

# RECLAMATION

*Managing Water in the West*

## Calendar Year 2012 Report to the Pecos River Commission

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Bureau of Reclamation  
Upper Colorado Region  
Albuquerque, New Mexico

April 2013



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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.

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## Introduction

The Albuquerque Area Office (AAO) of the Bureau of Reclamation (Reclamation) is responsible for operation, maintenance, and oversight of three projects on the Pecos River. These projects are 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 the Projects under the AAO's jurisdiction on the Pecos River.

Reclamation prepared this Annual Report to the Pecos River Compact Commissioners to convey all required reporting information on the three projects mentioned above. It will also 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.

An agreement between Reclamation and Carlsbad Irrigation District (CID), finalized on October 2, 1989, provides for CID to operate and maintain Brantley Dam, Avalon Dam, Sumner Dam, and the Pecos River Water Salvage Project. Reclamation continues to be responsible for assuring that this work is accomplished in compliance with all applicable agreements, contracts, regulations, compacts, and other related laws. The Pecos River Water Salvage Project was not funded in fiscal year 2012.

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

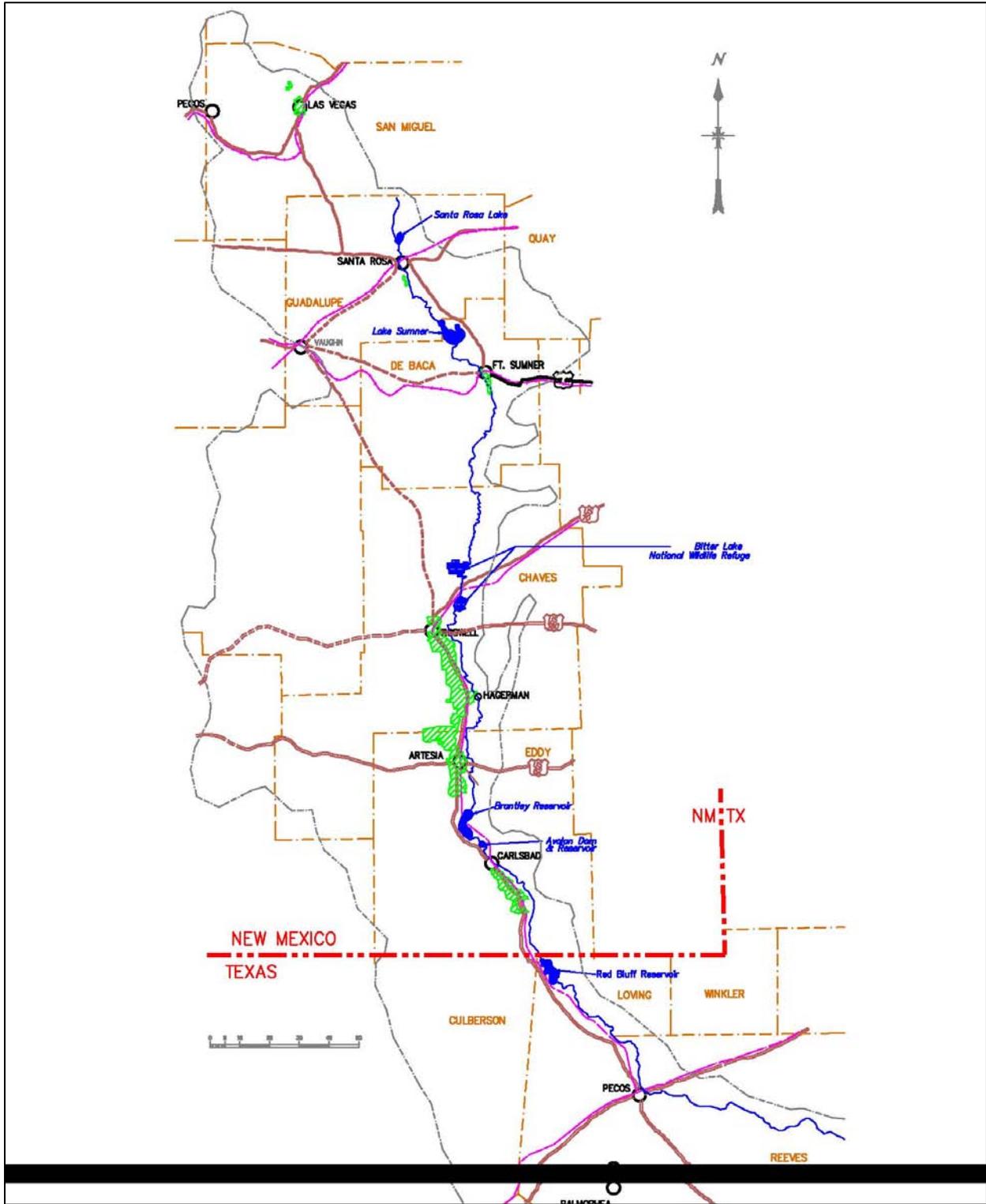


Figure 1 Reclamation's Projects Map on the Pecos River

## **Pecos Basin Water Accounting**

Reclamation and the New Mexico Interstate Stream Commission (NMISC) account for water use based on a 5-year Depletions Agreement for ESA water use (2006-2012). Reclamation will work with NMISC to develop a replacement for the expiring agreement.

As a tool for water management and accounting, Reclamation is constructing an accounting model for the Pecos Basin, using RiverWare® software. Reclamation will propose this management and accounting model as a replacement for the spreadsheet accounting detailed in the Depletions Agreement.

## **Carlsbad Project Operations**

### **Reservoir Storage Entitlements**

Reclamation operates 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 1 depicts the location of the Carlsbad Project storage dams on the Pecos River. Operation of the dams on the Pecos River is a joint effort between Reclamation, CID, and the Corps in coordination with the Fort Sumner Irrigation District (FSID) and the State of New Mexico.

Reclamation calculated annual total conservation storage entitlements for the four Pecos River reservoirs, (Santa Rosa, Sumner, Brantley, and Avalon) that are in New Mexico. Table 1 presents the calendar year 2012 storage entitlements for these Reservoirs. Note that Santa Rosa and Avalon elevations reference a project datum.

The 2012 start-of-year total Carlsbad Project conservation storage in the Pecos River reservoirs was 18 percent of entitlement. Santa Rosa, Sumner, Brantley, and Avalon Reservoirs were at approximately 11, 22, 28, and 61 percent, respectively, of each Reservoir's entitled conservation storage. On December 31, 2012, the total Carlsbad Project entitlement storage in the Reservoirs was 12 percent of entitlement. Santa Rosa, Sumner, Brantley, and Avalon Reservoirs were at approximately 5, 23, 12, and 65 percent, respectively, of each Reservoir's entitlement storage.

The May 1, 2012, most probable forecasted snowmelt runoff inflow into Santa Rosa Reservoir was approximately 11,300 acre-feet (af), or 21percent of the 30-year average. The actual March through July 2012, inflow to Santa Rosa Reservoir was 16,389 af, approximately 31 percent of the 30-year average.

Table 1 Pecos River Reservoir Storage Entitlements for 2012

Reservoir	Entitlement Storage (af)	Minimum Pool (af)	Total Estimated Sediment Accumulation (af)	Total Conservation Storage (af)	Conservation Elevation (feet)
Santa Rosa	<b>92,691</b>	0	5,596	98,287	4745.34
Sumner	<b>39,943</b>	2,500	483	42,926	4,262.88 (NAVD88)
Brantley	<b>40,000</b>	2,000	1,813	43,813	3,256.49 (NAVD88)
Avalon	<b>3,866</b>	600	0	4,466	3,117.40
<b>TOTAL:</b>	<b>176,500</b>				

### Santa Rosa Reservoir Sediment Accumulation

The Corps calculated the sediment accumulation for Santa Rosa Reservoir. The most recent sediment survey was performed in 1996. 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 5,596 af.

Table 2 Estimated Sediment Accumulation for 2012 Santa Rosa Storage Entitlement

Calendar Year	Sediment Accumulation (af)
1997	760
1998	475
1999	532
2000	537
2001	327
2002	89
2003	81
2004	341
2005	711
2006	375
2007	264
2008	316
2009	252
2010	487
2011	49
<b>Total</b>	<b>5,596</b>

### Sumner Reservoir Sediment Accumulation

The basis of the estimated sediment accumulation calculations for Sumner Reservoir is the ratio of total sediment deposition to total inflow during the period between the May 1989 and May 2001 sediment surveys. Inflow to Sumner Reservoir was measured at the USGS gage, Pecos River near

Puerto De Luna, NM (PDL). The total sediment deposition during this period was the difference in the content between the 1989 and 2001 surveys at the top of conservation pool, elevation 4,262.88 feet (NAVD 88 vertical datum, 4261.00 feet referencing local vertical datum). At the request of the CID, the top of conservation pool was lowered two feet, to 4,260.88 feet (NAVD 88 vertical datum, 4259.00 feet referencing local vertical datum), for storage entitlements beginning in 2013.

The total sediment deposition divided by the total inflow obtained an average ratio of sediment deposition to inflow during this period. To estimate sediment deposition in a given period, this ratio multiplied by calendar year inflow. 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 483 af. Reclamation conducted a new sediment survey in March of 2013 and it will be ready for use in 2014.

Table 3 Estimated Sediment Accumulation for 2012 Summer Storage Entitlement

<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	135,632	57
2009	108,464	46
2010	121,238	51
2011	86,281	36
<b>Total</b>		<b>483</b>

## Brantley Reservoir Sediment Accumulation

The basis of the estimated sediment accumulation calculations for Brantley Reservoir is the ratio of total sediment deposition to total inflow during the period between the September 1988 and May 2001 sediment surveys. Inflow to Brantley Reservoir is measured at the USGS gage, Pecos River near Lakewood, NM (Kaiser Channel). The total sediment deposition during this period was the difference in the content between the 1988 and 2001 surveys at the top of the designated conservation pool, elevation 3,272.69 feet (NAVD 88 vertical datum, 3271.00 feet referencing local vertical datum). Total sediment deposition divided by the total inflow yields an average ratio of sediment deposition to inflow during this period.

Sediment deposition since the 2001 survey is estimated by multiplying this ratio by the calendar year inflow. Table 4 shows estimated inflow and sediment accumulation since June 1, 2001. The estimated sediment deposition since the last sediment survey was 1,813 af. Reclamation surveyed Brantley for sediment in April 2013 and the data will be ready for use in 2014.

Table 4 Estimated Sediment Accumulation for 2012 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	111,291	198
2009	81,856	146
2010	107,209	191
2011	53,643	95
<b>Total</b>		<b>1,813</b>

## Sumner Dam and Reservoir

### Sumner Dam Operations

Operations at Sumner Dam collect available natural inflow above FSID's allotted direct diversion water right, contingent on bypass water not being required. Bypasses are 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 as targeted by the 10-year Biological Opinion (10-year BO) (2006-2016, Cons. #22420-2006-F0096) implemented in 2006 for the Pecos bluntnose shiner (shiner). FSID has a direct diversion right of up to 100 cfs of the

natural inflow into Sumner Reservoir as calculated by the New Mexico Office of the State Engineer (NMOSE) in their two-week average inflow calculation.

Stored Carlsbad Project water is released as a block. The duration of block releases is restricted to a maximum of 15 contiguous days, and the cumulative annual duration of all block releases is restricted to a maximum of 65 days annually. Scheduled block releases should have a minimum of 14 days between releases, and block releases should avoid the six-week period around August 1. These restrictions are in accordance with the 10-year BO. CID schedules 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 directs the CID dam tender on gate adjustments and CID is responsible for all maintenance activities. This operating procedure does 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 is allowed to store up to 20,000 af above its storage entitlement 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 does not exceed 176,500 af. No additional storage under this water right permit occurred in 2012.

During 2012, Reclamation stored 5,300 af in Sumner Reservoir to provide releases to achieve target flows at the Taiban gage and avoid intermittency in the river. This water was stored and released under the Carlsbad Project Water Supply Management Agreement between the United States and CID. Of the 5,300 af stored, 1,000 af (known as the Fish Conservation Pool) was released out of Sumner Reservoir and Reclamation replaced the water with 750 af of water pumped directly into Brantley Reservoir. Another 2,500 af was acquired through the Contract between the United States and FSID (Contract No. 08-WC-40-292; FSID Forbearance Agreement Pool) and released during the irrigation season. Reclamation stored this 2,500 af in February and March and released it later. Finally, an additional 1,800 af of supplemental water was released out of Sumner and replaced with 1,350 af of water pumped directly into Brantley Reservoir.

Sumner Reservoir began the year with 8,880 af in total storage. Total storage peaked on March 17 at 16,832 af, prior to the Reservoir being drawn down by one block release and evaporation. The block release was initiated on March 18 and terminated on March 23 at an average rate 1,427 cfs, for a total release of 13,390 af. Sumner Reservoir's lowest total storage occurred on May 30 at 1,429 af, prior to a "mini" block release from Santa Rosa to keep the reservoir from drying. Sumner Reservoir ended the year with 9,157 af in storage. Figure 2 depicts Sumner Reservoir's total storage, bypasses, and releases.

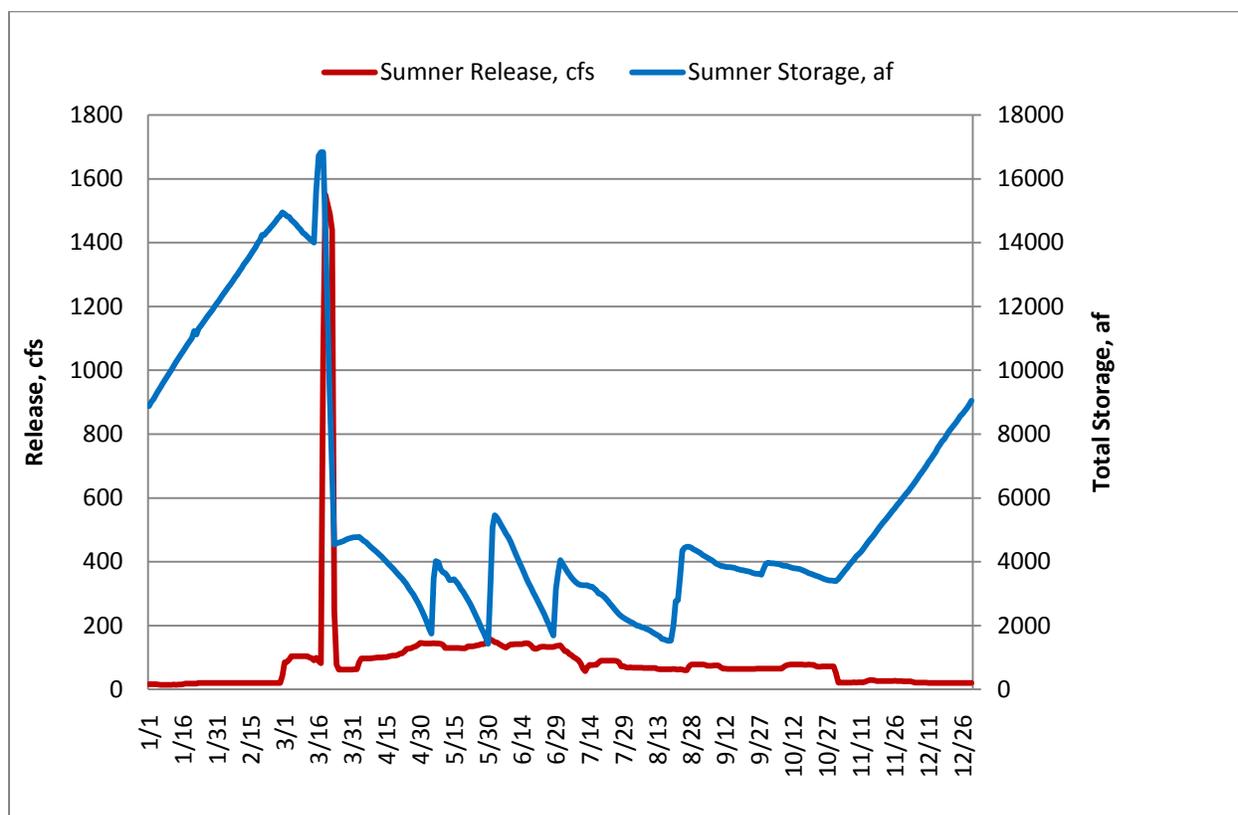


Figure 2 Release and Storage for Sumner Reservoir

A total of 1,550 af was bypassed for ESA related purposes during the non-irrigation season, between January 1 and February 12, at an average rate of 18 cfs. During the irrigation season, which runs from March 1 through October 31, approximately 3,000 af was bypassed during the spring runoff, 1,000 af was released from the Fish Conservation Pool, 2,500 af from the FSID Forbearance Agreement Pool, and 1,800 af from the water exchanged with CID for ESA related purposes. During the non-irrigation season, between November 1 and December 31, 2,730 af of additional CID forborne water was bypassed for ESA related purposes. Additional water for ESA was acquired under a fallowing agreement with FSID and is discussed under the FSID operations section. The section on Reclamation’s water offset program discusses the effects of these modified operations on the Carlsbad Project.

### 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 68.36% of the repair cost. Reclamation is responsible for 31.64% of the repair cost. Reclamation has helped CID prepare for this project by providing information regarding planning, designs, schedules, cost estimates, and environmental issues.

During the weeks of October 8 and October 29, 2012, CID removed all seal timbers from the bottom of all three radial gates. The timbers were cleaned, water treated, and replaced.

In addition, the corroded metal plates on the bottom of the radial gates were cut off and replaced with new metal plates. Badly corroded areas on the upstream sides of each gate were repaired and the downstream sides of all gates were cleaned. CID removed approximately one foot of sediment from the upstream spillway inlet chute. CID plans to complete the remaining work on the radial gates on an annual basis and should finish the entire rehabilitation by 2016. CID removed the old gasoline operated radial gate hoisting motor and replaced it with a third electric break motor. Each radial gate now has its own dedicated electrical hoisting motor.

## Brantley Dam and Reservoir

During periods without irrigation releases, Brantley Dam bypasses mitigation flows of 20 cfs. During the irrigation season, releases are made from Brantley Dam to Avalon Reservoir at a rate necessary to support the diversion into CID’s main canal, generally between 75 and 350 cfs, as required by irrigation demand.

Brantley Reservoir began the year with a total storage of 11,145 af. Irrigation releases from Brantley commenced on April 5 and then were made as needed to meet demand and conserve water. The final irrigation release from Brantley Reservoir occurred on September 23. Approximately 28,900 af was released from Brantley for irrigation during this period. Brantley Reservoir reached a maximum total storage of 21,931 af on April 4, 2012. The lowest total storage occurred on September 24 with a volume of 1,920 af. Brantley Reservoir ended the year with a total storage of 4,703 af. Figure 3 depicts Brantley Reservoir’s total storage, bypasses, and releases.

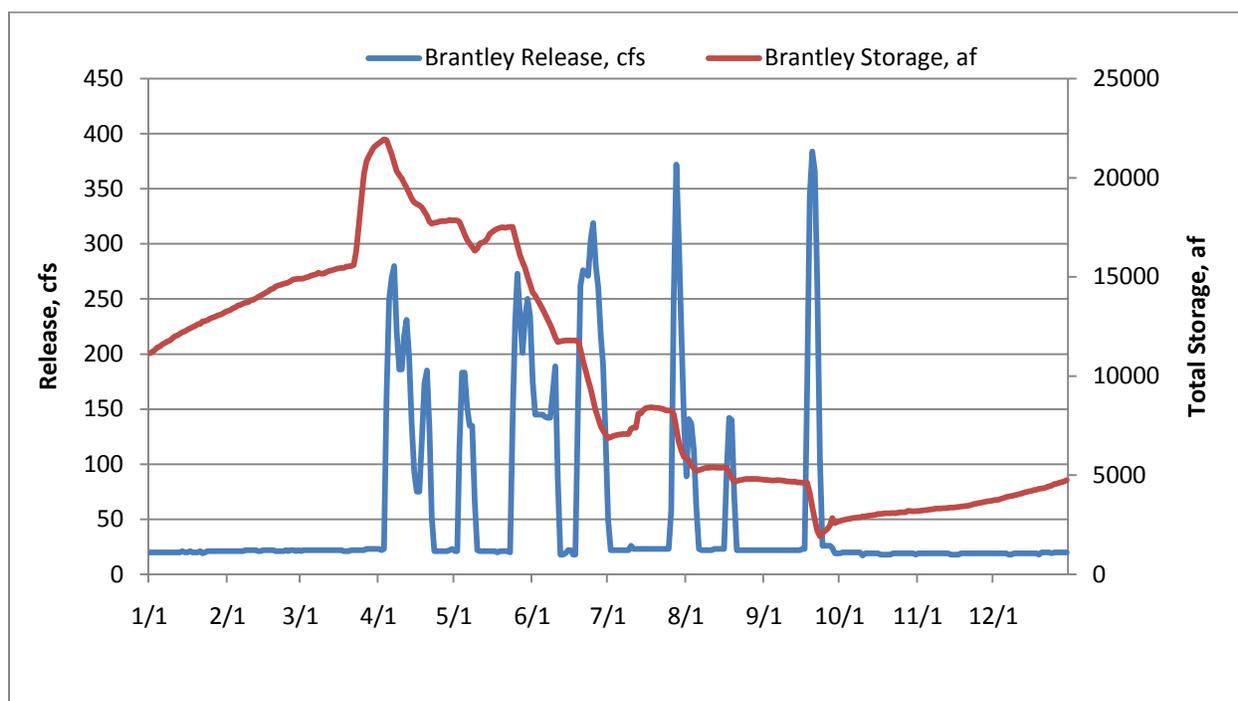


Figure 3 Release and Storage for Brantley Reservoir

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

There are sinkholes upstream and downstream on the left areas of Brantley Dam. The sinkholes are monitored visually on a regular basis, and are surveyed every six years. The latest survey was in March 2010. The sinkholes seem to be filling in naturally, and fewer were found since the previous survey in 2005. An experimental photogrammetric embankment and sinkhole survey was completed in 2012, but no significant data were reported. In 2012, the CID replaced some missing riprap on the upstream side of the right embankment.

## **Avalon Dam and Reservoir**

Due to the small reservoir capacity and the location of Brantley Dam 10 miles upstream, Avalon Dam is used primarily as a diversion dam to meet irrigation demand for CID. Water released from Brantley Dam is re-regulated by the small reservoir at Avalon, which releases it into the CID Main Canal. Avalon Reservoir began the year with 2,347 af and ended the year with 2,494 af. It reached a maximum storage of 2,871 af on March 12, and a minimum of 966 af on May 26. Diversions into the CID Main Canal began on April 1 and ended on September 24, 2012, delivering 29,705 af.

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

In 2012, CID removed woody vegetation from spillway #3 and from the downstream side of the Dam.

## **Carlsbad Project Environmental Compliance**

### **Reclamation's Direct Flow Operations**

Reclamation has a lease agreement with the NMISC for up to 1,800 af (consumptive use) of well water (Vaughan) to be pumped into the Pecos River annually. The Vaughan Pipeline (Pipeline) supplements 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. Maximum output during 2012 was between 8 and 9 cfs. The Pipeline provided 1,579 af of the 1,583 af purchased for 2012.

Reclamation is working with the NMISC and NMOSE to get a five-year accounting period for the Pipeline. The extended accounting period would allow Reclamation to conserve water in wet years for use in dry years, thereby providing greater flexibility in meeting the 10-year BO requirements.

Another lease for 1,180.2 af of shallow well water, Lynch, remains in place. This lease provides water to be pumped into the Pecos River near the USGS' Near Acme Gage during the water year and is used to maintain streamflow for the shiner.

In addition to the lease agreements described above, Reclamation has established a 1,000 af fish conservation pool in Sumner Reservoir through an exchange of 750 af of water rights it owns at Seven Rivers. Water pumped into Brantley Reservoir from wells at Seven Rivers is exchanged for water released from Sumner Lake to maintain streamflow for the shiner. All of the fish conservation pool was released from Sumner in July of 2012.

Under a forbearance agreement with FSID, 2,500 af were stored for Reclamation under CID's storage right at Sumner Lake. The stored water was released in March, April, and June of 2012.

In 2012, Reclamation pumped more from wells at Seven Rivers into Brantley Reservoir and exchanged that Seven Rivers water for an additional 1,800 af with CID in Sumner. This water was released in late June and early July.

Reclamation entered into a new fallowing agreement with FSID farmers. The agreement gave Reclamation a portion of FSID's two-week allotment, which was diverted into the FSID Diversion Dam and then returned to the river via the Sand Gate Diversion from the Ft. Sumner Canal. Water under this agreement began returning to the River on July 16 and continued through the end of the irrigation season on October 31. A total volume of 3,117 af was delivered to the River under this agreement.

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

Reclamation leases water rights from willing owners within the Pecos River Basin to offset the additional depletions caused by ESA 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, 2011, through October 31, 2012 (the 2012 accounting year), Reclamation had water lease agreements with five Pecos River pumpers, one of whom is also a Hagerman Irrigation Company irrigator, to lease 1,842.9 af (consumptive use portion) of surface water rights and 507 af (consumptive use portion) of Hagerman Canal water rights. The land associated with the leased water was fallow. The Hagerman Canal water was pumped directly into the Pecos River.

Final calculations produced using the Pecos Annual Accounting Method, developed jointly by the NMISC and Reclamation, indicate that for the 2012 water year Reclamation's Carlsbad Project Water Acquisition (CPWA or Offset) Program put 691 af more water into the Pecos River than the additional depletions incurred by the modified operations of Sumner Dam. Reclamation bypassed 7,141 af and released 2,500 af of 2012 forbearance water creating 3,361 af of additional depletions for the 2012 water year. CPWA amounts of 4,052 af (adjusted for consumptive use, transmission loss, and Brantley evaporation) was provided at Brantley Reservoir for the water year to eliminate these additional depletions, resulting in a Reclamation credit of 691 af for the 2012 water year.

## **Endangered Species Program**

### **Pecos Bluntnose Shiner**

Reclamation continues to monitor flows under the 10-year BO initiated in August 2006. The 10-year BO and Environmental Impact Statement (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 Pecos bluntnose shiner (shiner). The purpose 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.

Drought conditions continued into 2012. Intermittency began again in late June 2012. Initially, the drying extended about 10 miles, starting just below the Acme Gage upstream to the gas line crossing in early July. By August 2012, it had increased to about 54 miles of the Pecos River. The full extent of the drying was from above Crockett Draw, then extending 35 miles downstream to just above NM Highway 380 east of Roswell, NM. Intermittent flows resumed from this point to just above NM Highway 82 at Artesia, NM, where the river went dry again all the way to the inlet of Brantley Reservoir, another 19 miles. The river reconnected in mid-October.

Reclamation received an annual update on the status of the shiner from the US Fish and Wildlife Service (USFWS). USFWS has not detected shiner at either of their two sites in the tailwater section below Sumner Dam near Fort Sumner since 1999. In 2012, catch-rates were greater than

the density thresholds set by the 10-year BO for the year. Per the 10-year BO, take is exceeded if density falls below a two-year catch-rate mean of 3.5 shiner per 100 m<sup>2</sup> in Trimester 1, and 8 shiners per 100 m<sup>2</sup> in Trimester 3 for years after 2010. Shiner trimester densities for the years 2006-2012 are presented in Table 5 and Figure 4.

Table 5 Pecos bluntnose shiner two-year catch-rate mean, one standard error and number of samples (N), 2006-2012

Year	Trimester one PBS/100 m <sup>2</sup>	Trimester three PBS/100 m <sup>2</sup>	Any trimester 2008
2006	<b>3.5</b> (± 0.75 SE, N = 48)	<b>5.3</b> (± 0.90 SE, N = 48)	> 2.7 (2.5)
2007	<b>5.0</b> (± 0.8 SE, N = 53)	<b>9.8</b> (± 1.8 SE, N = 50)	> 4.0 (2.5)
2008	<b>7.2</b> (± 1.3 SE, N= 62)	<b>14.3</b> (± 4.5 SE, N= 59)	> 9.8 (2.5)
2009	<b>11.9</b> (± 1.9 SE, N= 64)	<b>17.4</b> (± 3.8 SE, N= 73)	> 15.2 (2.5)
2010	<b>13.1</b> (±2.1 SE, N = 75)	<b>21.0</b> (± 2.2 SE, N = 82)	> 12.3 (2.5)
2011	<b>18.4</b> (± 2.2 SE N = 58)	<b>21.3</b> (± 2.6 SE N = 81)	> 18.4 (2.5)
2012	<b>21.3</b> (± 4.8 SE N = 58)	<b>15.9</b> (± 3.0 SE N = 55)	7.6 (2.5)

### Interior Least Tern

The 10-year BO includes ESA coverage for the Interior Least Tern (tern), which were discovered nesting at Brantley Reservoir in 2004. During the summer of 2012, five individual terns were observed. No courtship behavior or nesting activity was observed to suggest pairing. Terns were observed from May 31 through July 21 with anywhere from one to five adult terns observed within a survey (a single survey consists of both a morning and a night visit once per week).

In 2012, reservoir levels remained at the lowest levels since the study began in 2004. Nesting habitat abundance given the low water levels, increased shoreline, and a single, small, and early block release made conditions at Brantley Reservoir ideal for terns in 2012, however, no nesting was observed. The annual 2012 report was completed in accordance with the 10-year BO.

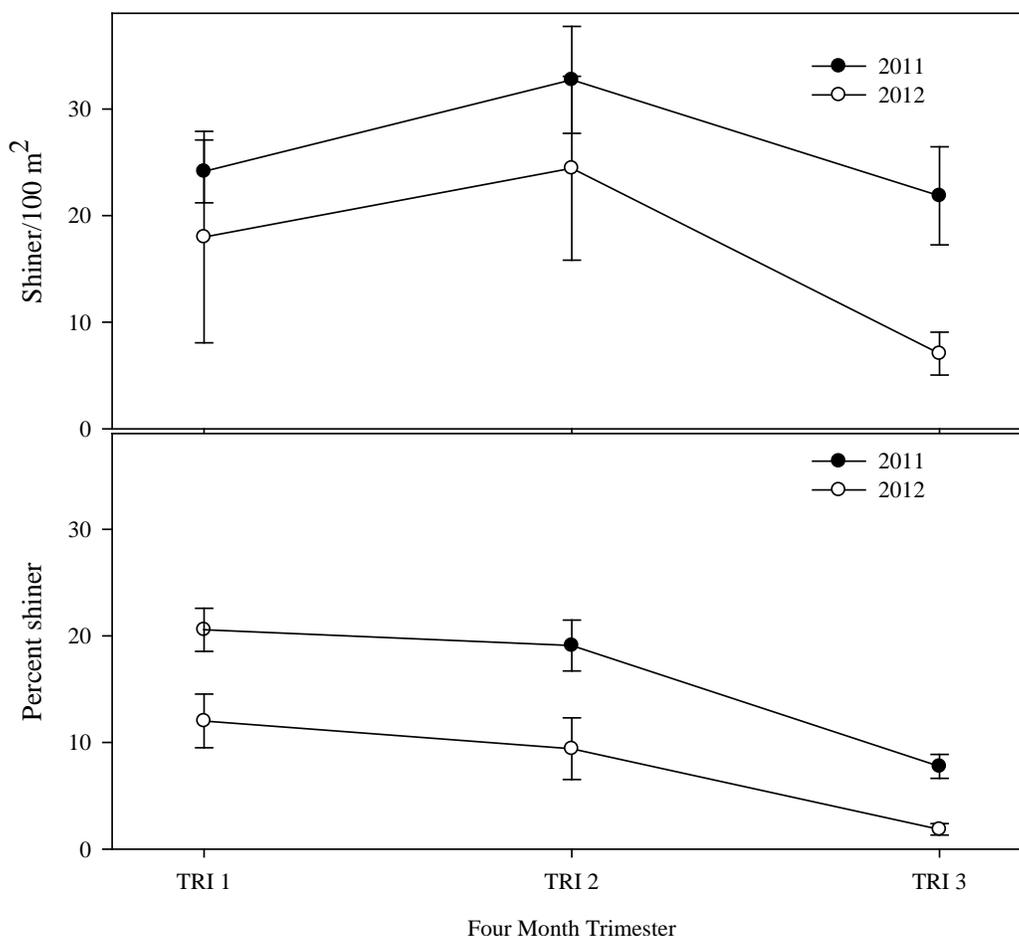


Figure 4 Pecos bluntnose shiner catch rate and percent within the fish community by trimester for 2011 and 2012 (Error bars indicate a single standard error) (USFWS Draft Annual 2012 Report)

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

In cooperation with USFWS, Reclamation restored flow to 1.5 miles of a cutoff oxbow, called Oxbow 4, in Bitter Lakes National Wildlife Refuge (BLNWR), to improve habitat for the shiners, thus potentially improving population status. Restoration of Oxbow 4 is a part of a larger effort on BLNWR to restore several oxbows above and adjacent to the oxbow that was cut off by natural fluvial processes. Flow was returned to the oxbow in September 2009. Initial surveys indicate that shiners were present in the restored habitat (S. Davenport, pers. comm.). Monitoring of the restored habitat was initiated with USFWS in 2010. The USFWS will continue the monitoring from 2012 forward. Unfortunately, the recurring drought has kept the backwater areas dry and no fish activity has been observed in those areas yet.

Additionally, Reclamation provided partial funding to USFWS to begin the re-vegetation and treatment of salt cedar resprouts in the restored areas. Coyote willow, bacharis, and New Mexico olive cuttings from the BLNWR were propagated from mostly native stock for the re-vegetation to see if the local plants are more saline tolerant than standard green house stock. In addition to

these species, salt grass, sacaton, and giant sacaton were planted during the summer of 2009 as a first attempt at native plant establishment on the middle Pecos River. There was an 80% survival rate for planted coyote willow, bacharis, sacaton, and salt grass plugs. This is a much higher rate than anticipated since some of the plugs were intentionally planted in salty conditions in order to test the site-specific salt tolerances of these species. In 2012, resprouts of saltcedar were treated.

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

Currently, Reclamation is working on two Environmental Assessments (EAs). One is the Pecos River Restoration at Overflow Wetlands EA. Reclamation is proposing to conduct a second habitat improvement project under RPM #1 of the 10-year BO at the Bureau of Land Management (BLM) Overflow Wetlands Area of Critical Environmental Concern (ACEC) approximately 1-2 river miles south of the BLNWR restoration project. Lands in the proposed project area are managed by the Roswell Field Office of the BLM, the NM State Land Office that manages State Trust Land in the project area, and private landowners. Reclamation is proposing to restore portions of the river channel beginning in 2013. Reclamation is considering two action alternatives to improve riparian habitat within the project area and a no action alternative. Reclamation will assist in developing and funding a monitoring program.

The BLM is a cooperating agency in this EA. As the primary land manager within the project area, the BLM will be responsible for the long-term maintenance of the restoration project. The second EA addresses Title Transfer of Diversion Facilities, Fort Sumner Irrigation District. Reclamation will determine the potential environmental consequences of Reclamation agreeing to support title transfer and debt forgiveness and FSID entering into ESA Section 10 consultation on the Pecos River. FSID would continue to provide water for Reclamation's Pecos River Supplemental Water Program.

The agreement between FSID and Reclamation would provide for the parties to pursue transfer of title of any Fort Sumner Project facilities (e.g., diversion dam) held by the US to the FSID and to seek relief from the remaining payment obligation under an existing contract, subject to congressional authorization. Separate and specific NEPA compliance documentation would be conducted prior to any transfer of title unless exempted by Congress.

Title transfer includes three separate rights, fee title for the Fort Sumner Diversion Dam, an exclusive easement for the construction, operation and maintenance of the intercepting drain, and a license for crossing of the Atchison Topeka and Santa Fe Railroad by the main canal. All remaining interests in facilities and lands encumbered by FSID facilities are in the name of the FSID.

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

In past years, Reclamation has controlled saltcedar growth from the Sumner Dam area to the New Mexico-Texas state line under the authority of Public Law 88-594. However, this activity was not funded in FY 2012 and minimal work was accomplished using funds carried over from FY 2011. The NMISC has historically contributed funds for the work, but were unable to contribute funds in FY 2012. Reclamation previously accomplished the work by contracting with the Carlsbad Irrigation District for mechanical removal of the saltcedar. Total land that was previously cleared in New Mexico is approximately 33,200 acres.

## Fort Sumner Project

### Operations

The irrigation season for FSID typically begins March 1 and ends October 31. FSID is also allowed to divert for two, eight-day periods during the winter. This winter allotment has generally been taken just prior to March 1.

In 2012, FSID forbore 2,129 af of their winter allotment to Reclamation under Contract No. 08-WC-40-292, and the remainder of the total amount allowed under the contract between March 25 through April 2. The volume stored by Reclamation in Sumner Reservoir from the forbearance was 2,500 af.

FSID began diverting water for irrigation on March 1 and ended irrigation for the year on October 31. During the irrigation season, 61 to 100 cfs was bypassed through Sumner Reservoir, depending on FSID's available water right. A total of 36,262 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 5.

Under a fallowing agreement between FSID and Reclamation signed in July, individual members signed up acreage that would be fallowed. This allowed the portion of water that would have been used to irrigate these lands to be returned to the River through the Sand Gate Weir off of the Sumner Main Canal. Returns to the River began July 16 and continued through the end of irrigation season, for a total of 3,117 af returned.

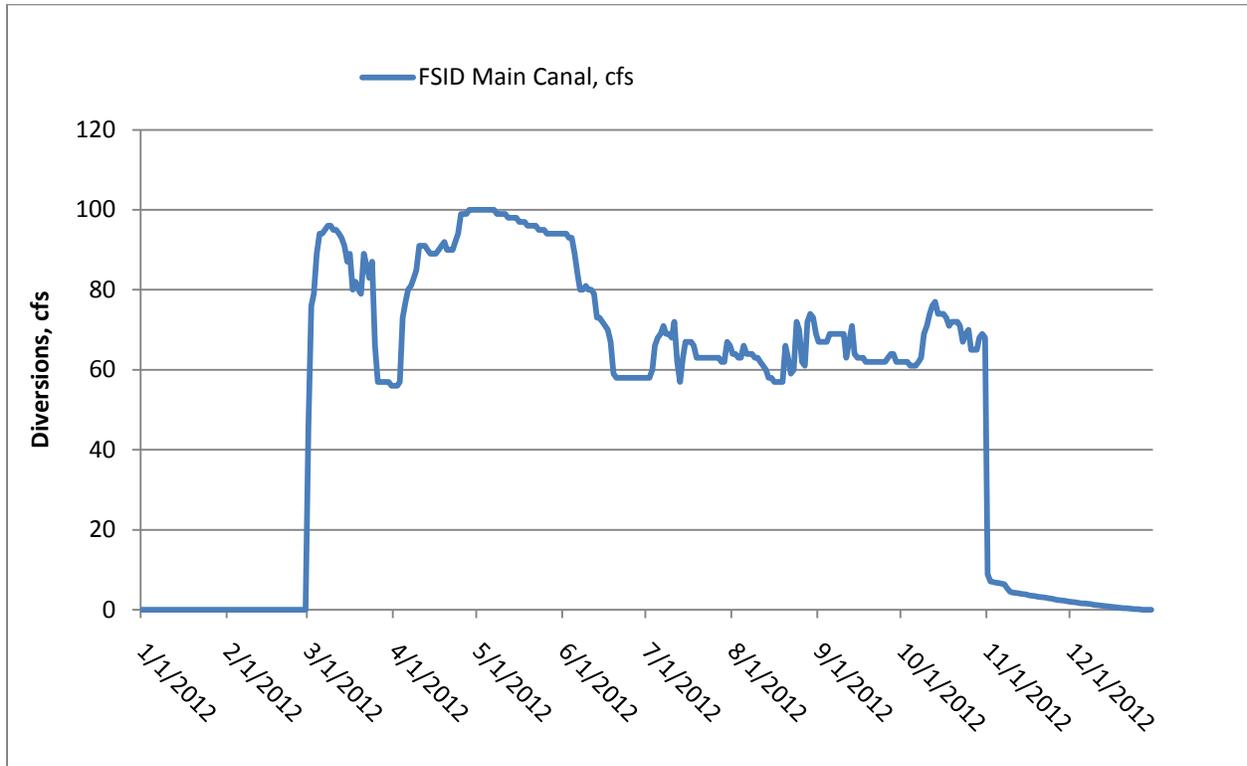


Figure 5 FSID Main Canal Diversion (data from USGS website 2/21/2013)

## 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 is scheduled for June 2015. All recommendations have been completed.

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

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

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. Reclamation and CID entered into a 40-year contract on November 21, 2006, allowing Carlsbad Project water to be used 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 CID water users. It also allows 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 2012.

### **Pecos River Settlement Implementation**

The State of New Mexico, the Pecos Valley Artesian Conservancy District, CID, and the United States Government signed the water rights Settlement Agreement (Settlement) on March 25, 2003. The Settlement and its implementation were vital to ensure the delivery requirements to Texas under the Pecos River Compact, to provide additional water supplies to CID, and to protect the Pecos Valley Artesian Conservancy District from a priority call on its junior groundwater rights. On June 11, 2009, the parties to the Settlement filed a Joint Declaration stating that the parties agreed that the conditions for implementation had been substantially met.

The first full year of Settlement implementation was 2010, which meant it was the first year during which the Parties enjoyed the benefits that the Settlement provides. However, good water conditions in 2010 did not trigger the groundwater pumping requirements of the Settlement. The following year, 2011, was a very dry year and CID benefited from the use of 17,246 af of pumped groundwater, as well as the use of surface water appurtenant to land owned by NMISC within CID. In 2012, another dry year, NMISC pumped 18,774 af of groundwater for CID.

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

The Pecos River General Stream Adjudication<sup>1</sup> is ongoing in the fifth Judicial District Court in Chaves County, New Mexico. Reclamation and the U. S. Department of Justice are involved in this case by virtue of U. S. interest in the water rights for the Carlsbad Project. Adjudication of individual CID members’ rights is ongoing.

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<sup>1</sup> 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)].

## **WaterSMART**

The Department of the Interior's WaterSMART 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. Under the WaterSMART program, Reclamation oversees WaterSMART, Title XVI Water Reclamation and Reuse Programs, Basin Study Programs, and Cooperative Watershed Management Program. Recently closed funding opportunity announcements include Water Conservation Field Services Program Grants, Title XVI – Water Reclamation and Reuse, Advanced Water Treatment Grants, and Water and Energy Efficiency Grants. Additional information on the WaterSMART program can be found at <http://www.usbr.gov/WaterSMART/index.cfm>.

A memorandum of understanding was recently signed between the New Mexico Interstate Stream Commission and Reclamation for a Pecos Basin Study. The Pecos River Basin in New Mexico and Texas is chronically water short, and is facing ever-increasing demands. This Basin Study proposes to develop improved tools that can help federal and state water managers to improve administration of the limited water supplies in the Basin. Specifically, the proposal is to develop a numerical groundwater model for the Fort Sumner Underground Water Basin, within the Pecos River Basin in New Mexico. This portion of the Pecos River Basin is of critical importance in meeting the needs of both the 25,055 irrigated acres in the Carlsbad Project and the threatened shiner. Additionally, compliance with the water delivery requirements of the Pecos River Compact is essential. A robust groundwater model of the Fort Sumner Basin is an essential element in effective conjunctive management of groundwater and surface water.

CID was awarded a Water and Energy Efficiency Grant in order to replace Parshall flumes in irrigation channels that were inoperable due to settling or problems in original construction. Telemetry systems will be installed to transmit real-time data to the Irrigation District for managing system losses and measuring water flows. The project also includes GIS mapping and creation of a database for cataloging system information.

## **Pecos Sinkhole Study**

Brine wells are mining operations that pump fresh water underground to dissolve salts in the soil. The brine that is produced is then pumped to the surface to be used elsewhere. This type of solution mining of the salt results in an underground cavern. The stability of the caverns is dependent upon their depth, their width, and the strength of the materials above the void. Since July of 2008, three large sinkholes associated with brine wells in the Permian Basin have catastrophically developed. One of these possible holes potentially threatens an irrigation canal, the Carlsbad Main Canal.

A drilling and sonar investigation performed in 2010 failed to identify a cavern of sufficient volume to account for brine produced, based on well production records. The lateral extent of the cavern relative to the main canal was also not well defined. The Carlsbad Irrigation District requested Reclamation investigate the risk posed by the sinkhole and propose mitigation options for the canal. In 2010, Reclamation reserved funding for an appraisal study. Reclamation has received data from the field investigations by the City of Carlsbad and the New Mexico Energy, Minerals and Natural Resources Department's Oil Conservation Division, the agency with oversight of brine wells. Appraisal studies rely primarily on existing data and information. The sinkhole appraisal study was originally scheduled for completion in June 2012, but has been extended to February 2013. The timeframe was extended due to difficulties in obtaining real estate values in the affected area. Once completed, the study will be delivered to the Carlsbad Irrigation District.

## **Quagga and Zebra Mussels**

Since 2009, Reclamation has been sampling seven of its New Mexico reservoir bodies (Navajo, Heron, El Vado, Elephant Butte, Caballo, Sumner, and Brantley) for mussels and processing these water samples through Reclamation's research lab in Denver.

At this time, New Mexico has three reservoirs considered "suspect" for having quagga mussels: Sumner, El Vado, and Navajo. Further testing and confirmation is necessary before these waterways meet the State of New Mexico's criteria for being deemed "infested." Without the presence of an organism (body), the positive DNA testing indicates an introduction or "inoculation", but not enough evidence to state that the water body has an established reproducing mussel population to call it infested.

In October 2012, a mechanic doing work on a boat at Elephant Butte Reservoir discovered mussels later identified as zebra mussels. According to the owner, who had moved the boat from Michigan to New Mexico, the boat had not been utilized in any waters other than Elephant Butte since about 2007. Once this discovery was made, additional water testing for mussels at Elephant Butte was completed in November 2012. Results so far are negative.

Because Reclamation strongly believes that preventing the spread of mussels is the least costly option for protecting the state's water bodies, it is pursuing the following ongoing activities:

- Since 2009, some 41,000 'Zap the Zebra' brochures and 1,000 mussel posters have been printed and dispersed.
- Permanent signs with the "Stop Aquatic Hitchhikers!" message have been installed at boating docks and other key park locations that are under Reclamation's jurisdiction.
- Reclamation purchased three mobile decontamination units; one is designated for the Pecos River basin area. These units can be moved where needed.

- State and Federal employees continue to be trained to perform watercraft inspections (Level 1) and decontamination procedures (Level 2).

Seven mussel decontamination station locations have been designated at the following reservoir locations: Heron, El Vado, Elephant Butte Main Entry, Elephant Butte Hot Springs, Sumner, and two sites at Brantley. Funding and future direction shall determine if any of these facilities are built.