

ANNUAL REPORT TO THE PECOS RIVER COMMISSION

1992 ACTIVITIES

***Upper Colorado Region
Bureau of Reclamation
United States Department of the Interior***

The Albuquerque Projects Office was responsible for advising, planning, developing, coordinating, and carrying out field activities of the Bureau of Reclamation (Reclamation) during 1992 related to: **Brantley Project (Brantley Dam), Pecos River Basin Water Salvage Project, and Carlsbad Project, including Sumner Dam.**

The agreement between Reclamation and Carlsbad Irrigation District (CID), finalized on October 2, 1989, provided for CID to operate and maintain Brantley Dam, Sumner Dam, and the Pecos River Water Salvage Project. This contract was implemented during 1990 and has continued during 1992. 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.

BRANTLEY PROJECT (Brantley Dam)

The Brantley Project was authorized under Title II of Public Law 92-514 on October 20, 1972.

On January 1, 1992, Brantley Reservoir was at elevation 3246.37 feet, a total storage of 23,965 acre-feet (AF) (conservation storage 18,655 AF). A minimum release of 20 cubic feet per second (ft³/s) continued from Brantley Dam until the middle of March. A short-term higher release was made from February 11 to February 25 to provide irrigation water to CID lands. A large block of water was released from Sumner Dam from February 26 to March 13 to provide better quality water in Brantley Reservoir. On March 13, CID began releases from Brantley Dam to begin the irrigation season. Brantley Reservoir filled its conservation space on May 18 at elevation 3256.52 feet, a total storage of 50,992 AF (conservation storage of 45,682 AF). Flood control releases were then initiated to pass excess inflows and continued until June 15. The peak release period of 1,200 ft³/s occurred on June 2. The yearly maximum reservoir elevation (elevation 3256.90 feet) and storage content (total storage 52,478 AF) occurred on the same date.

On June 12, 1992, Reclamation put into effect a newly revised area-capacity table for Brantley Reservoir, and the new lake elevation for maximum conservation storage entitlement became 3254.86 feet. Therefore, on June 15, 1992, as the lake level dropped below the bottom of the flood pool, it was necessary to evacuate an additional 5,682 AF to reduce the reservoir elevation to the new storage entitlement elevation. On June 22, Brantley Reservoir reached elevation 3254.85 feet, a total storage of 45,286 AF (conservation storage of 39,976 AF). Normal irrigation releases continued until July 15 when releases increased to deliver a block of water downstream to assist the State of New Mexico deliver water to the State of Texas under Pecos River Compact regulations and a court-ordered decree. An agreement to deliver this water was signed by CID and the New Mexico Interstate Stream Commission. Delivery was complete by July 20 with a gross release of 10,080 AF being accomplished. Normal irrigation releases continued throughout the rest of the summer.

From September 23 to September 30, and from October 16 to October 24, two blocks of water were released from Sumner Dam to assist CID in delivering late season irrigation water and also to release another block of water from Brantley Reservoir to the State of New Mexico. From October 7 to October 14, a gross amount of 10,940 AF was released from Brantley under the agreement between CID and the State of New Mexico. On October 17, Brantley Reservoir reached its lowest point of the year at elevation 3236.23 feet, a total storage of 8,912 AF (conservation storage of 3,602 AF). On October 31, CID's irrigation season ended and releases were reduced to a minimum flow of 20 ft³/s to store fall and winter inflows. On December 31, Brantley Reservoir ended 1992 at elevation 3245.22 feet, a total storage of 21,716 AF (conservation storage 16,406 AF).

Status of contracts during 1992: The contract for **McMillan Lakebed Seeding** was awarded in January 1992 to Territorial Landscape Company of Albuquerque, New Mexico. This endeavor consisted of seeding 15,300 pounds of seven seed varieties in the drained lakebed. Work began on June 22 when it was discovered that an unforeseen level of koshia weed growth had covered 85 percent of the entire seeding area. The contractor had to cut and burn the koshia before any seeding could take place. Hopefully this process will reduce next year's koshia growth and prevent the migration of salt cedar into the lake bed area.

This changed condition required a contract modification to increase the awarded amount of \$167,885 to \$202,053. The contract was completed on August 13, 1992.

Reclamation land acquisition program consists of the following:

Tracts Acquired

188 surface tracts, a cost of \$14,113,326 - 1 tract acquired in 1992
105 mineral tracts, a cost of \$1,026,428
108 easements, a cost of \$1,177,978 - 4 easements acquired in 1992
1 water right tract at a cost of \$679,600 - acquired in 1992

The total expenditure is a sum of over \$16,977,332. Six mineral subordination easements and four flowage easements remain to be acquired.

The condemnations are categorized as follows: surface tracts - two are being processed and two are planned for the future; and easements - two being processed and two planned for the future. Uncontested acquisitions will be completed in approximately 18 months. Contested acquisition or condemnations are anticipated to be complete in the next 2 years, depending on the speed of the court process. Two wildlife mitigation water tracts, at an estimated cost of \$500,000, remain to be acquired and should be completed in Fiscal Year 1993.

CARLSBAD PROJECT

Carlsbad Project Reservoirs were operated in accordance with the requirements of the Pecos River Compact and the Flood Control Criteria of the Corps of Engineers.

Storage entitlements in 1992 were granted by the New Mexico State Engineer on January 7, 1992. The following table represents the 1992 storage entitlement for the four Pecos River Reservoirs:

<u>Reservoir</u>	<u>Conservation Storage Amount (AF)</u>	<u>Elevation (FT)</u>
Santa Rosa	93,722	4745.08
Sumner	39,745	4261.00
Brantley	40,000	3254.86
Avalon	3,033	3177.40
 Total:	 176,500	

Sumner Dam

On January 1, 1992, Sumner Reservoir was at elevation 4265.20 feet, a total storage of 56,769 AF (conservation storage of 52,746 AF). Under a water right permit granted by the State of New Mexico, CID is allowed to store up to an additional 20,000 AF in Sumner Reservoir from November 1 to April 30 each year provided that the accumulated conservation storage of all four reservoirs on the Pecos River in New Mexico does not exceed 176,500 AF. Storage of winter inflows continued during 1992 until

February 15, when Sumner Reservoir reached its peak storage of the year at elevation 4267.30 feet, a total storage of 64,038 AF (conservation storage 60,015 AF). Releases were then made from Sumner Dam for flood control operations to pass excess inflows. From February 26 to March 13, CID released a block of water from Sumner destined for Brantley Reservoir to provide better quality water for irrigation on CID lands. Maximum release during that period was 1,200 ft³/s on February 28. When Santa Rosa Reservoir filled on March 31 from an early spring runoff, Sumner again filled to the top of the conservation pool on April 10 at elevation 4261.00 feet, a total storage of 43,768 AF (conservation storage 39,745 AF). Flood control releases were again made at Sumner to keep the lake level down to the top of conservation pool, and continued until July 4. The peak release for 1992 from Sumner Dam occurred on May 28 at 1,481 ft³/s.

As previously mentioned in the discussion on Brantley Dam, two blocks of water were released from Sumner during the fall of 1992. On October 21, Sumner Reservoir reached its lowest point of the year at elevation 4244.91 feet, a total storage of 12,250 AF (conservation storage 8,227 AF). From October 24 to October 31, releases were set at Sumner Dam to provide natural flow for Fort Sumner Irrigation District (FSID) needs. The gates at Sumner Dam were closed on October 31 finishing the irrigation season, and the dam began to store fall and winter inflows. Sumner Reservoir ended the year at elevation 4252.47 feet, a total storage of 23,727 AF (conservation storage 19,704 AF).

Avalon Dam

Avalon Reservoir, used as hydraulic head for diversion into the Carlsbad Main Canal, started 1992 at elevation 3173.70 feet, a total storage of 1,407 AF (conservation storage 106 AF). Diversion into the main canal for irrigation began early (February 11 to February 26) for small grains. The irrigation season began in earnest on March 10. The reservoir reached its maximum level for the year on May 26 at elevation 3178.10 feet, a total storage of 4,998 AF (conservation storage 4,334 AF). Flood flows and excess conservation storage from Brantley Dam were spilled to the Pecos River at Avalon Dam from May 23 to June 23. The peak spill discharge to the Pecos River was 1,100 ft³/s on June 23. From July 15 to July 22 and

from October 8 to October 15, two blocks of water were bypassed to the Pecos River as delivery to the State of New Mexico. These blocks were released from Brantley storage destined for deliveries to the State of Texas for Pecos River Compact purposes.

The peak diversion of 398 ft³/s into the Carlsbad Main Canal occurred on August 12, 1992. On October 31, diversions to the main canal were discontinued, signaling the end of the irrigation season. Carlsbad Irrigation District diverted a total of 97,007 AF for irrigation during 1992. From November 1 to December 31, the minimum flow from Brantley Dam was stored in Avalon Reservoir. On December 31, 1992, Avalon Reservoir was at elevation 3174.30 feet, a total storage of 1,816 AF (conservation storage 515 AF).

PECOS RIVER BASIN WATER SALVAGE PROJECT

Public Law 88-594, approved September 12, 1964, authorized the Pecos River Basin Water Salvage Project to reduce the nonbeneficial use of water in the Pecos River Basin, and provided that no work shall be commenced on clearing the McMillan Delta floodway unless provision is made to replace CID's terminal storage. This replacement of CID's terminal storage was accomplished with the completion of Brantley Dam.

The maintenance of the 53,750 acres of land, cleared of salt cedar growth prior to 1990, continued during 1992. Under the Operation and Maintenance (O&M) agreement with Reclamation, CID is responsible for removing the vegetation from Sumner Dam through Red Bluff, Texas. Root plows attached to wheel and crawler tractors are generally used to accomplish this work. Extraordinary maintenance efforts were required in 1992 to combat the increased growth of phreatophytes in the Red Bluff area.

Approximately 280 tracts, representing 14,000 easement acres of private lands in both New Mexico and Texas are being cleared in areas where the original term easements have expired. To date, 75 easements in New Mexico have either been acquired or deemed no longer necessary. The State of New Mexico provided \$75,000 in 1992 for assistance in completing this process which is anticipated to be completed in 1995. At

this time, Texas has not participated in the easement identification and renewal program.

PECOS RIVER ENDANGERED SPECIES

On August 5, 1991, the Fish and Wildlife Service (Service) issued a Final Biological Opinion (Opinion) on Pecos River Water Operations. Reclamation concurred with the Service's Opinion on September 5, 1991. The Reasonable and Prudent Alternative within the Opinion required Reclamation to finance a 5-year river research effort (1992-1996) to study fish response to different flow regimes. In concurrence with the conditions of the Reasonable and Prudent Alternative, a Memorandum of Understanding (MOU) was signed by the Service, Reclamation, New Mexico Department of Game and Fish, and the CID to coordinate the release, monitoring, and protection of Pecos River flows and to analyze the effects of these flows on endangered fish species. These agencies met on February 25, 1992, and agreed upon an early spring release from Sumner Dam, satisfying the needs of all concerned parties.

Under this MOU, 1992 marked the first year of a 5-year study to determine the impacts and needs of the threatened species (Bluntnose Shiner) in the critical habitat areas on the Pecos River between Sumner Dam and Brantley Dam. To accommodate study needs, the following releases were made from Sumner Dam:

<u>Date</u>	<u>Flows above Fort Sumner Irrigation District's Diversion</u>
Jul 7 to Jul 20	20 ft ³ /s
Jul 20 to Aug 5	60 ft ³ /s
Aug 5 to Aug 13	45 ft ³ /s
Aug 13 to Sep 18	85 ft ³ /s
Sep 18 to Sep 23	65 ft ³ /s
Oct 1 to Oct 7	75 ft ³ /s
Oct 7 to Oct 16	45 ft ³ /s

The releases specified above for the threatened species study were released in addition to irrigation needs and were flows bypassed at the Fort Sumner Irrigation District's diversion dam downstream to the Pecos River.

All parties to the MOU are meeting on an as-needed basis to plan and schedule operations to meet the study goals and the needs of the water users. During 1992, the hydrologic modelling team was formed to plan the development of the computer model. It was concluded that a separate water quality team would deal with the complex issue of developing a water quality module that will be incorporated into the hydrology model.

FORT SUMNER PROJECT

A total of 47,141 AF was diverted during 1992 from the Pecos River by the FSID. No new developments occurred on FSID's Rehabilitation and Betterment loan application during 1992.

MALAGA BEND PROJECT

The Malaga Bend Salinity Alleviation Project was authorized by Congress by Public Law 85-333, dated February 20, 1958. The main provisions of this act were 1) construction was required to be substantially in accordance with the December 1954 report by the Geological Survey, Possible Improvement of Quality of Water of the Pecos River by Diversion of Brine at Malaga Bend, Eddy County, New Mexico; 2) changes to the plan could be made as the Secretary of the Interior finds appropriate to accomplish purposes of the Act; 3) right-of-way was to be acquired by the State of New Mexico for wells, pipeline, and disposal areas; and 4) the operation and maintenance was to be accomplished by the State of Texas or other state agency.

Experimental facilities were constructed and pumping began in 1963. A December 1979 report by the Geological Survey, Experimental Salinity Alleviation at Malaga Bend of the Pecos River, Eddy County, New Mexico contains the results of the pumping. The report concluded that pumping was an effective method of reducing brine inflow to the river.

During this past year United Salt Company of Carlsbad expressed interest in reactivating pumping at Malaga Bend and in mining the salt. Reclamation, United Salt Company and Red Bluff Water Power Control District are currently discussing the development of an operating plan which would result in a reduction of the salt load in the river and an economic benefit to United Salt Company. There are several obstacles which must be overcome:

1. The pumping scheme may need to be modified since pumping in the late 1960's appeared to increase the salinity.
2. The reduction of salt may affect the existing fish population and the ponds may create a hazard for water fowl and shore birds.
3. The Pecos Rivers Master Manual must be amended to account for system losses due to the diversion and evaporation of Pecos River Water.

Reclamation will work toward developing an operating plan which will eliminate these obstacles and result in pumping in the near future. National Environmental Policy Act compliance would be required on the operating plan.

In the event that this reactivation is not possible, Reclamation could re-evaluate the Project during 1995. This re-evaluation will review current data to determine if the salinity reduction is still possible and to evaluate the benefits and economics of the project. It will identify beneficiaries and possible cost-sharing agencies. Alternatives to pumping, as well as different well sites and evaporation pond sites, will be identified and reviewed. In addition, the environmental aspects of the project will be examined. Future requests for funding for construction of facilities to alleviate salinity will be dependent on the results of the re-evaluation.

TECHNICAL ASSISTANCE TO STATES PROGRAM

Under this program, the Albuquerque Projects Office performed an analysis of the historic reservoir losses and seepage attributable to the operations of Avalon Reservoir. In addition, preliminary work was performed in preparation for canal seepage tests within the main canal of the Carlsbad Irrigation District. This information is being provided to the state of New Mexico.

The Rio Penasco and Four Mile Draw Water Conveyance Study will evaluate the potential for channeling water flowing from the two tributaries into Brantley Reservoir. The study will be completed by September 30, 1993.

Reclamation has reviewed existing hydrologic and sediment records, maps, and planning reports, and has updated profile and cross section surveys on the Pecos River, Rio Penasco, and Four Mile Draw.

Remaining work to be completed includes determination of a possible new alignment for the Pecos River or an additional channel through the McMillan Delta that could enhance delivery of tributary flow to Brantley Reservoir. Factors to be considered in this determination will include: optimization of channel slope through the delta, ability of the proposed channel to transport the expected sediment load, construction cost, maintenance requirements and funding, and environmental effects.