

Department of the Interior
BUREAU OF RECLAMATION
ALBUQUERQUE AREA OFFICE

2008

**SUPPLEMENTAL WATER
PROGRAM REPORT**

February 2009



Introduction

The Rio Grande silvery minnow was listed as a federally endangered species on July 20, 1994. Dewatering of the river channel within the silvery minnow's habitat was identified as a key threat to the continued existence of the species. A sizeable portion of the silvery minnows' habitat is located within the mainstem of the Rio Grande between Cochiti Dam and San Marcial, which is a section of the river prone to critically low flows during the irrigation season.

Summary of the 2008 Supplemental Water Program

The 2008 Supplemental Water Program was used to assist in achieving the targeted flows as described in the Biological and Conference Opinions on the Effects of Actions Associated with the Programmatic Biological Assessment of the Bureau of Reclamation's Water and River Maintenance Operations, Army Corps of Engineers' Flood Control Operation, and Related Non-Federal Actions on the Middle Rio Grande, New Mexico, dated March 2003 (BO).

No additional water under the Emergency Drought Water Agreement was stored in 2008. The EDWA pool for minnow purposes in El Vado is currently empty, however, there is still the opportunity to store 30,451 ac-ft if supplies warrant and there is inadequate sources of water to meet the demands of endangered species.

In addition to the EDWA releases, 33,451 ac-ft of leased SJ-C water was released throughout the year beginning in mid-July. A below average monsoon season from July through October made releases for endangered species necessary during that time frame.

Approximately 30 ac-ft was pumped from the Low Flow Conveyance Channel into the Rio Grande to keep the reach of river wet between San Acacia and Elephant Butte. The pumps were used for just under a day at the South Boundary in October to prevent the only drying of the year.

Table 1 summarizes the water used in 2008 to supplement flows in the Rio Grande between Cochiti and Elephant Butte Reservoir

Table 1 – Water Used in 2008 to Supplement flows in the Rio Grande

Source of Water	Volume (ac-ft)
Leased 2008 SJ-C Contractor Allocation released	33,441
Emergency Drought Water Agreement	0
Water Pumped from LFCC into Rio Grande	30
TOTAL	33,471

Representatives from USBR, U.S. Army Corps of Engineers (USACE), USFWS, NMISC, and MRGCD participated in conference calls throughout the irrigation season to exchange information and discuss Agency actions. These calls provided an efficient means to coordinate water operations, LFCC pumping operations, and related silvery minnow rescue operations.

Stream Flow Forecast and Estimated Actual Runoff

The National Resource Conservation Service’s (NRCS) May 1, 2008 stream flow forecast for the Rio Grande Basin¹ projected the total spring runoff to be slightly above average based on a basin snowpack at 107% of average. The May 1st forecast projected the most probable stream flow to range from highs of 139% of average for the inflow into El Vado Reservoir to a low of 80% of average for the Jemez River. It should be noted that NRCS snowmelt forecasts are unregulated forecasts of stream flow that would occur naturally without any upstream influences.

The 2008 spring snowmelt runoff in the Rio Grande basin was a fairly good one with very manageable flows. Cool weather kept runoff peaks lower than were predicted.. This also allowed for the runoff season to last longer than anticipated. March-July runoff stream flows at Otowi Bridge and San Marcial were estimated to be 120% and 102% of average, respectively. Table 2 presents the NRCS May 1, 2008 forecast volumes and estimated actual runoff for select stations within the Rio Grande Basin. Runoff stream flow volumes were estimated by adjusting actual stream flow data to account for existing upstream influences.

Table 2 – May 1, 2008 NRCS Stream Flow Forecasts and Estimated Runoff (ac-ft)

Forecast Point	Most Probable Runoff Volume (% 30 yr avg)	1971-2000 30 Year Average Volume	Estimated Runoff Volume (% 30 yr avg)
Embudo Creek at Dixon (Mar-Jul)	52,000 (102%)	51,000	41,000 (80%)
El Vado Reservoir Inflow (Mar-Jul)	330,000 (139%)	237,000	328,200 (138%)
Rio Grande at Otowi Bridge (Mar-Jul)	1,040,000 (137%)	757,000	906,500 (120%)
Santa Fe River near Santa Fe (Mar-Jul)	4,500 (98%)	4,600	4,000 (87%)
Jemez Canyon Reservoir Inflow (Mar-Jul)	36,000 (80%)	38,000	34,800 (92%)
Rio Grande at San Marcial (Mar-Jul)	695,000 (121%)	573,000	582,800 (102%)

Leased SJ-C Water for 2008 Supplemental Water Releases

Table 3 provides a summary of all SJ-C supplemental water leases and releases executed in 2008.

Table 3 – Summary of San Juan-Chama Contractor Water Leased in 2008

Dates of Release	Contractor	Volume (ac-ft)
7/21-10/29	ABCWUA	33,441
12/16-12/17	Belen	470*
12/15-12/16	Espanola	856*
12/12-12/15	Los Alamos	1,200*
12/17	Taos	400*
12/04-12/12	Jicarilla Apache	2,948*
12/18-12/19	Los Lunas	293*
12/17-12/18	Bernalillo	320*
12/17-12/18	Santa Fe County	375*
12/19-12/23	Uncontracted	2,990*
12/19	Red River	60*
12/19	Taos Ski Valley	15*
	ABCWUA Carryover	10,772*
*stored in Abiquiu		
TOTAL 2008 LEASES AVAILABLE FOR 2009		20,699

Low Flow Conveyance Channel Pumping

USBR maintained 15 portable diesel driven pumps to transfer water from the LFCC to the Rio Grande during the 2008 irrigation season. The pumps are located between Socorro and Elephant Butte Reservoir, beginning at the Neil Cupp location approximately 2.8 miles north of Highway 380 and extending downstream approximately 5 miles south of San Marcial LFCC gage at Fort Craig. Figure 1 provides a map showing the general locations of LFCC pumping stations.

The only day pumping was needed this year was on October 4. The river showed signs that drying could occur in the San Marcial reach, so 2 pumps were turned on at the South Boundary for slightly less than a day. Approximately 30 AF was pumped from the LFCC to the Rio Grande during 2008. The approximate annual volume pumped by location is tabulated in Table 4.

Discharge measurement and telemetry installations were completed at the Neil Cupp, North Boundary Bosque del Apache, and South Boundary Bosque del Apache pumping stations. Discharge data from these sites is posted on USBR’s ET Toolbox web site at the following URL:

<http://www.usbr.gov/pmts/rivers/awards/Nm/rg/RioG/gage/schematic/SCHEMATICsouth.html>

It should be noted that the South Boundary outfall channel and measurement weir were severely damaged in 2008. Telemetry data will most likely not be available in 2009.

Table 4 – Approximate Annual Volume by LFCC Pumping Location

Pumping Location	No. of Pumps	Approximate Annual Volume (ac-ft)
Neil Cupp	4	0
North Boundary Bosque del Apache NWR	3	0
South Boundary Bosque del Apache NWR	5	30
Fort Craig	3	0
TOTAL	15	30

Actual San Acacia and San Marcial Flows Compared to Target Flows

Supplemental water was used to assist in achieving the targeted flows as described in the March 2003 BO. The elements of target flows are based on the April 1 runoff forecast for the Otowi Gage which determines whether the year will be declared a Dry, Average, or Wet year. Years in which Article VII of the Rio Grande Compact are in effect are declared Dry years. 2008 was classified as a Wet year due to a forecast at Otowi of over 120% of average. Wet year protocols were followed which included minimum flows of 150 cfs at Isleta Dam and 100 cfs at San Acacia after June 15.

Target flows at Albuquerque, San Acacia, and San Marcial as described in Reasonable and Prudent Alternative Water Operations Elements L and N are summarized in the following paragraphs.

Element L

“Action agencies, in coordination with parties to the consultation, shall provide continuous river flow from Cochiti Dam to the southern boundary of the silvery minnow critical habitat from November 16 to June 15, with a target flow of 100 cfs at the San Marcial Floodway gage.”

Element N

“Action agencies, in coordination with parties to the consultation, shall provide year-round continuous river flow from Cochiti Dam to the Isleta Diversion Dam with a target flow of 150 cfs over Isleta Diversion Dam.”

Figure 2 shows the target flow of 100 cfs and the actual measured flow at the USGS gage 08330000 Rio Grande at Albuquerque, NM. Flows through Albuquerque were well above the target flow during all of 2008. Reclamation kept continuous flows throughout the complete length of the river for the entire irrigation season. Figure 3 illustrates the streamflow of the lower section of the Middle Rio Grande Reach as measured at the USGS gage 08358400 Rio Grande Floodway at San Marcial, NM. While flows did approach zero, the river never went dry.

LFCC PUMP LOCATION MAP

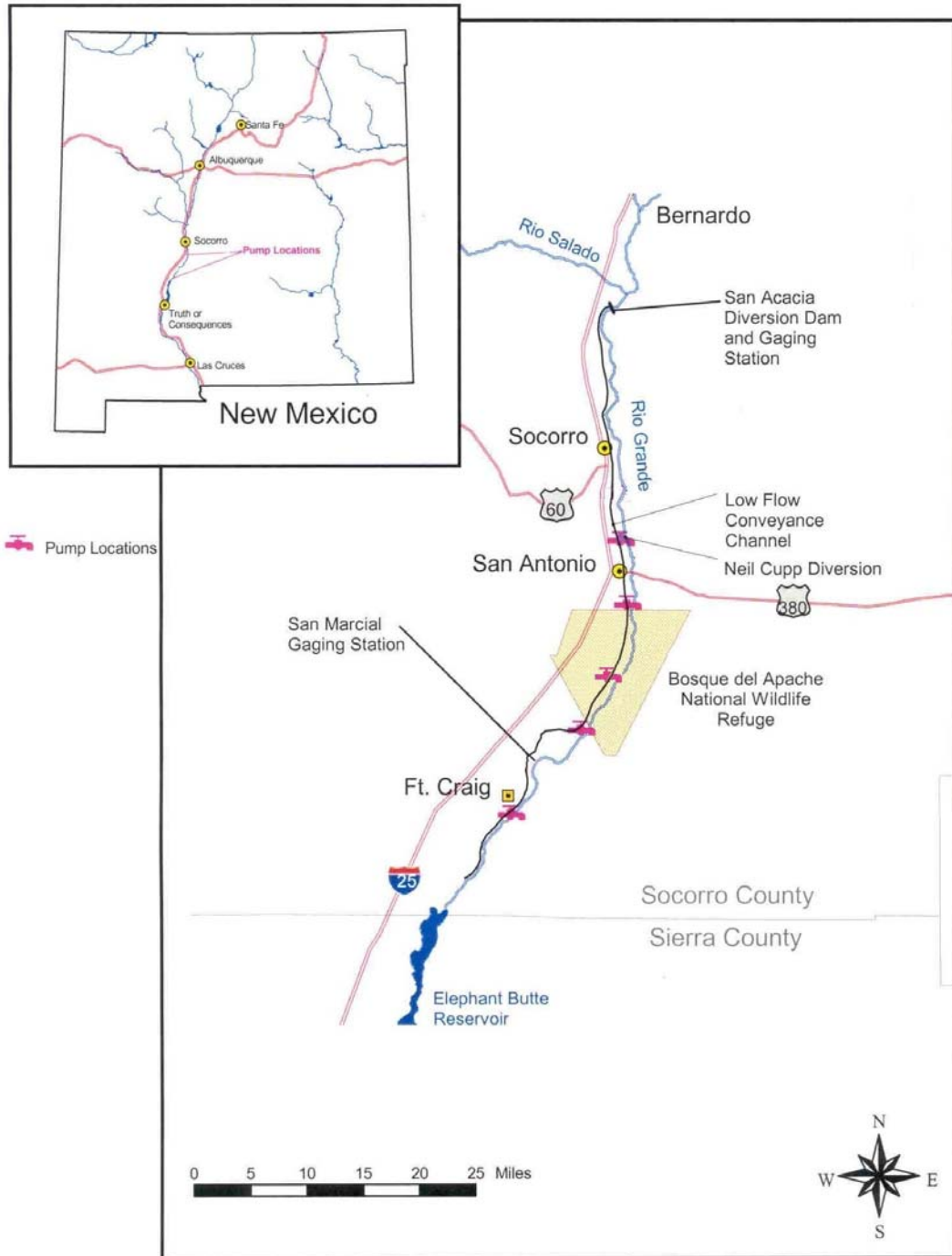


Figure 1 – Map Showing Low Flow Conveyance Channel Pumping Locations

¹ *New Mexico Basin Outlook Report, May 1, 2008 (USDA / NRCS 2008)*

Figure 2 – Measured Albuquerque Discharge

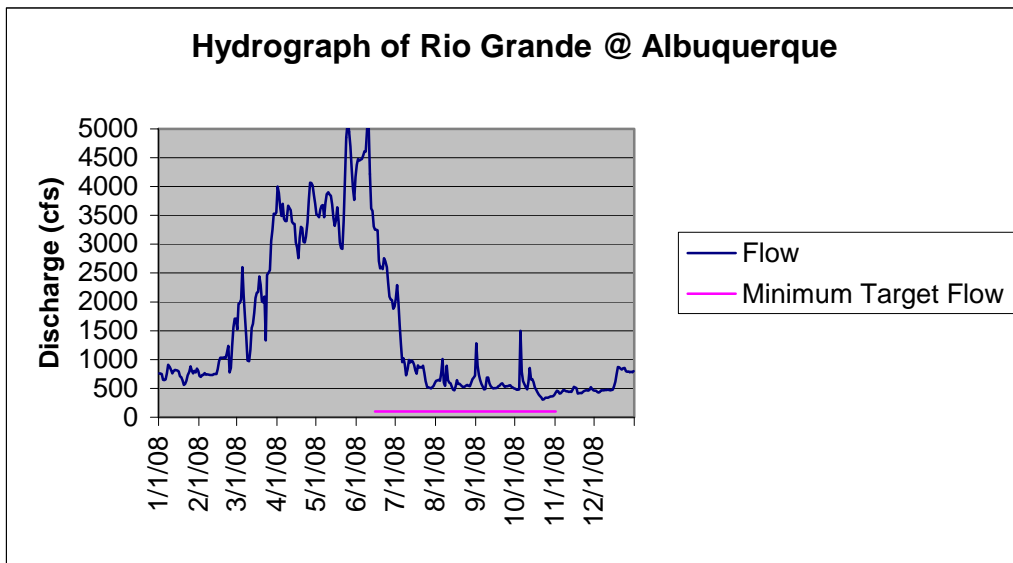


Figure 3 – Measured San Marcial Discharge

