureau of Reclamation; no warranty as to the accuracy, usefulness, or completeness is expressed or implied.*

## Table of Contents

List of Figures.....	iii
List of Tables.....	iii
Introduction .....	1
Pecos Basin Water Accounting .....	1
Carlsbad Project Operations .....	3
Crop Production.....	3
Reservoir Storage Entitlements .....	3
Santa Rosa Reservoir Sediment Accumulation .....	5
Sumner Reservoir Sediment Accumulation.....	6
Brantley Reservoir Sediment Accumulation .....	7
Sumner Dam and Reservoir .....	8
Sumner Dam Operations .....	8
Sumner Dam Facility Review and Safety of Dams Programs .....	10
Brantley Dam and Reservoir.....	11
Brantley Dam Facility Review and Safety of Dams Programs.....	12
Avalon Dam and Reservoir.....	12
Avalon Dam Facility Review and Safety of Dams Programs.....	13
Carlsbad Project Environmental Compliance .....	14
Endangered Species Program for Water Operations.....	14
Pecos Bluntnose Shiner.....	14
Bitter Lake National Wildlife Refuge (BLNWR) Restoration Project .....	15
Interior Least Tern.....	15

National Environmental Policy Act (NEPA) Activities.....	15
Pecos River Channel Restoration at Bitter Lakes National Wildlife Refuge Environmental Assessment.....	15
Pecos Supplemental Water Environmental Assessment .....	16
Pecos River Basin Water Salvage Project .....	18
Carlsbad Project Vegetation Management Program.....	18
Fort Sumner Project.....	20
Crop Production.....	20
Operations.....	20
Fort Sumner Irrigation District Review of Operation and Maintenance .....	21
Other Pecos River Activities and Operations .....	22
Vaughan Pipeline.....	22
Reclamation’s Water Offset Program .....	22
Carlsbad Irrigation District Water Lease Program.....	23
Pecos River Settlement Implementation.....	23
Pecos River Basin General Stream Adjudication.....	23
Water 2025 .....	24
Emergency Drought Relief Program.....	25

## List of Figures

Figure 1 Project Map of Reclamation's Albuquerque Area Office.....	2
Figure 2 Area map of the Carlsbad Project.....	3
Figure 3 Release and Storage for Sumner Reservoir .....	10
Figure 4 Release and Storage for Brantley Reservoir.....	12
Figure 5 CID Main Canal Diversions .....	13
Figure 6 FSID Main Canal Diversion (data from USGS web site 2/18/2010) .....	20

## List of Tables

Table 1 Pecos River Reservoir Storage Entitlements for 2009.....	4
Table 2 Estimated Sediment Accumulation for 2009 Santa Rosa Storage Entitlement .....	5
Table 3 Estimated Sediment Accumulation for 2009 Sumner Storage Entitlements .....	6
Table 4 Estimated Sediment Accumulation for 2009 Brantley Storage Entitlement .....	7
Table 5 Pecos bluntnose shiner two year catch rate .....	14

## Introduction

The Albuquerque Area Office (AAO) of the Bureau of Reclamation (Reclamation) was responsible for operation, maintenance, and oversight of three projects on the Pecos River. These projects were the *Carlsbad Project*, which includes Sumner, Brantley, and Avalon Dams; the *Pecos River Basin Water Salvage Project*; and the *Fort Sumner Project*, which includes the Fort Sumner Diversion Dam. Figure 1 depicts the general location of Reclamation's Projects under the Albuquerque Area Office's jurisdiction.

Reclamation prepared this Annual Report to the Pecos River Compact Commissioners to convey all reporting requirement information on the three projects mentioned above, as well as inform the Commission of proposed changes in programs and management activities and strategies that may affect operations, operating conditions, and/or the Compact, including Endangered Species Act (ESA) issues.

Reclamation's Carlsbad Field Office reported to the Albuquerque Area Office's Facilities and Lands Division. An agreement between Reclamation and Carlsbad Irrigation District (CID), finalized on October 2, 1989, provided for the CID to operate and maintain Brantley Dam, Avalon Dam, Sumner Dam, and the Pecos River Water Salvage Project. Reclamation continued to be responsible for assuring that this work is accomplished in compliance with all applicable agreements, contracts, regulations, compacts, and other related laws.

Reclamation had a Resource Management Planner working in support of the Bureau of Land Management (BLM) in BLM's Carlsbad Field Office as lead for Reclamation in the implementation of Section 365 of the Energy Policy Act of 2005 Pilot Project. This position coordinated with and assisted BLM to identify efficiencies in processing oil and gas leasing and development activities.

The gage data used within this report is provisional and downloaded from the United States Geological Service (USGS) web page, <http://waterdata.usgs.gov/nm/nwis/dv>. The dam tender recorded and reported, to Reclamation on a monthly basis, the provisional reservoir elevation data.

## Pecos Basin Water Accounting

Reclamation and the State of New Mexico Interstate Stream Commission (NMISC) have concluded negotiation on a 5-year Depletions Agreement for ESA water use (2006-2012) and produced a final Pecos River Annual Accounting User's Manual.

Reclamation intends to construct an accounting model for the Pecos Basin, based on RiverWare®, as a tool for water management and accounting. Reclamation may eventually propose this management and accounting model as a replacement for the spreadsheet accounting detailed in the Depletions Agreement.

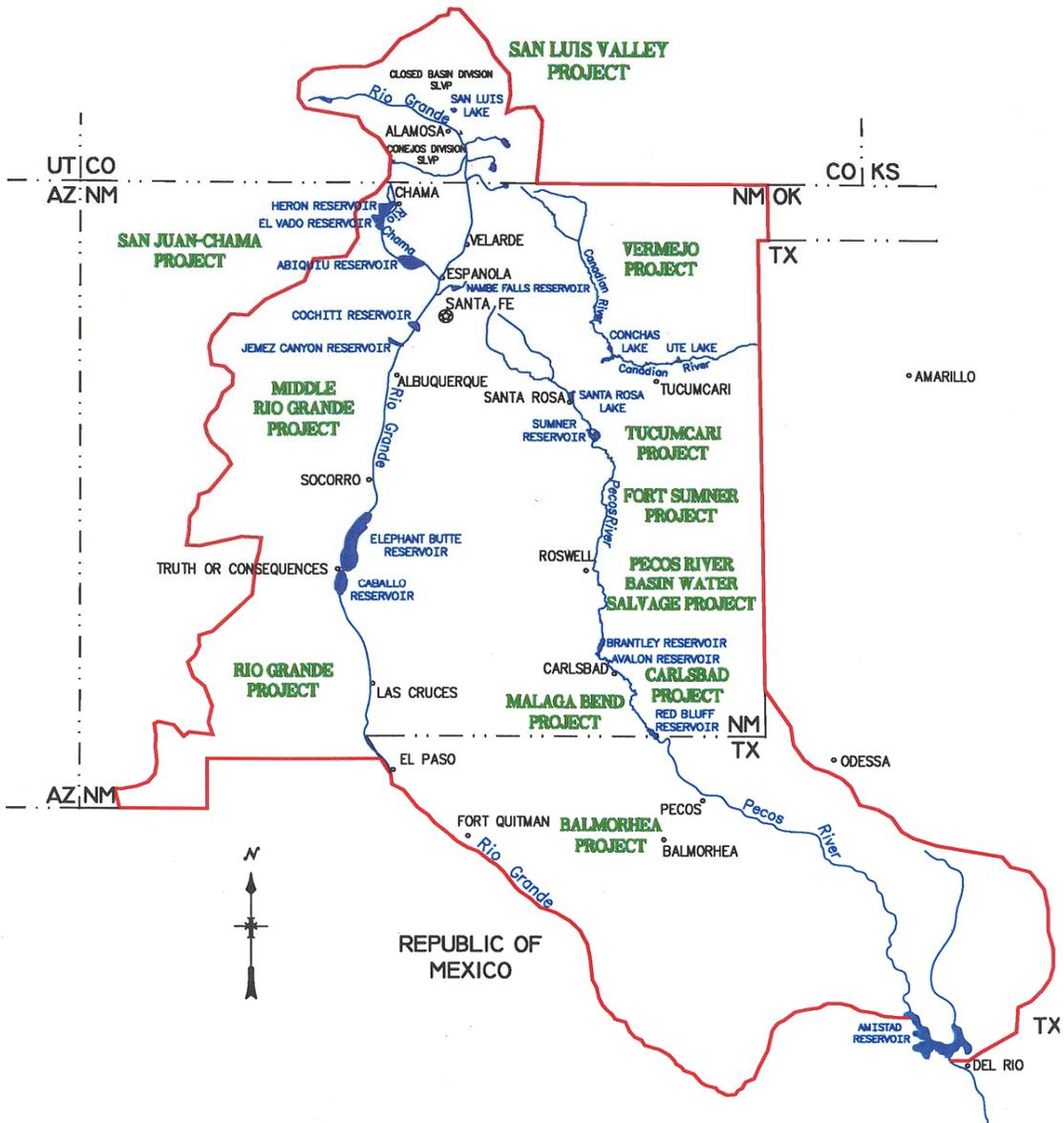


Figure 1 Project Map of Reclamation's Albuquerque Area Office

## Carlsbad Project Operations

### Crop Production

The Bureau of Reclamation terminated collection of crop census data; as such, Reclamation will no longer have the ability to report this data on the Carlsbad Project.

### Reservoir Storage Entitlements

Reclamation operated all Carlsbad Project reservoirs in accordance with the requirements of the Pecos River Compact and U.S. Army Corps of Engineers' (Corps) flood control criteria. Figure 2 depicts the location of the Carlsbad Project Storage Dams on the Pecos River.

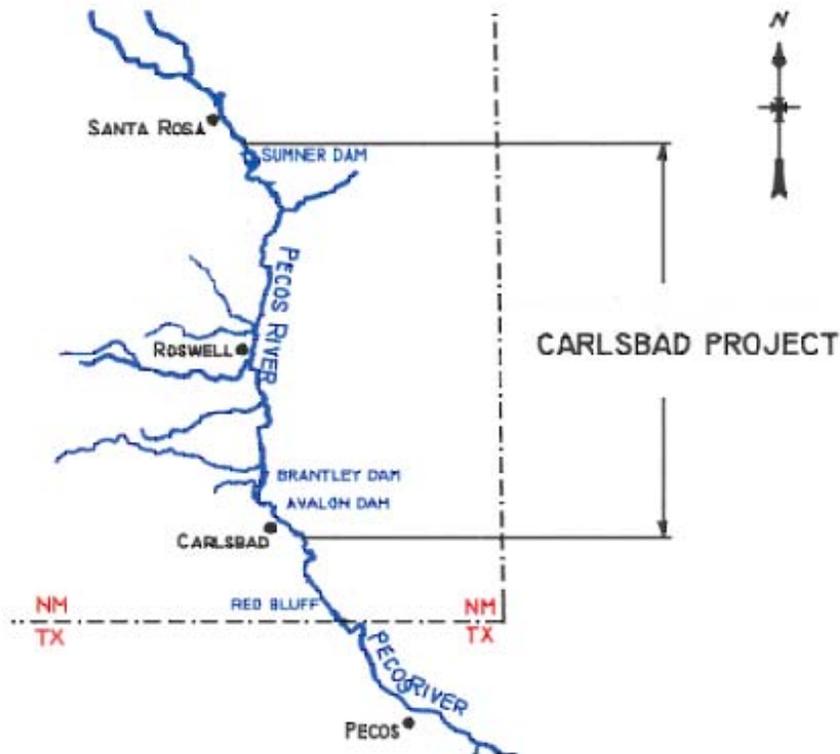


Figure 2 Area map of the Carlsbad Project

The Corps determined area and capacity tables for Santa Rosa Reservoir. Reclamation calculated annual total conservation storage entitlements for the Pecos River reservoirs that are in New Mexico. Table 1 presents the calendar year 2009 storage entitlements for the four Pecos River Reservoirs.

Operation of the dams on the Pecos River was a joint effort between Reclamation, CID, and the Corps in coordination with the Fort Sumner Irrigation District (FSID) and the State of New Mexico. The Corps has flood control responsibilities at Sumner Dam when the reservoir gets into the exclusive flood control pool (elevation 4262.88 to 4283.88 feet (ft) from May 1 through October 31, and 4269.16 to 4283.88 ft from November 1 through April 30). The Corps has flood control responsibilities at Brantley Dam when the reservoir elevation is above 3271.00 ft up to 3283.00 ft. Elevations referenced the North American Vertical Datum (NAVD 29).

The 2009 start-of-year total Carlsbad Project conservation storage in the four Pecos River reservoirs (Santa Rosa, Sumner, Brantley and Avalon) was 40 percent of entitlement. Santa Rosa, Sumner, Brantley and Avalon reservoirs on the Pecos River were at approximately 33, 47, 46, and 57 percent, respectively, of each reservoir’s entitled conservation storage. The March 1, 2009 most probable forecasted snowmelt runoff inflow into Santa Rosa Reservoir was approximately 40,000 acre-feet (af) or 76 percent of the 30-year average.

Table 1 Pecos River Reservoir Storage Entitlements for 2009

Reservoir	Entitlement Storage (af)	Minimum Pool (af)	Total Estimated Sediment Accumulation	Total Conservation Storage (af)	Conservation Elevation (feet)
Santa Rosa	<b>92,558</b>	0	4,808	97,366	4745.08
Sumner	<b>40,076</b>	2,500	350	42,926	4,262.88 (NAVD88)
Brantley	<b>40,000</b>	2,000	1,384	43,384	3,256.36 (NAVD 88)
Avalon	<b>3,866</b>	600	0	4,466	3,117.35
<b>TOTAL:</b>	<b>176,500</b>				

The actual March through July 2009 inflow to Santa Rosa Reservoir was approximately 35,582 af, 67 percent of the 30-year average. On December 31, 2009, the total Carlsbad Project entitlement storage in the four Pecos reservoirs was 37 percent of entitlement. Santa Rosa, Sumner, Brantley and Avalon reservoirs were at approximately 26, 59, 39 and 59 percent, respectively, of each reservoir’s entitlement storage.

**Santa Rosa Reservoir Sediment Accumulation**

The Corps made the sediment accumulation calculations for Santa Rosa Reservoir. In 1996, the Corps performed the most recent sediment survey. The area-capacity table was retroactive to January 1, 1997. Table 2 is an annual tabulation of estimated deposition since January 1, 1997. The estimated sediment deposition since the last sediment survey was 4,808 af.

Table 2 Estimated Sediment Accumulation for 2009 Santa Rosa Storage Entitlement

<b>Calendar Year</b>	<b>Sediment Accumulation (af)</b>
1997	760
1998	475
1999	532
2000	537
2001	327
2002	89
2003	81
2004	341
2005	711
2006	375
2007	264
2008	316
<b>Total</b>	<b>4808</b>

### Sumner Reservoir Sediment Accumulation

The basis of the estimated sediment accumulation calculations for Sumner Reservoir was the ratio of total sediment deposition to total inflow during the period between the May 1989 and May 2001 sediment surveys. The USGS gage, Pecos River near Puerto De Luna, NM, (PDL) was used to measure inflow to Sumner Reservoir. The total sediment deposition during this period was the difference in contents between 1989 and 2001 surveys at the top of conservation pool, elevation 4,262.88 feet (NAVD 88 vertical datum, 4261.00 feet previous local area-capacity vertical datum). The total sediment deposition divided by the total inflow obtained an average ratio of sediment deposition to inflow during this period. Multiplying this ratio by the calendar year inflow estimated sediment deposition after the 2001 survey. Table 3 shows an annual tabulation of the inflow and estimated sediment accumulation since June 1, 2001. The estimated sediment deposition since the last sediment survey was 350 af.

Table 3 Estimated Sediment Accumulation for 2009 Sumner Storage Entitlements

<b>Calendar Year</b>	<b>Inflow (af)</b>	<b>Sediment Accumulation (af)</b>
6-12/2001	68,140	29
2002	74,938	31
2003	77,328	32
2004	110,815	47
2005	121,739	51
2006	123,937	52
2007	120,331	51
2008	135,665	57
<b>Total</b>		<b>350</b>

### Brantley Reservoir Sediment Accumulation

The basis of the estimated sediment accumulation calculations for Brantley Reservoir was the ratio of total sediment deposition to total inflow during the period between the September 1988 and May 2001 sediment surveys. The USGS gage, Pecos River near Lakewood, NM, (Kaiser Channel) was used to measure inflow to Brantley Reservoir. The total sediment deposition during this period was the difference in contents between 1988 and 2001 surveys at the top of the designated conservation pool, elevation 3,272.69 feet (NAVD 88 vertical datum, 3271.00 feet previous local area-capacity vertical datum). The total sediment deposition divided by the total inflow obtained an average ratio of sediment deposition to inflow during this period. This ratio multiplied by the calendar year inflow estimated the sediment deposition after the 2001 survey. Table 4 shows estimated inflow and sediment accumulation since June 1, 2001. The estimated sediment deposition since the last sediment survey was 1,384 af.

Table 4 Estimated Sediment Accumulation for 2009 Brantley Storage Entitlement

<b>Calendar Year</b>	<b>Inflow (af)</b>	<b>Sediment Accumulation (af)</b>
6-12/2001	28,124	50
2002	77,850	139
2003	54,828	98
2004	140,612	250
2005	130,068	232
2006	125,889	224
2007	106,655	190
2008	112,752	201
<b>Total</b>		<b>1384</b>

## Sumner Dam and Reservoir

### Sumner Dam Operations

The operation of Sumner Dam diverted, to storage, the available natural inflow above FSID's allotted direct diversion water right, when bypassing this water was not required to meet the 35 cubic feet per second (cfs) target at the USGS gage Pecos River below Taiban Creek near Fort Sumner, or to maintain continuous flow in the river. FSID had a direct diversion right of up to 100 cfs of the natural inflow above Sumner Reservoir as calculated (2-week average inflow calculation) by the New Mexico Office of the State Engineer.

Releases of stored Carlsbad Project water occurred as block releases for CID. The duration of block releases was restricted to a maximum of 15 contiguous days, and the cumulative annual duration of all block releases was restricted to a maximum of 65 days. Scheduled block releases were not less than 14 days between releases and block releases avoided the six-week period around August 1. These restrictions were in accordance with the 10-year Biological Opinion (10-year BO) (2006-2016, Cons. #22420-2006-F0096) implemented in 2006. CID scheduled block releases in cooperation with Reclamation to alleviate river intermittency as long as this scheduling does not constitute a wasteful use of water due to excessive net losses accrued during transit, or due to excessively high net downstream reservoir evaporation. Reclamation directed CID dam tender on gate adjustments and CID was responsible for all maintenance activities. This operating procedure did not alter the normal operations of Avalon and Brantley Reservoirs for delivering water to CID.

Under a water right permit granted by the State of New Mexico, the Carlsbad Project was allowed to store up to an additional 20,000 af in Sumner Reservoir from November 1 to April 30 each year, provided that the entitled conservation storage of all four reservoirs on the Pecos River in New Mexico did not exceed 176,500 af. No additional storage under this water right permit occurred in 2009.

During 2009, Reclamation stored 1,000 af in Sumner Reservoir to provide releases to achieve target flows at the Taiban gage and avoid intermittency in the river. Reclamation replaced the water released out of Sumner Reservoir with 750 af of water pumped directly into Brantley Reservoir.

On August 6, 2009, Reclamation and the CID signed a Water Supply Management agreement, which allowed greater flexibility for releasing water acquired for ESA compliance. On August 21, 2009, FSID and Reclamation signed a forbearance agreement in which FSID agreed to forbear up to 2500 acre-ft of its right to be stored under the Carlsbad Project right in Sumner Reservoir. The agreements retroactively allowed for water forborne in June and July. Reclamation stored 59 af, 1,827 af, and 614 af, in June, July, and September, respectively.

Sumner Reservoir began the year with 18,891 af in total storage. An early spring peak total storage of 24,518 af occurred on February 26 prior to the reservoir being drawn down by block releases for the Carlsbad Project and evaporation. Sumner Reservoir's lowest total storage occurred on June 23, after the reservoir was drawn down to 7,764 af prior to the start of the second block release. Sumner Reservoir ended the year with 23,501 af in storage.

Three block releases occurred during the 2009 calendar year. The first block release was initiated on March 18 and terminated on March 25 at a rate 1,500 cfs, for a total release of approximately 18,181 af. The second block release occurred on June 22 through July 1 when approximately 19,576 af was released at 1,524 cfs. The third and final block release for 2009 occurred from September 9 through September 14 at the rate of approximately 1,485 cfs for a total release of 13,989 af.

On December 19, 2008, Reclamation initiated non-irrigation season ESA-related bypasses for the 2008-2009 winter season following the release of the remaining Fish Conservation Pool water. Figure 3 illustrates Sumner Dam's total storage, bypasses, and releases. A total of 2,140 af were bypassed for ESA related purposes during the non-irrigation season between January 1 and February 26 at an average rate of 12 cfs. During the irrigation season, which runs from March 1 through October 31, a total of approximately 4,491 af were released from the Fish Conservation Pool and bypasses, 836 af and 3,655 af, respectively for ESA related purposes. During the non-irrigation season, between November 1 and December 31, 1,612 af was released for ESA purposes, 163 af from the Fish Conservation Pool and 1,449 af from the FSID forborne water.

The section on Reclamation's water offset program discusses the effects of these modified operations on the Carlsbad Project. Reclamation leased water from river pumpers and the Hagerman Irrigation Company to replace the depletions associated with the modified operations.

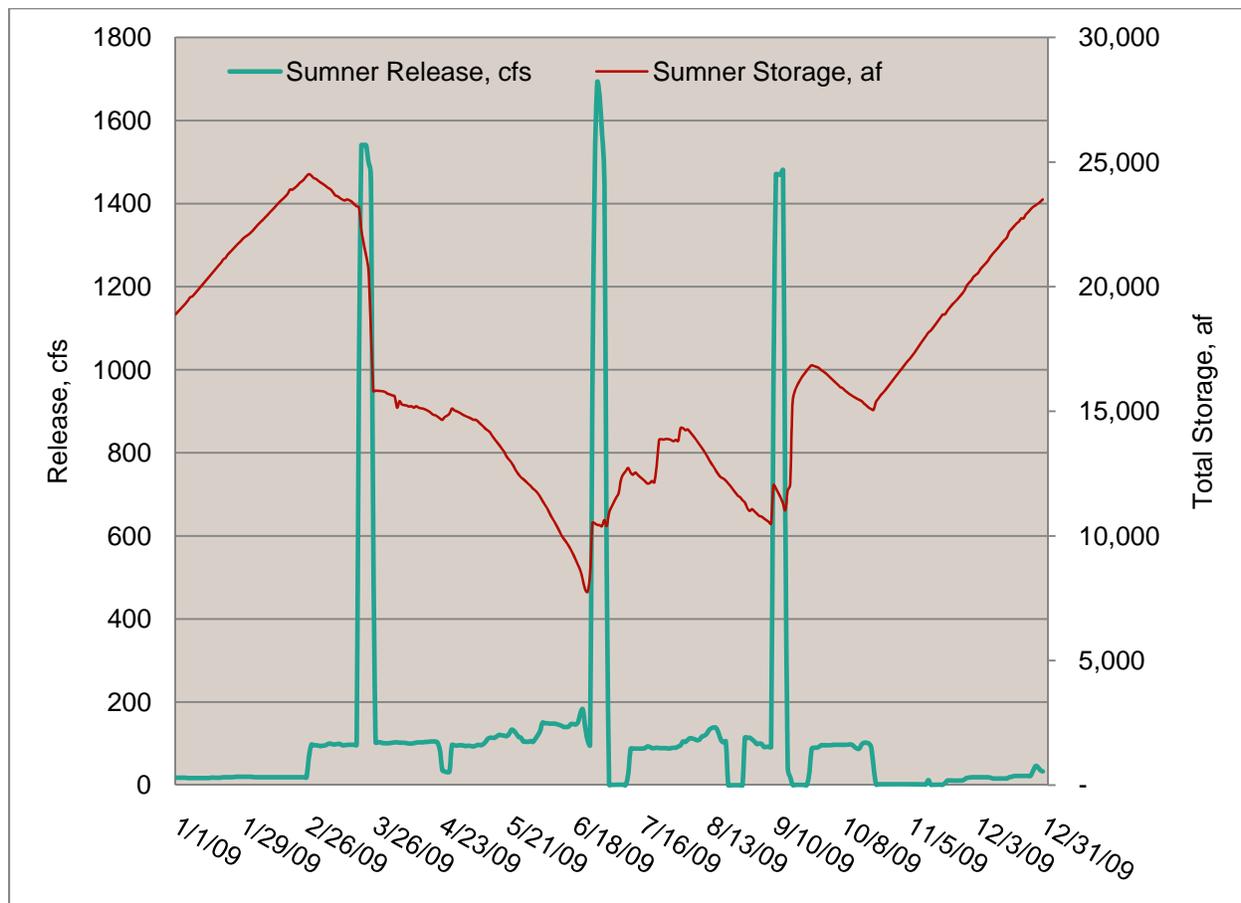


Figure 3 Release and Storage for Sumner Reservoir

### Sumner Dam Facility Review and Safety of Dams Programs

All three radial gates at Sumner Dam, with a total design capacity of up to 56,000 cfs, are in need of repairs. CID is responsible for the repairs and for 68.36% of the cost and Reclamation is responsible for 31.64% of the cost. AAO has helped CID to prepare for this project by providing information regarding; planning, designs, schedules, cost estimates and environmental issues. The following portions of this recommendation were completed in 2009:

- a. Sealed the openings of the weir wall upstream of the radial gates. This will keep water off the spillway gates and from leaking past the gates and onto the concrete spillway chute for a greater period of the year particularly during the winter months. This should reduce deterioration of the gates and concrete spillway chute.
- b. Sandblasted, primed with a nickel alloy, and painted the lower 9 feet of the upstream face of all three gates.
- c. Cleaned the downstream side of the three radial gates and drilled weep holes.

CID plans to complete the remaining work on the radial gates on an annual basis and should finish the entire rehabilitation by 2012.

Sumner Dam Standing Operating Procedures (SOP) were revised in 2007. The Emergency Action Plan (EAP) was permanently removed from the SOP and was completely revised in 2008. The Sumner Dam Annual Facility Review (examination) was completed in April 2009 and the report was completed in June 2009. There were three incomplete and four completed recommendations in 2009.

## **Brantley Dam and Reservoir**

During periods without irrigation releases, Brantley Dam bypasses mitigation flows of 20 cfs. During the irrigation season (normally March through October), releases are made from Brantley Dam to Avalon Reservoir at the rate necessary to support the diversion into CID's main canal, generally between 75 and 350 cfs, as required by irrigation demand. Figure 4 depicts Brantley Dam's total storage, bypasses, and releases.

The Corps has flood operation responsibility once the reservoir rises into the flood pool, identified to begin at elevation 3271.00 ft (NAVD 29) in the Corp's Water Control Manual for Brantley Dam. The top of the conservation or entitlement pool for Brantley Reservoir calculated to be elevation 3254.61 (NAVD 29) as stated in the 2009 Pecos River Storage Entitlements. Therefore, Reclamation was responsible for control and operations until elevation 3271.00 (NAVD 29) is reached, regardless of the conservation elevation in the respective year, at which point the Corps assume operational responsibility.

Brantley Reservoir began the year with a total storage of 18,599 af. Irrigation releases from Brantley commenced on March 25, then stopped, and started as needed to meet demand and to conserve water. The final irrigation release from Brantley Reservoir occurred on October 27. Approximately 65,360 af were released from Brantley for irrigation during this period. Brantley Reservoir reached a maximum total storage of 29,834 af on April 1, 2009. The lowest total storage occurred on June 20 with a volume of 10,262 af. Brantley Reservoir ended the year with a total storage of 15,533 af.

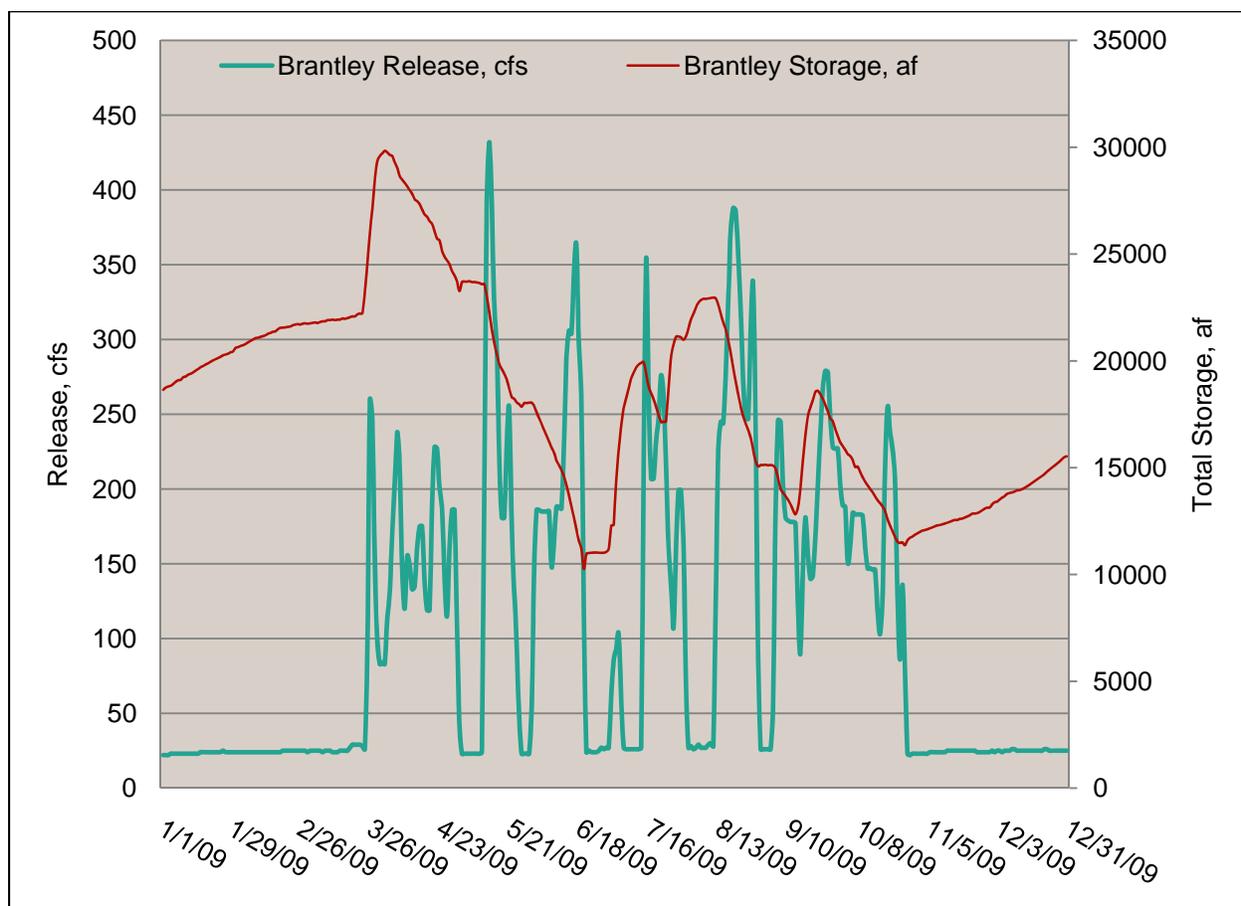


Figure 4 Release and Storage for Brantley Reservoir

### Brantley Dam Facility Review and Safety of Dams Programs

The Brantley Dam EAP was permanently removed from the SOP in 2008 and the SOP was completely revised in 2009. The Brantley Dam Annual Facility Review (examination) was completed in April 2009 and the report was completed in June 2009. There were three incomplete and three completed recommendations in 2009.

Sinkholes exist upstream and downstream on the left side of Brantley Dam. The sinkholes were visually monitored on a regular basis and are surveyed only if there seems to be any change in the amount of sinkholes or size of existing sinkholes. The latest survey was completed on May 10, 2005. A sinkhole survey was scheduled for 2010, but the sinkholes are currently not a structural threat to the facility.

### Avalon Dam and Reservoir

Due to the small reservoir capacity and the location of Brantley Dam 10 miles upstream, Avalon Dam was used primarily as a diversion dam to meet irrigation demand for CID. Water released from Brantley Dam and the small reservoir at Avalon was used to fine-tune the

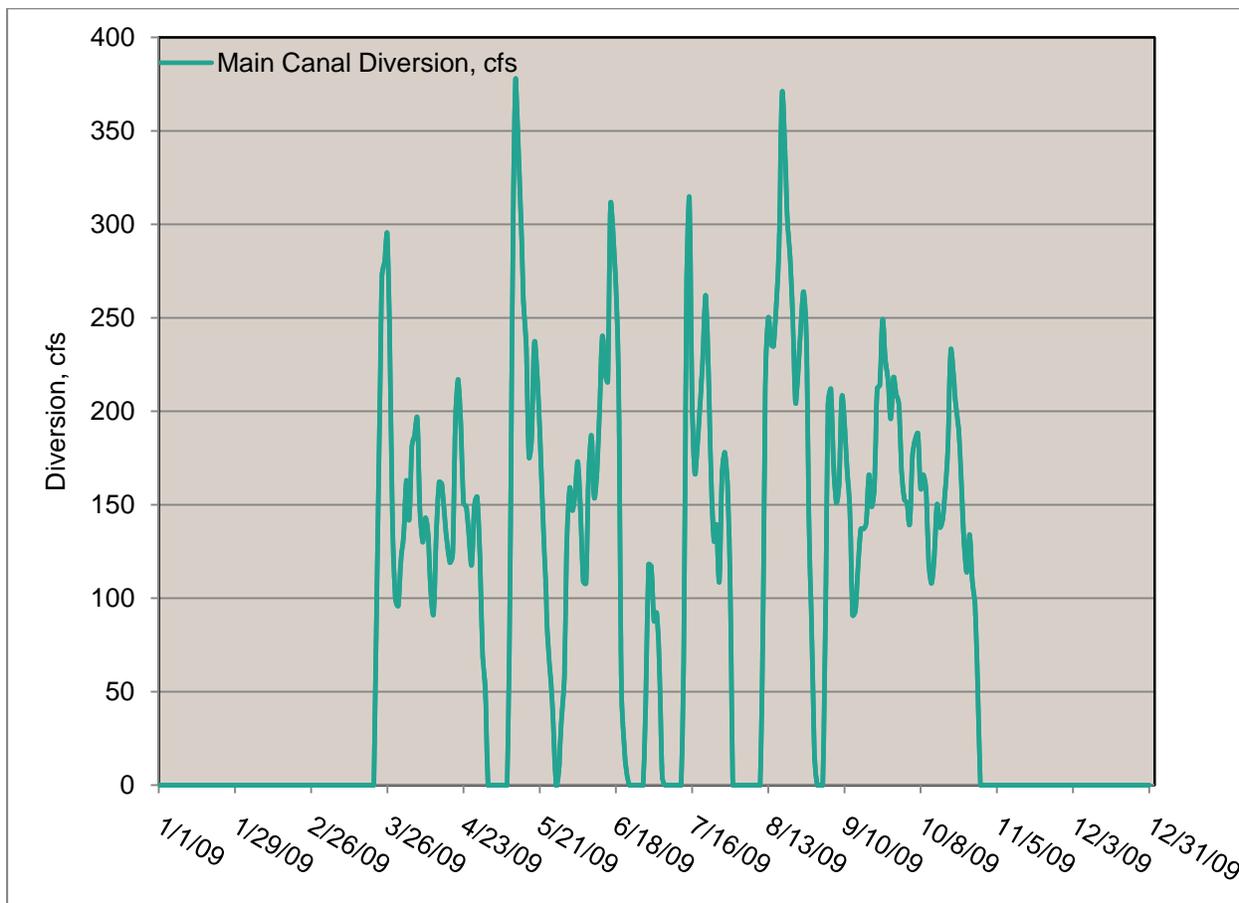


Figure 5 CID Main Canal Diversions

releases into the CID Main Canal. Avalon Reservoir began the year with 2,204 af and ended the year with 2,275 af.

Diversions into the CID Main Canal began on March 22 and ended on October 29 delivering a total of 61,667 af. Figure 5 displays the diversions of CID.

### **Avalon Dam Facility Review and Safety of Dams Programs**

The Avalon Dam EAP was permanently removed from the SOP in 2008 and the SOP was completely revised in 2008. The Avalon Dam Annual Facility Review (examination) was completed in April 2009 and the report was completed in June 2009. There were six incomplete and zero completed recommendations in 2009.

## Carlsbad Project Environmental Compliance

### Endangered Species Program for Water Operations

#### Pecos Bluntnose Shiner

For the third year, Reclamation monitored flows under the 10-year BO implemented in August 2006. The 10-year BO and EIS committed Reclamation to operate the Carlsbad Project with a target flow of 35 cfs at the Taiban Gage and to keep the river continuous in order to conserve the federally protected shiners. In addition to providing adequate water to keep the river continuous, the purpose of the project was to meet the contracted irrigation needs of the Carlsbad Project, to avoid hindering New Mexico delivery requirements to Texas, and to establish partnerships in the basin. Flows remained continuous throughout the 2009 calendar year on the Pecos River between Santa Rosa Dam and Avalon Reservoir, a distance of nearly 300 miles.

Reclamation received an annual update on the Status of the Pecos bluntnose shiner (shiners) from the US Fish and Wildlife Service (USFWS). Cumulative catch-rate in 2009 was higher ( $20.4 \pm 2.1$  fish/100 m<sup>2</sup> SE) than in 2008 ( $11.6 \pm 2.6$  m<sup>2</sup> fish/100 m<sup>2</sup> SE), and cumulative percent abundance was also higher ( $13.6 \pm 1.1\%$  SE) than in 2008 ( $9.8 \pm 1.1\%$  SE). Shiner catch-rate and percent abundance were highest in May ( $44.5 \pm 9.2$  fish/100 m<sup>2</sup> SE and  $23.3 \pm 14.0\%$  SE respectively). Catch rate was lowest in February ( $6.4 \pm 2.6$  fish/100 m<sup>2</sup> SE) and percent abundance was lowest in December ( $4.7 \pm 1.9\%$  SE). Shiners have not been collected at either of the sites in the tailwater section below Sumner Dam near Ft. Sumner since 1999. Catch-rates were well above the density thresholds set by the 10-year BO for 2009 (Table 5) (from USFWS draft report). The Biological Opinion stated that take would be exceeded if density fell below 3.5 shiners per 100 m<sup>2</sup> in Trimester 1 and 5 shiners per 100 m<sup>2</sup> in Trimester 3. Density targets increase in 2010 for Trimester 3 to 8 shiners per 100 m<sup>2</sup>.

Table 5 Pecos bluntnose shiner two year catch rate

Pecos bluntnose shiner two year catch-rate mean with standard error, and number of samples (N) 2006-2009. Standard error is not required under the 10 year Biological Opinion, but provided to illustrate variation. Two year running average calculated from site means for the year stated and preceding year (for example in 2006, by calculating mean from all sites for trimester one in 2005 and 2006; same for trimester three).			
Year	Trimester one PBS/100 m <sup>2</sup>	Trimester three PBS/100 m <sup>2</sup>	BO Thresholds Any trimester
2006	<b>3.5</b> ( $\pm 0.75$ SE, N = 48)	<b>5.3</b> ( $\pm 0.90$ SE, N = 48)	> 2.7 (2.5)
2007	<b>5.0</b> ( $\pm 0.8$ SE, N = 53)	<b>9.8</b> ( $\pm 1.8$ SE, N = 50)	> 4.0 (2.5)
2008	<b>7.2</b> ( $\pm 1.3$ SE, N= 62)	<b>14.3</b> ( $\pm 4.5$ SE, N= 59)	> 9.8 (2.5)
2009	<b>11.9</b> ( $\pm 1.9$ SE, N= 64)	<b>17.4</b> ( $\pm 3.8$ SE, N= 73)	>15.2 (2.5)

## **Bitter Lake National Wildlife Refuge (BLNWR) Restoration Project**

In cooperation with USFWS, Reclamation restored flow to 1.5 miles of cutoff oxbow in Bitter Lakes National Wildlife Refuge to improve habitat for the shiners, thus potentially improving population status. Restoration of Oxbow 4 is a part of a larger effort to restore several oxbows above and adjacent to this oxbow that have been cut off by natural fluvial processes. Currently, Reclamation is working to contract out a re-vegetation project for the restored area using American Recovery and Reinvestment Act funds.

Flow was returned to the oxbow in September 2009. Initial surveys indicate that the shiners were present in the restored habitat (S. Davenport pers. comm.). Monitoring of the restored habitat will be initiated in 2010.

### **Interior Least Tern**

The 10-year BO included coverage for the Interior Least Tern, which was discovered nesting in 2004 at Brantley Reservoir. Although several adults and a juvenile were observed during the summer of 2009, no nesting was documented. It is likely that the juvenile observed on July 24 fledged outside of the immediate area – possibly Bitter Lakes NWR. To the best of our knowledge, there was no incidental take of tern nests during the summer of 2009. A complete 2009 report is in preparation.

In August 2009, a floating platform was deployed in Brantley Reservoir to create an area for terns to nest that would not be affected by reservoir level changes. The platform broke into several segments and became a navigation hazard so it was removed in February 2010. Reclamation biologists are currently working with the USFWS and the New Mexico Department of Game and Fish to develop solutions to allow for successful tern nesting and to avoid incidental take of terns in the future.

## **National Environmental Policy Act (NEPA) Activities**

Two EAs were tiered off the Carlsbad Project Water Operations and Water Supply Conservation Environmental Impact Statement (EIS): **(1)** the Pecos River Restoration at Bitter Lake National Wildlife Refuge EA to meet RPM #1 in the 10-year BO and **(2)** the Pecos River Supplemental Water EA to meet ESA requirements (see below).

### **Pecos River Channel Restoration at Bitter Lakes National Wildlife Refuge Environmental Assessment**

One of the provisions of the 10-year BO was for Reclamation to partner with Federal, state, and private entities to participate and assist in the completion of ongoing habitat improvement projects on the Pecos River and to restore 1-1.5 miles of quality habitat within the Farmlands reach by 2009 and another 1-1.5 miles by 2014. According to the BO, activities that restore and

optimize the interaction of river channel and floodplain habitats with available flows will be most successful in mitigating the observed displacement of shiner eggs. The reach that would provide the most benefit for the shiner is from the BLNWR south to Hagerman where flows are perennial due to inflow from the Roswell Basin and habitat is degraded. River restoration at Bitter Lake Wildlife Refuge to create fish habitat for the Pecos bluntnose shiner (project) was identified as a project to comply with the 10-year BO.

Reclamation prepared an EA for the project that was entirely within the boundaries of the Bitter Lake National Wildlife Refuge (BLNWR) near Roswell, New Mexico, managed by FWS. The intention was to improve riparian and in-channel habitat, extending the reach of connected good quality habitat for the benefit of native aquatic and riparian plant and animal communities. The project included plugging and diverting the river into a historic oxbow (Oxbow 4) in Reach 4, excavating a meandering channel within the oxbow (12 feet wide at the base and 44 feet wide at the top), removing nonnative vegetation, lowering banks, and future re-vegetation of the area (scheduled to be complete September 2010). The reconnected channel replaced approximately 3,000 feet of the current channel with approximately 8,200 feet of channel in the historic oxbow. Reclamation anticipated 179 acres of reconnected floodplain. A variety of restoration techniques were used such as removing vegetation, lowering banks, changing the channel morphology, and restoring flow into historic meanders. Long-term minor to moderate expected beneficial effects from this restoration were on shiner reproduction, recruitment rates, and survival at all of its life stages.

The Finding of No Significant Impact (FONSI) was signed January 30, 2009 and is posted at <http://www.usbr.gov/uc/albuq/index.html>.

## **Pecos Supplemental Water Environmental Assessment**

Reclamation proposed to obtain supplemental water to provide the operational ability to release approximately 2,500 af of water out of Sumner Lake per year to keep the river continuous, while also ensuring that there is enough water at Brantley Reservoir to meet the contracted irrigation needs of the Carlsbad Project. The project was needed to comply with the flow requirements of the 10-year BO. The EA was finalized and the FONSI signed August 14, 2009.

Reclamation acquired supplemental water, and entered into agreements with FSID and CID to provide the operational ability to release water out of Sumner Lake and/or Santa Rosa Reservoir. The primary supplemental water source would be through a ten-year contract agreement between Reclamation and FSID. Under the contract, FSID would provide 25,000 af of water to Reclamation over a 10-year period. If 25,000 af are not delivered within the 10-year period, then the agreement would be extended for enough time to provide the full delivery. While there are no fixed minimum annual amounts that FSID would have to provide, it is expected that FSID would annually provide up to 2,500 af of water to Reclamation. Any water provided by FSID to

Reclamation under the contract and not release by January 1 of the subsequent year will be treated as Carlsbad Project water and made available for block release.

## **Pecos River Basin Water Salvage Project**

Under the authority of Public Law 88-594, Reclamation continues to control salt cedar growth from the Sumner Dam area to the New Mexico-Texas state line. This excludes the area between the Artesia bridge and north boundary of Reclamation's Brantley lands. Reclamation contracts with the CID to perform the mechanical removal work. Salt cedar removal is primarily accomplished utilizing rubber-tire tractors with root plows, and caterpillars with rake attachments.

Pecos River lands cleared in New Mexico total approximately 33,200 acres. Federal lands in the program make up about 36 percent of the cleared areas, and private lands make up about 64 percent.

The original authorizing legislation allowed clearing for approximately 58,000 acres, but was reduced because of litigation brought by the Audubon Society, and the completion of an EIS in 1979. NMISC provided a cost share in 2009 for this activity. NMISC continues to fund Reclamation's involvement in obtaining annual cooperative agency agreements from private landowners for the Pecos River Basin Water Salvage Program.

Although the program did not achieve the original acreage intended, the Water Salvage Project is, to date, the largest and most successful effort to control the growth of salt cedar in the Pecos Valley.

## **Carlsbad Project Vegetation Management Program**

Reclamation completed five-year programmatic environmental /biological assessments for performing research and demonstration using integrated methods (herbicides, biological and mechanical) on saltcedar to determine effective methods of control and rehabilitation while monitoring. Saltcedar, considered a noxious species, detrimentally affects water resources in New Mexico. It spreads rapidly, grows in dense monotypic stands and out-competes native vegetation, potentially transpiring large amounts of water per acre in comparison to native vegetation. The work involved lands within the Carlsbad Project area that include Brantley and Avalon Reservoirs. Proposed work would be located on Reclamation lands within the Carlsbad Project area, called the Research Project area.

Reclamation has participated in the experimental release of beetles for saltcedar control in the Pecos Basin. Release of beetles (*Diorhabda elongate*) began in 2004. Mortality among the released beetles has been high, with only 5 beetles surviving from 2006 into 2007. In 2007, an additional 300 beetles were released at two sites (site A and site B) in the same area as the 2006 release. Two weeks after the release, no adult beetles or egg masses were found at either site, and little if any leaf defoliation was detectable. No beetles were released in 2008 or 2009.

Reclamation, along with other state, federal, and county agencies, meet every six months to review and update on-going research and demonstration projects within the Carlsbad Project area. The most recent meeting was December 2009, in Carlsbad. June 23-24, 2010 are the tentative dates for the next meeting to be held in Carlsbad to review the list of items to be worked as funding permits and for site visits to the field.

## Fort Sumner Project

### Crop Production

Reclamation terminated collection of crop census data; as such, Reclamation will no longer have the ability to report this data on the Fort Sumner Project.

### Operations

The irrigation season for Ft. Sumner District (FSID) typically begins March 1<sup>st</sup> and ends October 31<sup>st</sup>. FSID was also allowed to divert for two, eight-day periods during the winter. This winter right has generally been taken just prior to March 1<sup>st</sup>. This year FSID called for water beginning on February 27 and discontinued irrigation on October 21. During the irrigation season, 87 to 100 cfs was bypassed through Sumner Reservoir depending on Ft. Sumner District's available water right. A total of approximately 38,613 af were diverted into the FSID main canal as recorded by the USGS Fort Sumner Main Canal Near Fort Sumner, NM gage, shown in Figure 6.

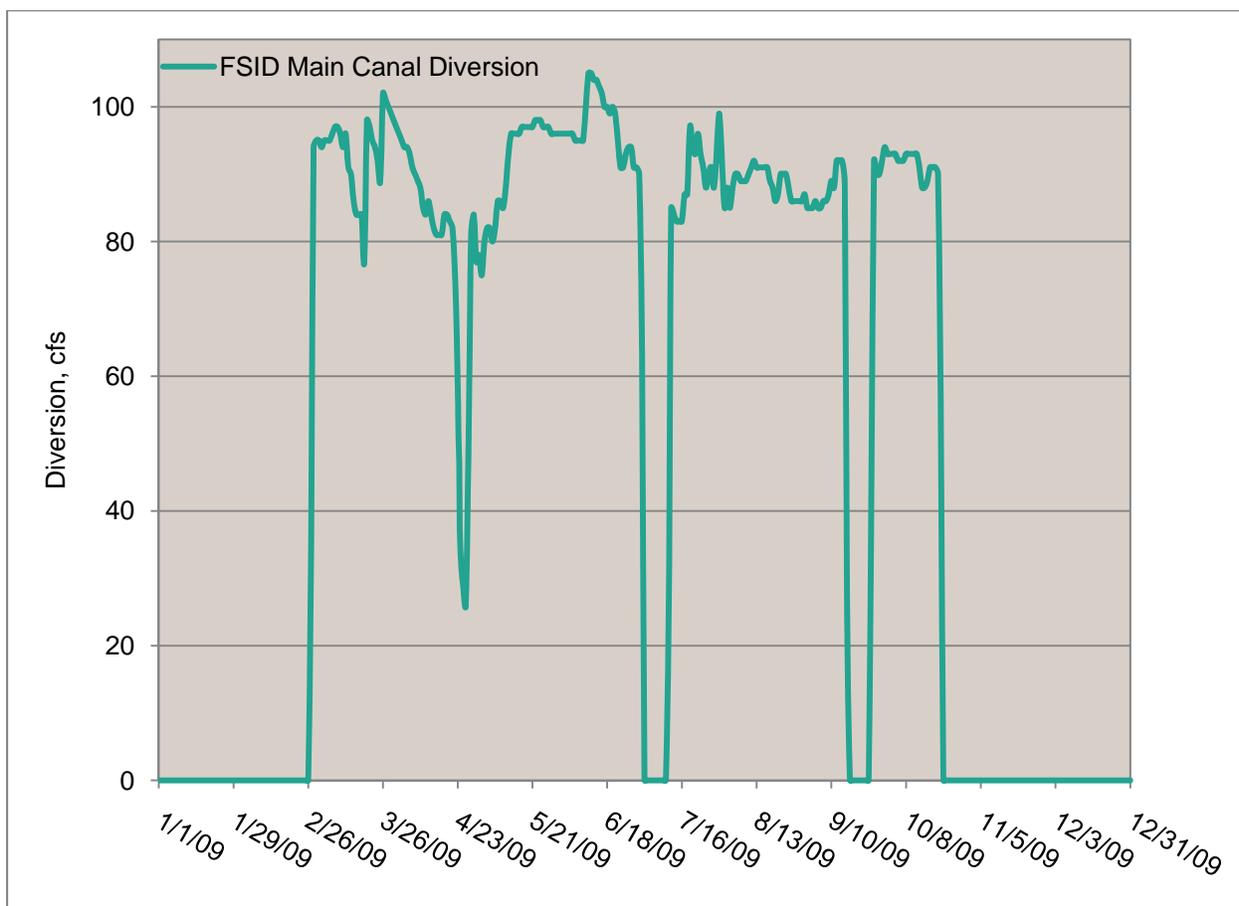


Figure 6 FSID Main Canal Diversion (data from USGS web site 2/18/2010)

## **Fort Sumner Irrigation District Review of Operation and Maintenance**

The Review of Operation and Maintenance (RO&M) examination of the FSID Diversion Dam was completed in June 2009. The next RO&M examination was scheduled for June 2015. There were eight incomplete and four new recommendations in 2009.

## **Other Pecos River Activities and Operations**

### **Vaughan Pipeline**

The Vaughan Pipeline was established to supplement flows on the Pecos to meet the needs of the 10-year BO. The outfall structure of this pipeline is located upstream of the USGS Taiban Gage. The output of the pipeline is between 10 and 12 cfs. The Vaughan Pipeline provided 1,553 af of 1,583 af purchased for 2009. The last 30 af were not pumped due to meter failure. These issues have been resolved and the site is ready for 2010 pumping.

### **Reclamation's Water Offset Program**

Reclamation leases water rights from willing owners within the Pecos River Basin to offset the additional depletions caused by Endangered Species Act related operations. Reclamation is entirely dependent on the availability of willing water rights holders and congressional budget decisions to meet the instream flow requirements of the 10-year BO.

From November 1, 2008, through October 31, 2009 (the 2009 water year), Reclamation had water lease agreements with five Pecos River pumpers, one of whom is also a Hagerman Irrigation Company irrigator, to lease 1,840.9 af (consumptive use portion) of surface water rights and 509 af (consumptive use portion) of Hagerman Canal water rights. The land associated with the leased water was fallowed. The Hagerman Canal water was pumped directly into the Pecos River.

Reclamation has a lease agreement with the NMISC for up to 1,800 af (consumptive use) of shallow well water (Vaughan) to be pumped into the Pecos River annually. The damaged outfall structure was fixed and used during the 2009 year. Another lease for 1,180.2 af of shallow well water (Lynch) remains in place. This lease provides up to 900 af of water to be pumped into the Pecos River during the water year and is used to maintain streamflows for the Pecos bluntnose shiner.

In addition to the lease agreements described above, Reclamation has established a 1,000 af fish conservation pool in Sumner Lake through an exchange of 750 af of water rights it owns at Seven Rivers. Water pumped into Brantley Reservoir from wells at Seven Rivers was exchanged for water released from Sumner Lake to maintain streamflows for the Pecos bluntnose shiner.

During 2009, Reclamation entered into a forbearance agreement with Ft. Sumner Irrigation District that will provide up to 2,500 af of water annually to aid Reclamation in operating Sumner Dam to avoid intermittence in the Pecos. This operation of the dam is in cooperation with CID.

Draft calculations produced using the new Pecos Annual Accounting Method, developed jointly by the NMISC and Reclamation; indicate that for the 2009 water year Reclamation's Carlsbad

Project Water Acquisition (CPWA or offset) program put 388 af less water into the Pecos River than the additional depletions incurred by the modified operations of Sumner Dam. Reclamation bypassed 6,109 af and stored 2,500 af of water at Sumner Dam creating 3,693 af of additional depletions for the 2009 water year. CPWA amounts of 3,305 af (adjusted for consumptive use, transmission loss, and Brantley evaporation) were provided at Brantley Reservoir for the water year to eliminate these additional depletions, resulting in a Reclamation depletion of 388 af for the 2009 water year. By the end of the calendar year 2009, Reclamation's operations resulted in an additional Reclamation credit of 965 af. The depletion at the end of the water year was a result of the new forbearance operations agreement, a calendar year agreement. Water was stored in the 2009 water year for use in the 2010 water year. Reclamation expects that with the continuation of this agreement, the effect of the storage and use will balance in the future water years.

Reclamation and the NMISC have signed an agreement for offsetting depletions resulting from bypass operations for the bluntnose shiner.

### **Carlsbad Irrigation District Water Lease Program**

Reclamation and CID entered into a 40-year contract on November 21, 2006, which provides for the use of Carlsbad Project water for purposes other than irrigation. This contract provides for the NMISC and CID to enter into third-party lease agreements for the purposes of leasing water from other district water users. It also provides for the NMISC to use water appurtenant to lands it owns within the district for purposes other than irrigation. Such leases must be approved by Reclamation. No third-party agreements have been executed and approved to date. No water was leased during 2009. Reclamation, CID and NMISC are working together to develop a third-party agreement during 2010.

### **Pecos River Settlement Implementation**

On June 11, 2009, the parties of the Pecos River Settlement Agreement filed a joint declaration stating agreement that the parties significantly met conditions for implementation. The State of New Mexico, NMISC, the Pecos Valley Artesian Conservancy District, CID, and the United States Government signed the Settlement Agreement March 25, 2003. The Settlement Agreement and its implementation were vital to ensure the delivery requirements to Texas under the Pecos River Compact, provide additional water supplies to CID, and keep the Pecos Valley Artesian Conservancy District from a priority call on junior groundwater rights.

### **Pecos River Basin General Stream Adjudication**

State of New Mexico, ex rel. the Office of the State Engineer and Pecos Valley Artesian Conservancy District v. L. T. Lewis, et al. and the United States of America, Case Nos. 20294 and 22600 (Consolidated)].

The Pecos River General Stream Adjudication (State Engineer v. L.T. Lewis) is ongoing in the 5th Judicial District Court in Chaves County, New Mexico. Reclamation and the U. S. Department of Justice are involved in this case by virtue of the U. S. interest in the water rights for the Carlsbad Project.

In authorizing funding to implement the ad hoc committee's consensus plan, the New Mexico legislature required that there be a settlement of the Carlsbad Project's surface water claims (H.B. 417, NMSA 72-1-2.4). CID, Pecos Valley Artesian Conservancy District, the State of New Mexico, and the United States reached a settlement agreement in March 2003. Key settlement terms are in accordance with the consensus plan and H.B. 417. They include NMISC purchase of land and water rights, augmentation of the flow of the Pecos River by pumping groundwater to the river, and provisions for management of supplemental well pumping within CID. The settlement also includes operating rules governing the use of water allotted to CID lands purchased by the NMISC. Depending on Stateline-delivery status and the water supply available to CID, NMISC allotments may be delivered to the Stateline or re-allotted to CID irrigators. Under the settlement, the United States and CID have agreed to refrain from making a priority call unless the supply available to CID drops below 50,000 af. The settlement agreement addresses only the rights of the United States and CID. Adjudication of individual CID members' rights is continuing.

The settlement parties have agreed to an extension of the interim period to allow all conditions precedent necessary for fully implementing the settlement to be met. The conditions precedent in the settlement agreement include minimum levels of land and water right purchases by NMISC, a minimum capacity for augmentation well pumping to be in place, and completion of environmental compliance requirements.

Reclamation and the NMISC completed an Environmental Impact Statement in August 2006 clearing the way for a long term "Miscellaneous Purposes Contract" which is required to allow Carlsbad Project Water to be released for delivery to the state line. This contract is currently in place.

## **Water 2025**

The Department of the Interior's Water 2025 initiative assists communities and irrigation districts in the western United States with funding to meet critical water related needs. The Department is seeking to collaborate with local interests on projects that will help reduce the potential for water related conflicts. Through the Water 2025 program, Reclamation has awarded challenge grants for up to 50 percent of the cost of projects to improve conservation, efficiency, and opportunities for development of water markets.

The NMISC received Water 2025 grants for water-rights acquisition. The grant agreement #08-FG-40-2805 was completed on December 7, 2009 was used to purchase land and water rights in

the Lower Pecos River Basin. Under this grant agreement, NMISC and Reclamation acquired a total of 917 acres with 2,135.7 af of transferable water rights.

### **Emergency Drought Relief Program**

Under the Emergency Drought Relief Program, Reclamation municipal water supply wells for Eunice, NM, Carlsbad, NM, and Hagerman, NM during the 2009 year. A well for Colonias is underway with the Wildlife West Well, and Capitan Well planned for the 2010 year.