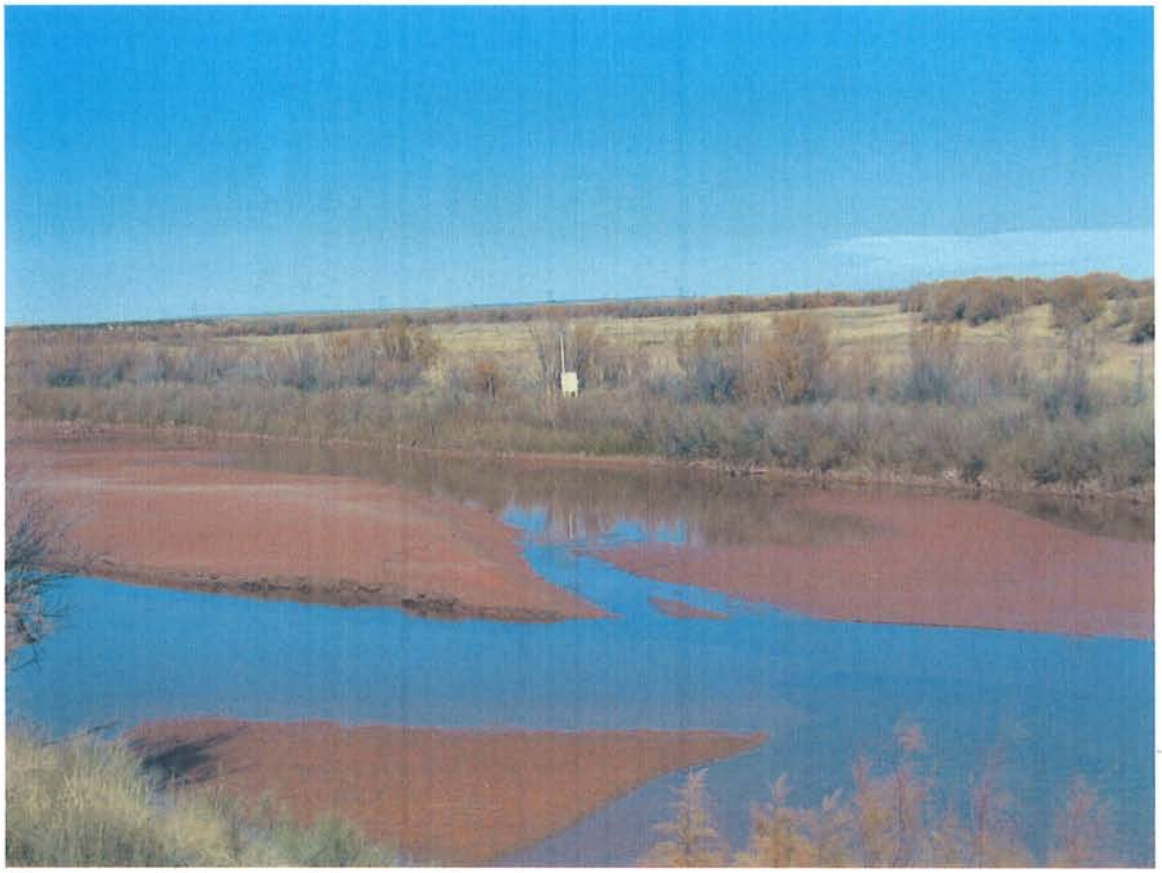
2007 Annual Adaptive Management Report (Jan 07- Dec 07) for the Carlsbad Project Water Operations and Water Supply Conservation Environmental Impact Statement



Pecos River, New Mexico

U.S. Department of the Interior
Bureau of Reclamation
Albuquerque Area Office

April 2008

Mission Statements

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

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

2007 Annual Adaptive Management Report (Jan 07- Dec 07) for the Carlsbad Project Water Operations and Water Supply Conservation Environmental Impact Statement - FINAL

Carlsbad, New Mexico

Prepared by

AAO Bureau of Reclamation

Contents *Page Number*

Introduction 1

Criteria, Triggers, Monitoring and Response..... 2

Indicator 1: Continuous River Flows 3

Indicator 2: Flow monitoring at Taiban and Acme Gages 4

Indicator 3: Incoming flows available for bypass..... 4

Indicator 4: Block Releases 5

Indicator 5: Density for the Pecos Bluntnose Shiner 6

Indicator 6: Density for the Interior Least Tern (Tern)..... 6

Indicator 7: Carlsbad Project Water Supply Status..... 7

Indicator 8: Aquifer Storage and Base Inflows from the Roswell Basin 7

Recommendations for Monitoring and River Management in Next Calendar Year 9

Cover photograph: Acme Gage on the Pecos River

U.S. Department of the Interior
Bureau of Reclamation
Albuquerque Area Office

April 2008

Introduction

This report covers the period January 1, 2007 through the end of the calendar year December 31, 2007 as stated in the Carlsbad Project Water Operations and Water Supply Conservation EIS, June 1, 2006. This report describes the proposed change for new indicators from the previous year's Adaptive Management Plan Report, dated March 2007.

Adaptive Management Plan (AMP) The original AMP outlines a procedure for monitoring indicators (which serve as signs or symptoms) and modifying river operations when needed. It is a means to address uncertainty by monitoring Carlsbad Operations EIS targets, identifying actions to be taken for targets that are in jeopardy, and applying lessons learned in the future management of river operations by modifying operations within established parameters.

The AMP was designed to ensure compliance with the Biological Opinion (BiOp) and the Record of Decision (ROD) for the Carlsbad Project Water Operations and Water Supply Conservation EIS, completed August 2006.

Adaptive Management – Carlsbad Project Water Operations: Taiban Constant Alternative

The AMP developed for the Carlsbad Water Operations and Water Supply Conservation EIS appropriately addressed the range of alternatives under consideration. Since the Bureau of Reclamation (Reclamation) has identified the Taiban Constant as its preferred alternative and consulted with the U.S. Fish and Wildlife Service (Service) regarding the effects of the Taiban Constant on endangered species, it is meaningful to reformulate an AMP that is focused on the Taiban Constant alternative. In fact, to better determine potential future effects on the Pecos bluntnose shiner, it is necessary. In the **original document**, seven objectives were identified for the development of adaptive management guidelines, specifically for the Taiban Constant alternative:

1. Develop a monitoring, decision-making, and response program for the long-term management of the Pecos River flows;
2. Identify agency responsibilities for monitoring and response;
3. Conserve populations of the Pecos bluntnose shiner;
4. Conserve the Carlsbad Project water supply;
5. Assure critical habitat remains wetted;
6. Meet flow criteria at the Taiban gage as specified in the EIS, and;
7. Minimize river intermittency in reaches not designated as critical habitat.

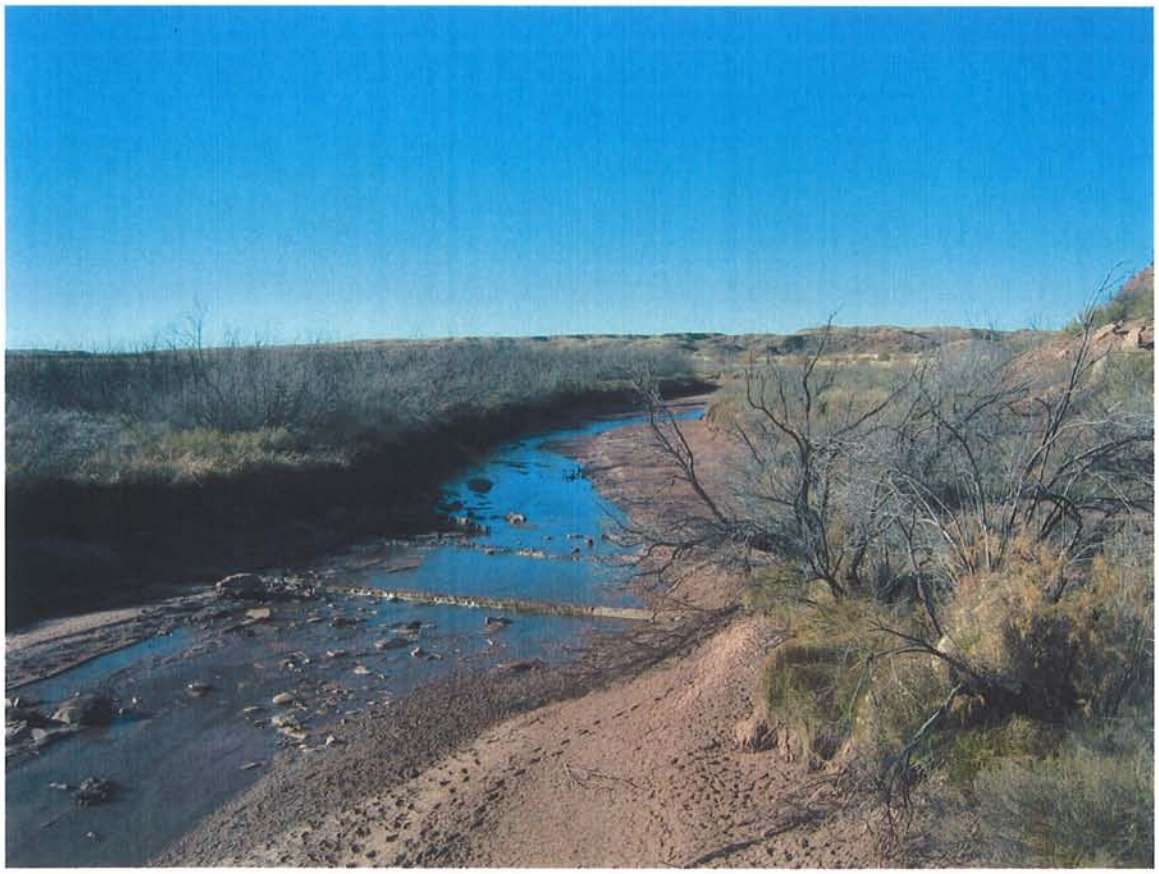
The AMP provides structure for making decisions based on changing environmental and hydrological conditions and offers a forum to stakeholders for developing consensus. Communications for the AMP are carried out throughout the year primarily through conference calls among the Pecos River Stakeholder Group and the preparation of the Annual AMP Report. Members of the Pecos River Stakeholder Group include the Service, Reclamation, Carlsbad Irrigation District, Ft Sumner Irrigation District (FSID), New Mexico Department of Game and Fish, New Mexico Office of the State Engineer (NMOSE), New Mexico Interstate Stream Commission (NMISC), US Army Corps of Engineers (COE) and interested environmental groups.

Criteria, Triggers, Monitoring and Response

The core components of the AMP for the Taiban Constant alternative are criteria, triggers, monitoring, and response. These components are described for the following indicators:

Indicator 1: Continuous River Flows
Indicator 2: Flow monitoring at Taiban and Acme Gages
Indicator 3: Incoming flows available for bypass
Indicator 4: Block Releases
Indicator 5: Density for the Pecos Bluntnose Shiner
Indicator 6: Density for the Interior Least Tern (Tern)
Indicator 7: Carlsbad Project Water Supply Status
Indicator 8: Aquifer Storage and Base Inflows from the Roswell Basin

This report describes the actions taken in the calendar year January 1, 2007 through December 31, 2007 and future recommendations which are in the AMP report for monitoring and river management for 2008.



Pecos River by Ft Sumner NM- November 2006

New Indicator list with criteria, triggers and monitoring for the 2007 AMP:

Indicator 1 - Continuous River Flows

Criteria: During the irrigation season or other periods of time when FSID is entitled to their direct diversion right from the Pecos, water will only be diverted into storage in Sumner and/or Santa Rosa Reservoirs when the following three conditions are all being met:

1. there is available reservoir inflow in excess of FSID's flow entitlement as calculated on a two-week basis by the New Mexico Office of the Sate Engineer (NMOSE)
2. the 35 cfs river flow target at Taiban Gage is being met
3. there is no risk of river intermittency

During the non-irrigation season or other times when FSID is not entitled to utilize their direct diversion right from the Pecos, water will only be diverted into storage in Sumner Lake and/or Santa Rosa Reservoir when the following two conditions are being met:

1. the 35 cfs river flow target at Taiban Gage is being met
2. there is no risk of river intermittency

Trigger: The river flow trigger is activated when the flow rate measured and reported by USGS at Taiban is 40 cfs or less, or the flow rate measured and reported by USGS at Acme is 10 cfs or less.

Monitoring: River flow and reservoir elevation data are collected electronically every four hours from gage sites and relayed, via satellite links, to US Geological Survey (USGS) and Army Corps websites. Reclamation staff monitors these sites daily. During the irrigation season, Reclamation holds weekly conference calls. Gage data is collected and recorded on logs and discussed on the calls at the beginning of each week. Participation from all Pecos stakeholders is encouraged on these weekly operation management conference calls. Weekly conference call logs are available from Reclamation staff upon request.

Response: When the trigger is activated by reaching the target point at either gage, Reclamation initiates additional monitoring (i.e. flow measurements, observation flights, video camera observations, or other methods) to establish the accuracy of the gage data. Depending on the accuracy of the data, Reclamation may initiate corrective actions.
If bypass water is available, Reclamation will begin bypassing inflow to target 35 cfs at Taiban and/or keep the river continuous. If bypass water is not available and the Vaughan pipeline is operational and available for use, Reclamation will order the operation of the Vaughan pipeline at a rate needed to keep the river continuous. If bypass water is unavailable and the Vaughan pipeline is unavailable, Reclamation will release Fish Conversation Pool (FCP) water at a rate needed to avoid intermittency.

Action Taken (if any) January 2007- December 2007:
The Vaughan pipeline was not operational and 700 af of the FCP was released during the summer. (August 22-27, 2007)

Indicator 2 - Flow monitoring at Taiban and Acme Gages

Criteria: Correctly operating gages are important to river management. The USGS is responsible for measurement and maintenance of their gages. For Reclamation's Pecos River operations for the Pecos bluntnose shiner, the two most important gages are Taiban and Acme, although other gages are used for operations. These two gages provide data on intermittency and flow targets.

Trigger: The gage trigger is activated when the Taiban or Acme gage is malfunctioning or non-operational.

Monitoring: Monitored by independent contractor as well as USGS. Reclamation funds USGS to operate and maintain the gages along the Pecos River. Inoperable gages are reported to the USGS and Reclamation initiates contracted monitoring as necessary to measure gage sites and report all findings immediately.

Response: Have contractor out during these times to manually measure flows on as often as necessary until gages are repaired.

Action Taken (if any) January 2007- December 2007:
No action taken.

Indicator 3 – Incoming flows available for bypass

Criteria: FSID is entitled to the natural river flow up to 100 cfs as measured at the Puerto de Luna gage upstream from Sumner Lake. FSID's entitlement is calculated every 2 weeks based on the NMOSE computations. Reclamation can divert to storage or bypass any inflows in excess of FSID's maximum water right (100cfs). Data needed is obtained from the NMOSE Pecos Water Master in the Roswell district office. Information collected by the NMOSE on flow entering Santa Rosa Reservoir and Sumner Lake as well as USGS gage data are used to determine the availability of water for bypasses. This information would be used to assess whether there is available Carlsbad Project Supply to bypass through Santa Rosa and Sumner dams.

Trigger: The incoming flows available for bypass trigger is activated when it is determined by NMOSE that incoming available flows exceed FSID's senior diversion rights.

Monitoring: NMOSE, measures flows at gage sites along the river for compact accounting purposes. These flows are calculated for FSID's senior water right and the results are faxed to Reclamation's staff on a bi-weekly basis. Flows are then calculated for the amount of water available for bypass through Sumner Dam. If flows are not needed to keep the river continuous, water is diverted to storage for Carlsbad Project supply.

Response: Make incoming available flows exceeding FSID's senior diversion rights available, as needed, for bypass during these time periods. After the end of FSID's irrigation season on October 31, all Sumner inflows will be made available for bypass for meeting in-stream target flows.

Action Taken (if any) January 2007- December 2007:

Due to the lack of an actual monsoon season in the Pecos basin between Santa Rosa and Acme, no inflows were available for bypass.

Indicator 4 – Block Releases

Criteria: A block release is defined as moving water efficiently from Sumner Lake to Brantley Reservoir for the purpose of irrigation. A block release transfers a large quantity of water within a short timeframe (2 weeks or less) to minimize evaporation and bank losses. Block releases also occur between Santa Rosa Reservoir and Sumner Lake. The frequency and duration of block releases from Sumner Dam will be recorded as they occur and compiled into this annual report. Four key criteria are: (1) block releases will not exceed 15 days; (2) there will be at least 14 days between block releases; and (3) block releases should not occur during the 6-week period centered on August 1; or (4) the cumulative duration of block release from Sumner Dam shall not exceeds 65 days in one year.

Trigger: The block release trigger is activated by at least one of the following four conditions: (1) the 15-day block release duration is exceeded; (2) there is less than 14 days between releases; or (3) a block release is expected in the 6-week period centered on August 1; or (4) the cumulative duration of block release from Sumner Dam exceeds 65 days.

Monitoring: Plans for future block releases will be compared to the trigger criteria to determine if trigger criteria will be activated. The start, end and duration of block releases will be measured and recorded based on the flows reported at the USGS gage: Pecos River below Sumner Dam, NM, USGS 08384500.

Response: Coordinate all block releases with CID when flows have dropped below specified levels (Acme 10cfs, Taiban 40cfs) to keep the river continuous.

Action Taken (if any) January 2007- December 2007:

There were three block releases made this season per Carlsbad Irrigation District's (CID) request. The fist one took place on February 26 through March 5, with a total of 21,330 ac-ft destined for Brantley Reservoir. The second release ran between July 3 and July 9, with a total of 20,158 ac-ft. The third block release headed to Brantley occurred between August 28 and September 6, with a total of 19,946 ac-ft. All the criteria for block releases were met and no corrective actions were needed.

Indicator 5 - Density for the Pecos Bluntnose Shiner (Shiner)

Criteria: The density of the adult shiner as stated in the BiOp based on a two year running average.

Trigger: If fish densities fall to a low level in one year, then this is a warning that the next year action would need to be taken based upon the likely cause of decline (e.g., intermittency).

Monitoring: Fish monitoring done monthly, year-round at specified sites.

Response: Reclamation will give both CID and FSID as much advance notice as possible when there is potential for changes in water operations to benefit the Pecos bluntnose shiner.

Action Taken (if any) January 2007- December 2007: No action taken, based on preliminary numbers received from the Fish and Wildlife Service as to the density of the adult shiner population (population numbers were up).

Indicator 6 - Presence/Absence of the Interior Least Tern (Tern)

Criteria: The density of the adult interior least tern and activities at created nesting habitat sites.

Trigger: Nesting terns in the conservation pool of Brantley Reservoir

Monitoring: Monitor lake levels and water delivery plans to assess the potential for impact to nesting terms.

Response: Assess potential for take; coordinate with CID and other interested parties on water management to help prevent inundation of nests and/or young. If all other options are exhausted, consider moving nests to avoid rising water. If take is anticipated, coordinate in advance with the Fish and Wildlife Service.

Action Taken (if any) January 2007- December 2007:

Because of high water levels all spring and summer, there was no nesting activity by least terns in the Brantley Reservoir area. Created habitat sites, outside the Brantley full-pool level, were not utilized in 2007.

Indicator 7 – Carlsbad Project Water Supply Status

Criteria: One of the purposes of the EIS is to conserve Carlsbad Project water supply. Operation of Sumner Dam for the benefit of the shiner could result in reductions to the available Carlsbad Project water supply, potentially impacting the CID. Water acquisition options have been developed to acquire additional water to compensate for net depletions to Carlsbad Project supply.

Trigger: The trigger is activated annually to evaluate whether a shortage or surplus is occurring with respect to the Carlsbad Project water supply. However, informal periodic discussions with CID should occur during the year to monitor the status of irrigation water supply and use.

Monitoring: Use the annual accounting of net depletions to the Carlsbad Project for the calendar year covering the reporting period of this report. These estimates would indicate if existing Carlsbad Project water acquisitions exceed the calculated estimated net depletions due to Reclamation's bypass operations to benefit the shiner.

Response: If the annual accounting determines that net depletion occurred by the end of the calendar year, any existing credits will be applied as required to bring the annual balance to zero. Any credit applied to zero out the annual depletions will be deducted from the total accrued credit balance. If there is insufficient credit water available to offset any annual net depletions, Reclamation will concurrently begin discussions with NMISC while pursuing additional options to offset the annual net depletions.

If the annual accounting determines that a net credit occurred by the end of the calendar year; this credit will be added to Reclamation's accrued credit balance.

Action Taken (if any) January 2007- December 2007: Reclamation monitored the storage and surplus of water through weekly conference calls. No net depletion to CID occurred in 2007.

Indicator 8 - Aquifer Storage and Base Inflows from the Roswell Basin

Criteria: Surface and ground water resources are interconnected. An increase in ground water supplies in the Roswell and Artesia basins is expected to eventually result in an increase in surface water supplies. Thus, improving groundwater conditions can indirectly benefit the Carlsbad Project, CID and the shiner. In addition, ground water resources can be lost to evapotranspiration as aquifer levels rise.

Trigger: Aquifer storage and base inflows from the Roswell Basin are used as an indicator; groundwater depths would be used as an indicator of aquifer storage.

Monitoring: The USGS maintains four monitoring wells in the Roswell and Artesia basins that provide regular data of groundwater depths. NMOSE and NMISC collect and review data on aquifer storage and base inflows. This evaporation will occur annually.

Response: If the annual evaluation of groundwater conditions and base inflows indicate a multi-year decline trend, Reclamation will initiate studies to ensure the river will keep a continuous flow.

Action Taken (if any) January 2007- December 2007: Reclamation conducted weekly monitoring of gages, surface water flow surveys and still photos of the river.

Recommendation for Monitoring and River Management in Next Calendar Year

Track and document inform from the Vaughan pipeline.