RECLAMATION

Managing Water in the West

Calendar Year 2010 Report to the Pecos River Commission

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

February 2011

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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.

Cover photo- view of Brantley Dam with all floodgates fully open for the first time during the Comprehensive Facility Review.

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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.

Reclamation prepared this Annual Report to the Pecos River Compact Commissioners to convey all reporting requirement 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.

Reclamation supports 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 included coordinating and assisting BLM with identifying 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 New Mexico Interstate Stream Commission (NMISC) account for water use based on a 5-year Depletions Agreement for ESA water use (2006-2012) and have a final Pecos River Annual Accounting User's Manual.

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

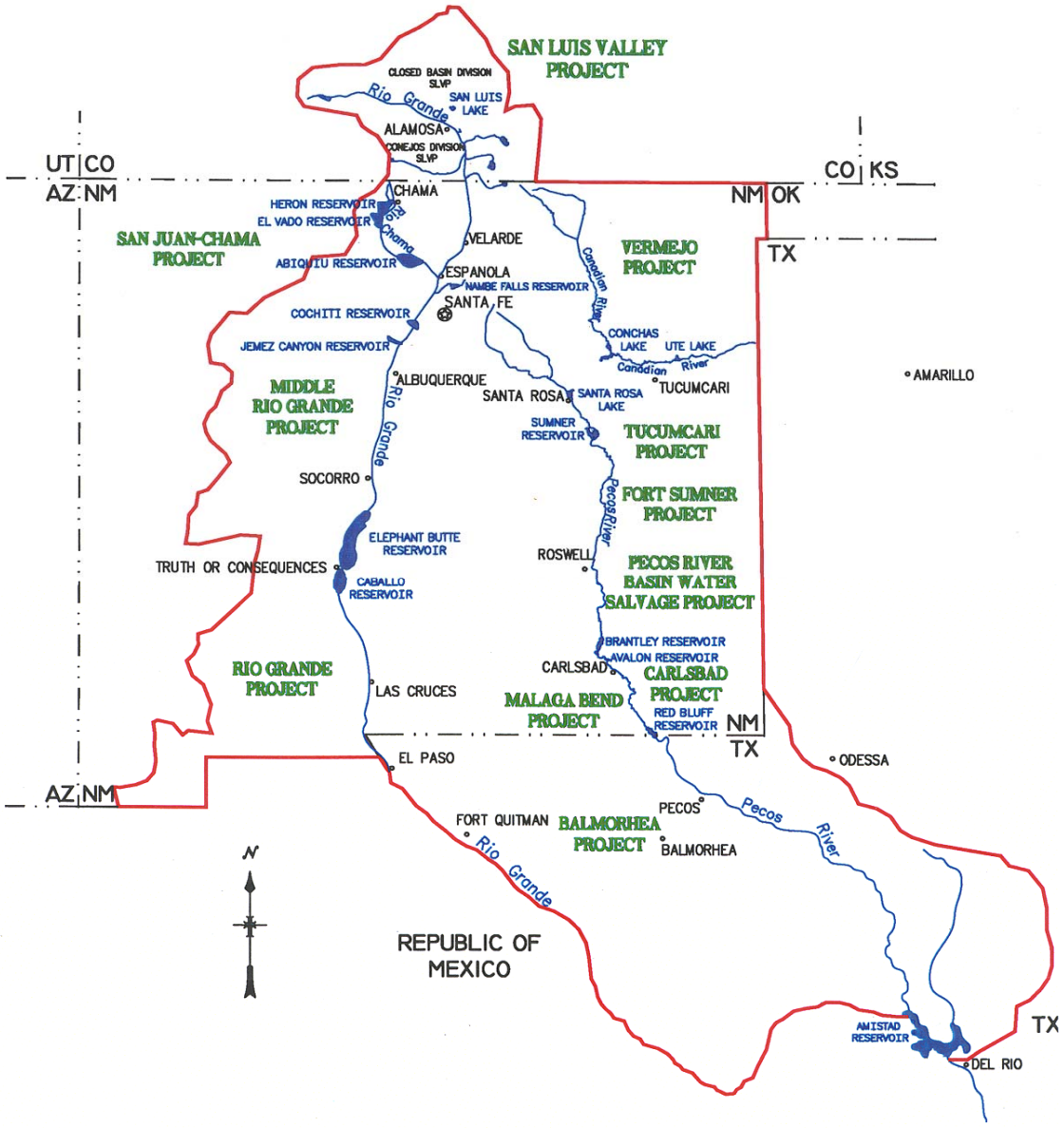

Figure 1 Project Map of Reclamation's Albuquerque Area Office

Carlsbad Project Operations

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 2 depicts the location of the Carlsbad Project Storage Dams on the Pecos River.

Reclamation calculated annual total conservation storage entitlements for the Pecos River reservoirs that are in New Mexico. Table 1 presents the calendar year 2010 storage entitlements for the four Pecos River Reservoirs. 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.

The 2010 start-of-year total Carlsbad Project conservation storage in the four Pecos River reservoirs (Santa Rosa, Sumner, Brantley, and Avalon) was 37 percent of entitlement. Santa Rosa, Sumner, Brantley, and Avalon reservoirs on the Pecos River were at approximately 26, 59, 39, and 59 percent, of each reservoir's entitled conservation storage, respectively.

The March 1, 2010 most probable forecasted snowmelt runoff inflow into Santa Rosa Reservoir was approximately 56,000 acre-feet (af) or 106 percent of the 30-year average. The actual March through July 2010 inflow to Santa Rosa Reservoir was approximately 73,576 af, 139 percent of the 30-year average. On December 31, 2010, the total Carlsbad Project entitlement storage in the four Pecos reservoirs was 44 percent of entitlement. Santa Rosa, Sumner, Brantley, and Avalon reservoirs were at approximately 46, 53, 28, and 46 percent, of each reservoir's entitlement storage, respectively.

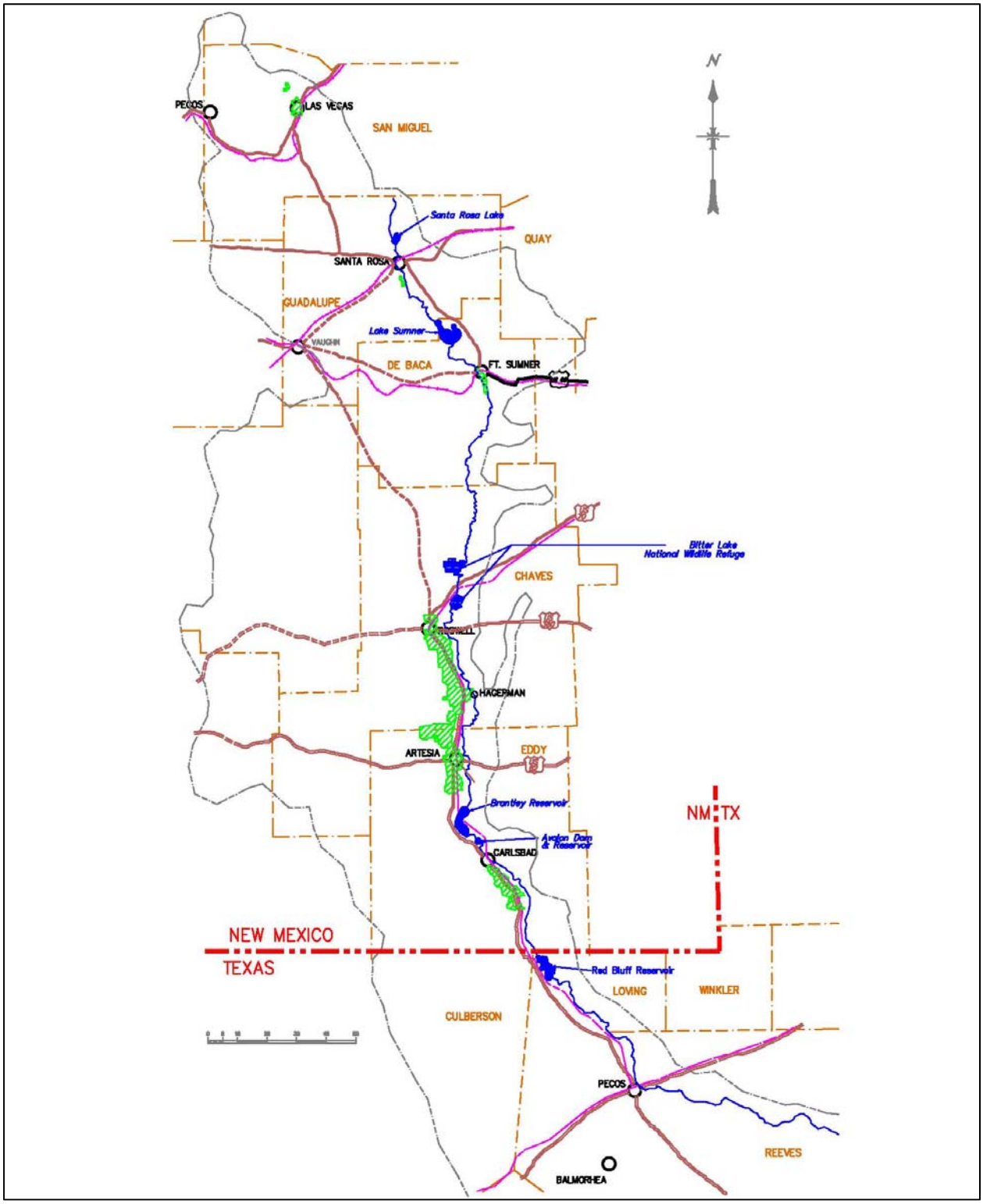

Figure 2 Area map of the Carlsbad Project

Table 1 Pecos River Reservoir Storage Entitlements for 2010

Reservoir	Entitlement Storage (af)	Minimum Pool (af)	Total Estimated Sediment Accumulation	Total Conservation Storage (af)	Conservation Elevation (feet)
Santa Rosa	***92,604***	0	5,060	97,644	4745.16
Sumner	***40,030***	2,500	396	42,926	4,262.88 (NAVD88)
Brantley	***40,000***	2,000	1,533	43,533	3,256.41 (NAVD 88)
Avalon	***3,866***	600	0	4,466	3,117.35
TOTAL:	***176,500***				

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 2010 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
Total	***5060***

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 2010 Sumner Storage Entitlements

Calendar Year	Inflow (af)	Sediment Accumulation (af)
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
Total		***396***

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 2010 Brantley Storage Entitlement

Calendar Year	Inflow (af)	Sediment Accumulation (af)
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
Total		***1527***

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. The required bypasses are 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 required 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 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 (NMOSE).

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 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 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 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 2010.

During 2010, Reclamation stored 3,500 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 3,500 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. The remaining 2,500 af was acquired through the Contract between the United States and FSID (Contract No. 08-WC-40-292). Reclamation stored 947 af in February and 1,553 af in March. Of the 2,500 af stored 2,117 af was released. The rest was provided to CID for offset of depletions to the Carlsbad Project caused by this storage.

Sumner Reservoir began the year with 23,575 af in total storage. An early spring peak total storage of 31,477 af occurred on March 15, prior to the reservoir being drawn down by block

releases for the Carlsbad Project and evaporation. Sumner Reservoir's lowest total storage occurred on July 23, after the reservoir was drawn down to 13,689 af prior to monsoon inflows and the start of the second block release. Sumner Reservoir ended the year with 21,041 af in storage.

Three block releases occurred during the 2010 calendar year. The first block release was initiated on March 22 and terminated on March 27 at a rate 1,400 cfs, for a total release of approximately 14,903 af. The second block release occurred June 23 through June 30 when approximately 21,455 af was released at 1,370 cfs. The third and final block release for 2010 occurred from September 21 through September 27 at the rate of approximately 1,391 cfs for a total release of 15,778 af.

Figure 3 illustrates Sumner Dam's total storage, bypasses, and releases. A total of 1,761 af was bypassed for ESA related purposes during the non-irrigation season between January 1 and February 12 at an average rate of 21 cfs. During the irrigation season, which runs from March 1 through October 31, a total of approximately 2,932 af was released from the Fish Conservation Pool and bypasses; 770 af and 2,162 af, respectively for ESA related purposes. During the non-irrigation season, between November 1 and December 31, 2,347 af was released for ESA purposes, 230 af from the Fish Conservation Pool and 2,117 af from the FSID forborne water.

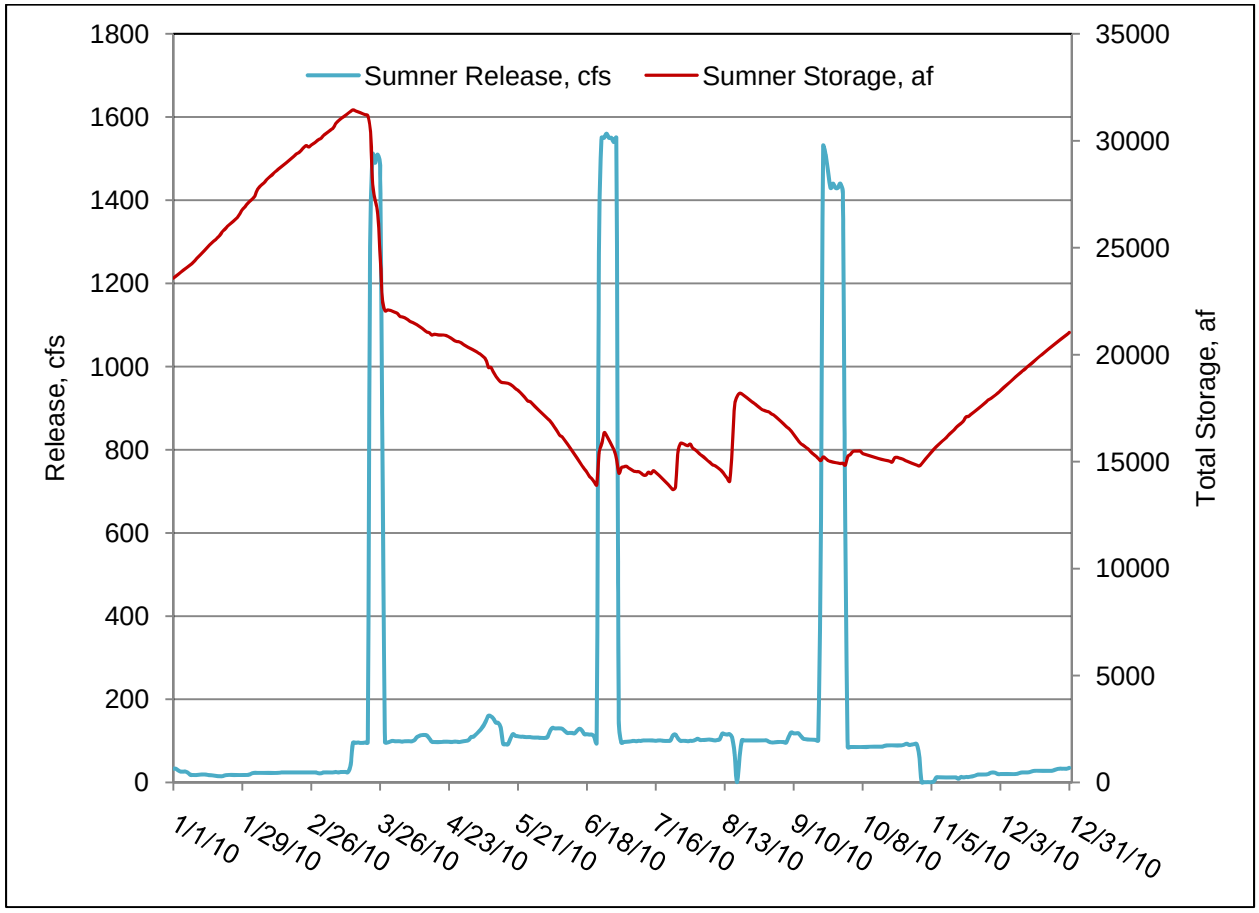

Figure 3 Release and Storage for Sumner Reservoir

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.

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 cost. Reclamation is responsible for 31.64% of the cost. The 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 2010:

a. Sandblasted, primed with a nickel alloy, and painted the upstream face of all three radial gates.
b. Cleaned the downstream side of all three radial gates and sandblasted, primed with a nickel alloy, and painted the downstream side of the far right radial gate.

CID plans to complete the remaining work on the radial gates on an annual basis and should finish the entire rehabilitation by 2016.

The Sumner Dam Annual Facility Review was completed in November 2010 and the report was completed in December 2010. There are currently three incomplete recommendations in 2010.

A dive exam was completed on Sumner Dam. This exam was part of the Comprehensive Facility Review (CFR) conducted in February 2011. The dive exam report will be part of the CFR report.

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.

Brantley Reservoir began the year with a total storage of 15,688 af. Irrigation releases from Brantley commenced on April 10, then were adjusted as needed to meet demand and to conserve water. The final irrigation release from Brantley Reservoir occurred on October 31. Approximately 77,674 af were released from Brantley for irrigation during this period. A block release of 17,314 af was made from Brantley Reservoir from November 1 to 11 to meet state-line delivery requirements under the Pecos River Settlement Agreement. Brantley Reservoir reached a maximum total storage of 33,441 af on April 9, 2010. The lowest total storage occurred on November 10 with a volume of 6,434 af. Brantley Reservoir ended the year with a total storage of 11,202 af. Figure 4 depicts Brantley Dam's total storage, bypasses, and releases.

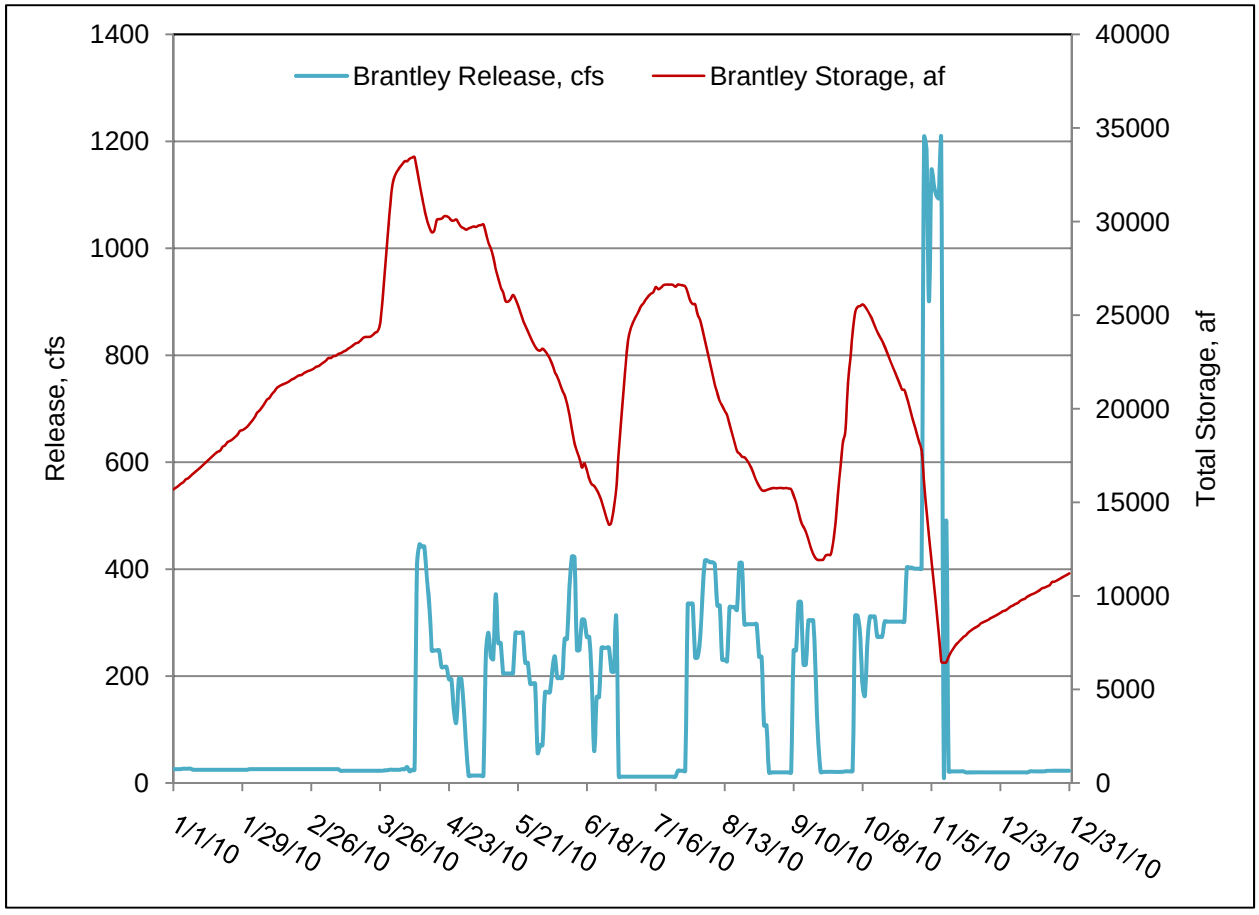

Figure 4 Release and Storage for Brantley Reservoir

Brantley Dam Facility Review and Safety of Dams Programs

The Brantley Dam Annual Facility Review was completed in November 2010 and the report was completed in December 2010. There are currently one incomplete and three complete recommendations in 2010.

There are sinkholes upstream and downstream on the left side of Brantley Dam. The sinkholes are visually monitored on a regular basis and are surveyed every six years. The latest survey was completed in March 2010. The sinkholes seem to be filling in naturally, and fewer have been found since the last survey in 2005.

A dive exam was completed on Brantley Dam in November 2010, as part of the CFR conducted in February 2011. The dive exam report will be part of the CFR report.

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 was released from Brantley Dam and the small reservoir at Avalon was used to re-regulate the releases into the CID Main Canal. Avalon Reservoir began the year with 2,275 af and ended the year with 1,789 af. Diversions into the CID Main Canal began on April 5 and ended on October 31, 2010 delivering a total of 66,566 af. Figure 5 displays the diversions at the CID Main Canal.

Avalon Dam Facility Review and Safety of Dams Programs

The Avalon Dam Annual Facility Review was completed in November 2010 and the report was completed in December 2010. There are currently five incomplete and one complete recommendations in 2010.

A dive exam was completed on Avalon Dam for the first time in November 2010, as part of the CFR conducted in February 2011. The dive exam report will be part of the CFR report.

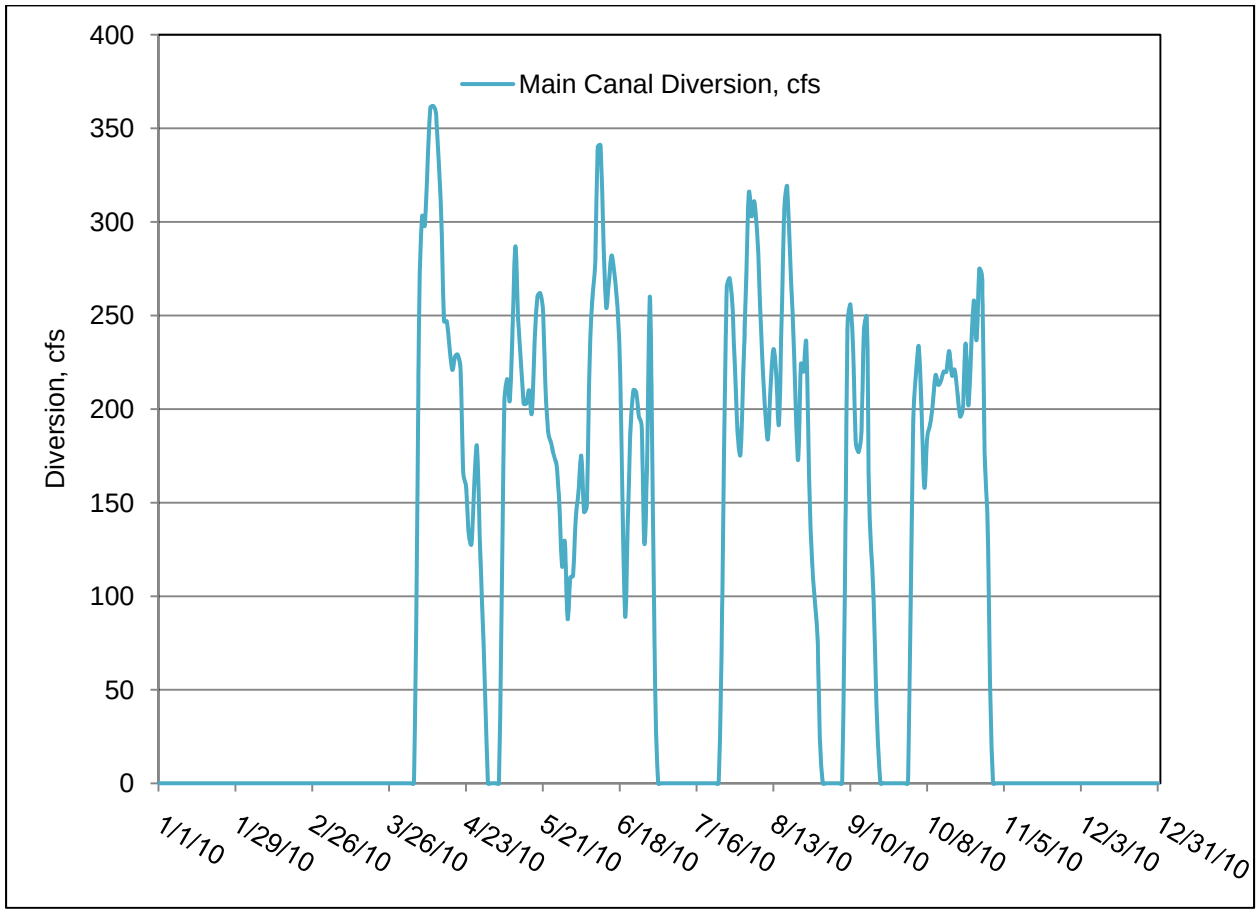

Figure 5 CID Main Canal Diversions

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 shallow well water (Vaughan) to be pumped into the Pecos River annually. The Vaughan Pipeline (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. Maximum output is between 10 and 12 cfs. The Pipeline provided 24 of 1,583 af purchased for 2010. The Pipeline was used briefly during the dive inspection of Sumner Reservoir in November. The rest of the Vaughan water was not needed to meet the supplemental flow for the 10-year BO. Reclamation is working with the NMISC and NMOSE in pursuing a five-year accounting period for the Pipeline. The pursuit of the extended accounting period is to provide Reclamation greater flexibility in meeting the 10-year BO requirements and conserve water in years resembling 2010 for use in drier years.

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 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 was exchanged for water released from Sumner Lake to maintain streamflow for the shiner.

Under the forbearance agreement with FSID, 2,500 af were stored for Reclamation under CID's storage right at Sumner Lake. The water stored was not released in the 2010 accounting year, but was released in November and December of 2010.

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, 2009, through October 31, 2010 (the 2010 water year), Reclamation had water lease agreements with five Pecos River pumpers, one of whom is also a Hagerman Irrigation Company irrigator, to lease 1,842.9 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.

Draft calculations produced using the Pecos Annual Accounting Method, developed jointly by the NMISC and Reclamation, indicate that for the 2010 water year Reclamation's Carlsbad Project Water Acquisition (CPWA or offset) program put 94 af more water into the Pecos River than the additional depletions incurred by the modified operations of Sumner Dam. Reclamation bypassed 3,923 af, released 1,449 af of 2009 forbearance water, and stored 2,500 af of water at Sumner Dam creating 1,820 af of additional depletions for the 2010 water year. CPWA amounts of 1,914 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 94 af for the 2010 water year.

Endangered Species Program

Pecos Bluntnose Shiner

Reclamation continues to monitor flows under the 10-year BO implemented 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 shiner. 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 2010 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 shiner from the US Fish and Wildlife Service (USFWS). Cumulative catch-rate in 2010 was (17.7 ± 1.6 shiner/100 m^2 SE) and cumulative percent abundance was (14.0 ± 1.1 % SE). Shiner catch-rate was highest in September (31.9 ± 6.1 shiner/100 m^2 SE) and percent abundance was highest in November (25.8 ± 5.5 % SE). Catch-rate and percent abundance was lowest in March (5.8 ± 1.7 shiner/100 m^2 SE and 7.7 ± 2.4 % SE, respectively). Shiner have not been collected at either of the sites in the tailwater section below Sumner Dam near Fort Sumner since 1999. Catch-rates were greater than the density thresholds set by the 10-year BO for 2010 (Table 5) (from USFWS draft report). The 10-year BO stated that take would be exceeded if density fell below 3.5 shiner per 100 m^2 in Trimester 1 and 8 shiner per 100 m^2 in Trimester 3. Density targets remain the same for the duration of the 10-year BO.

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) 2006-2010. Standard error is not required under the 10-year BO, but is 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 shiner/100 m^2	Trimester three shiner/ 100 m^2	BO Thresholds Any trimester
2006	**3.5** (± 0.75 SE, N = 48)	**5.3** (± 0.90 SE, N = 48)	> 2.7 (2.5)
2007	**5.0** (± 0.8 SE, N = 53)	**9.8** (± 1.8 SE, N = 50)	> 4.0 (2.5)
2008	**7.2** (± 1.3 SE, N= 62)	**14.3** (± 4.5 SE, N= 59)	> 9.8 (2.5)
2009	**11.9** (± 1.9 SE, N= 64)	**17.4** (± 3.8 SE, N= 73)	>15.2 (2.5)
2010	**13.1**(± 2.1 SE, N= 75)	**21.0** (±2.2 SE N= 82)	>12.3 (2.5)

Bitter Lake National Wildlife Refuge (BLNWR) Restoration Project

In cooperation with USFWS, Reclamation restored flow to 1.5 miles of cutoff oxbow, 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 this oxbow that have been 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.

Additionally, Reclamation provided partial funding to USFWS to begin the revegetation of the restored areas. Hydro Aquatics is under contract to plant native woody plants within Oxbow 4. Seep willow seeds were collected during the summer of 2010, and are currently being grown in a greenhouse. These will be planted during the fall of 2011. Coyote willow and cottonwood poles were collected in early February 2011, and were planted later that month. The project uses plant materials taken entirely from local sources. Planting is occurring at what are considered optimal times for success rates.

Interior Least Tern

The 10-year BO included coverage for the Interior Least Tern, which was discovered nesting in 2004 at Brantley Reservoir. During the summer of 2010, six individual terns (three pairs) were observed; they initiated three nesting scrapes prior to the raise in water surface elevation within the lake. At the time the lake began to rise, one nest contained two eggs, one contained one egg and the last nest was empty. Over the course of five days as the water level continued to rise, the nest scrapes were moved in 6-foot increments. By June 30, 2010, out of the three nest scrapes, one had one egg and two had two eggs. On the evening of June 30, 2010, heavy rain caused arroyos and drainages to run into the reservoir at a pace too fast to move the nests. In addition to the rising water level, locations to safely move the nest scrapes away from water were limited

due to salt cedar vegetation at the elevated shoreline of the reservoir. At that time, it was decided to collect the eggs and incubate them, as they would have been lost if left in place. From July 7, 2010 on, no terns were observed and high lake elevations eliminated good nesting habitat. Reclamation received incidental take of three tern nests during the summer of 2010. A complete 2010 report is in preparation by Reclamation in accordance with the 10-year BO.

At this time, Reclamation biologists are working with the USFWS and the New Mexico Department of Game and Fish to develop solutions for successful tern nesting and to avoid incidental take of terns in the future.

National Environmental Policy Act (NEPA) Activities

Currently, Reclamation AAO is working on two Environmental Assessments (EAs). One is the Pecos River Second Fish Restoration Project. This EA is for the second 1.5 miles of river restoration that is needed to improve the overall shiner fish population and to meet the goal of the 10-year BO by 2014. The second EA is the Brantley and Avalon Reservoirs Resource Management Plan Amendment (RMPA) that is currently out in draft as of August 2010 and can be seen at http://www.usbr.gov/uc/albuq/envdocs/ea/BrantleyAvalon/index.html

The RMPA amends Reclamation's 2003 Resource Management Plan (RMP) for Brantley and Avalon Reservoirs. Reclamation has prepared an EA and subsequent RMPA to address future Federal leasable (e.g., oil, gas) minerals development on approximately 49,000 acres of Reclamation-administered lands in Eddy County, New Mexico. The lands encumbered by the EA and RMPA are part of Reclamation's Carlsbad Project, which is authorized under the Reclamation Act of June 17, 1902, and the Brantley Project Acts of 1972 (P.L. 92-514) and 1980 (P.L. 96-375). The Minerals Leasing Act of 1920, as amended, provides the Secretary of the Interior with authority to issue leases on lands where the Federal government holds the mineral rights. This authority has been delegated to the BLM, a Cooperating Agency, for preparation of the RMPA and EA documents. In recent years, the BLM has experienced a tremendous increase in interest from oil and gas development companies for new lease nominations throughout Eddy County. At present, the BLM is deferring new lease nominations for oil and gas development within Reclamation-administered lands until the RMPA is complete. However, site-specific applications are being considered on a case-by-case basis. Applications for oil and gas drilling activities on existing lease areas are reviewed and approved if negative effects to natural and cultural resources can be avoided or mitigated. Reclamation's 2003 RMP did not evaluate the cumulative impacts of reasonably foreseeable future mineral leasing and development of Project Area resources. The purpose of the RMPA is to develop appropriate guidance that will allow Reclamation and BLM to make informed decisions about oil and gas leasing and development on Reclamation-administered lands in order to comply with existing guidelines and laws.

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 dozers 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 2010 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.

The Pecos River Basin Water Salvage Project Budget for 2010 was $300,000, utilizing $150,000 NMISC contribution, and $150,000 BOR funding, for a cost of $9.00 per acre.

Carlsbad Project Vegetation Management Program

Reclamation completed five-year programmatic environmental and biological assessments for performing research and demonstration using integrated methods (herbicides, biological and mechanical) on salt cedar to determine effective methods of control and rehabilitation. Salt cedar 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 took place on lands within the Carlsbad Project area that include Brantley and Avalon Reservoirs, called the Research Project area.

Reclamation meets with other state, federal, and county agencies every six months to review and update on-going research and demonstration projects within the Carlsbad Project area. The most recent meeting was in October 2010.

Fort Sumner Project

Operations

The irrigation season for FSID typically begins March 1 and ends October 31. 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.

In 2010, FSID forbore the winter allotment to Reclamation under Contract No. 08-WC-40-292, and the first two weeks of March. The volume stored by Reclamation in Sumner Reservoir from the forbearance was 2,500 af. FSID began diverting water for irrigation on March 17 and ended irrigation for the year on October 31. During the irrigation season, 81 to 100 cfs was bypassed through Sumner Reservoir depending on FSID's available water right. A total of approximately 39,620 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.

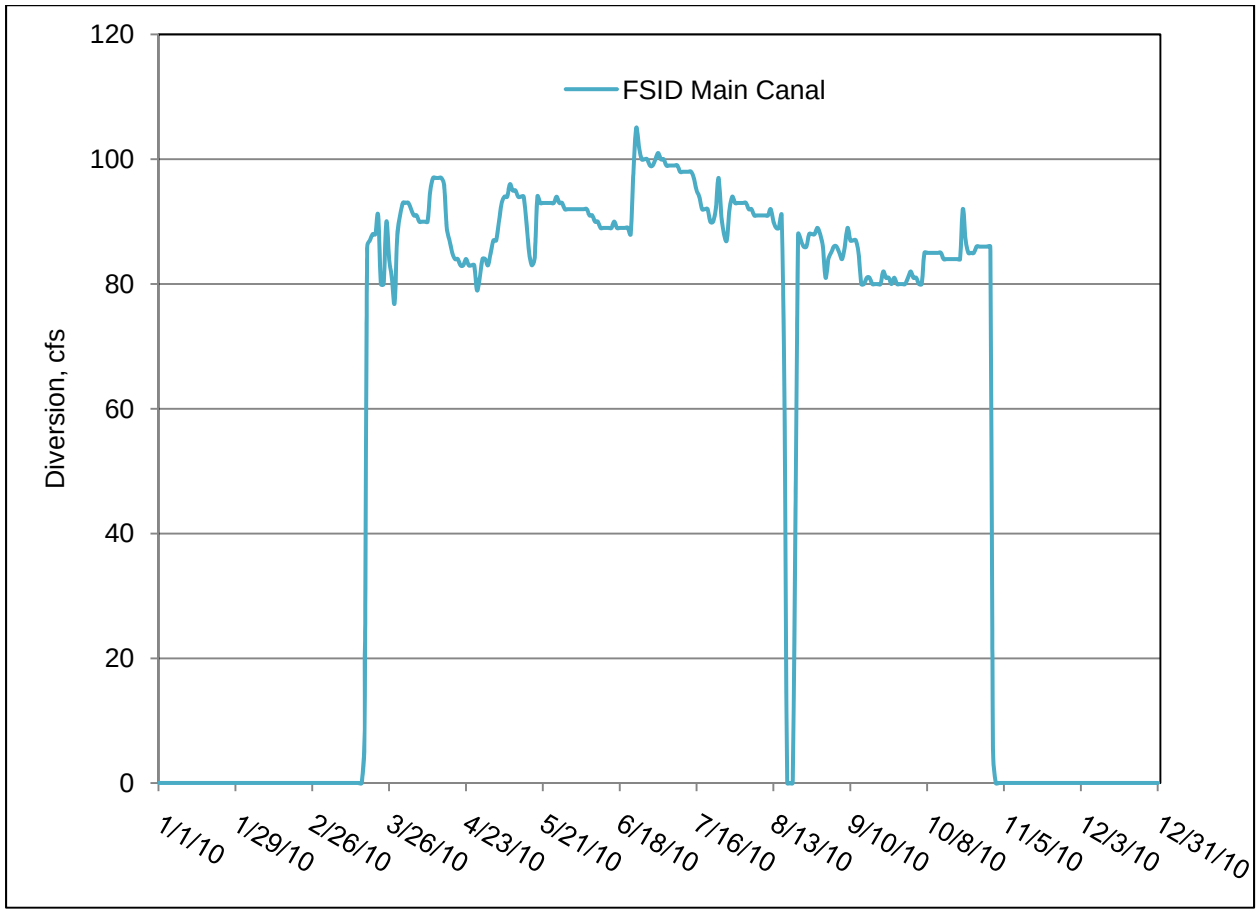

Figure 6 FSID Main Canal Diversion (data from USGS web site 1/25/2011)

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. There were two incomplete and eight complete recommendations in 2010.

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, 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 2010. Reclamation, CID, and NMISC are working together to develop a third-party agreement during 2011.

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, provide additional water supplies to CID, and 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 time that CID received a benefit through an increased water supply.

Pecos River Basin General Stream Adjudication

The Pecos River General Stream Adjudication[1] 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 U. S. interest in the water rights for the Carlsbad Project.

In authorizing funding to implement the lower Pecos River basin Ad Hoc Committee's Consensus Plan to get compact water to the state line, the New Mexico legislature required that there be a settlement of the Carlsbad Project's surface water claims (NMSA § 72-1-2.4, a.k.a. "the Compliance Statute"). Key Settlement terms are in accordance with the Consensus Plan and the Compliance Statute. They include NMISC's purchase of land and water rights, augmentation

[1] 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)].

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 state-line delivery status and the water supply available to CID, NMISC allotments may be delivered to the state line 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 acre-feet of water. The Settlement addresses only the rights of the United States and CID. Adjudication of individual CID members' rights is continuing.

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, (aka; Water for America, WaterSMART), 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.

Emergency Drought Relief Program

Under the Emergency Drought Relief Program, for calendar year 2010, Reclamation drilled municipal water supply wells for Colonias, New Mexico and Wildlife West Park. Both wells produced higher than expected gallons per minute. Reclamation tried again to drill a well for the community of Cannon, New Mexico, but the effort was abandoned due to insufficient amounts of water. In 2011, Reclamation proposes to drill a new municipal well for the Community of Regina, New Mexico and redrill a new well for the Village of Capitan, New Mexico.

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 the amount of 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 mitigation options for the canal. Reclamation reserved funding for an appraisal study and has

been monitoring 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.

An appraisal level study is confined to a review of existing data and information. Reclamation does not have funding available for field investigations. Until such time as sufficient data and analysis confirm a reasonable threat to the canal, Reclamation cannot issue a substantive appraisal study and proceed to a feasibility study to identify the risks and mitigation options

Quagga and Zebra Mussels

In January 2007, an employee with the National Park Service at Lake Mead, NV, discovered the first quagga mussel in the western United States. The mussels were likely transported to the west via a contaminated boat from an eastern state. Since that time, mussels have expanded their range throughout many western states, including all states bordering New Mexico.

For the past two years, Reclamation's Albuquerque Area Office has been monitoring six reservoirs (Heron, El Vado, Elephant Butte, Caballo, Sumner, and Brantley) for the presence of quagga and/or zebra mussels. The American Recovery and Reinvestment Act (ARRA), along with funding obtained from the Upper Colorado Regional Office, paid for monthly sampling at the six reservoirs. Different sampling sites are established at each reservoir pool; water quality data along with water samples are collected and shipped to Reclamation's Denver Laboratory for analysis. Microscopic analysis is performed utilizing a set protocol to determine if adult or juvenile (veliger stage) mussels are present. If an invasive mussel in any stage is discovered, additional water samples are collected for both microscopic and Polymerase Chain Reaction (PCR) analysis. At this time, New Mexico does not have a confirmed mussel-contaminated body of water.

To help keep mussels out of New Mexico's waterways, Reclamation, along with New Mexico State Parks (NMSP) and New Mexico Department of Game and Fish (NMDGF), have been working together to prevent the spread of aquatic invasive species through public education and outreach, which includes the following:

- With the assistance of NMSP and NMDGF, Reclamation distributed 2,000 brochures and 1,500 posters to sporting goods shops, convenience food stores, libraries, and other locations to provide information and knowledge on inspecting, cleaning, and drying boats and trailers to prevent the spread of mussels.
- Through ARRA funding Reclamation, has made and posted metal signs around boat launch sites and marinas to remind the public to clean, drain, and dry boats and associated equipment to prevent the spread of aquatic invasive species.
- Reclamation funded the hiring and training of temporary staff to assist NMSP with inspections at key boating reservoirs within the state.

- Reclamation purchased three mobile decontamination units; one is permanently assigned to Elephant Butte Reservoir, one is available for the Chama River area, and the third unit is in the Pecos River basin area.
- State and Federal employees are being trained to perform watercraft inspections (Level 1) and decontamination procedures (Level 2).
- To protect Reclamation's facilities, the following work has been completed:
- Reclamation developed a Technical Memorandum, *Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species*, (2010, No. 86-68220-07-05).
- An action plan for Elephant Butte entitled, *Elephant Butte Field Division Action Plan for Prevention and Rapid Response of Dreissenid Mussels*, was developed.
- Facility Vulnerability Assessments have been developed for seven Reclamation reservoirs within New Mexico (Heron, El Vado, Elephant Butte, Caballo, Sumner, Brantley, and Avalon).