

2003

2003 Supplemental Water Program Report

U.S. Department of the Interior, Bureau of Reclamation

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Department of the Interior
BUREAU OF RECLAMATION
ALBUQUERQUE AREA OFFICE

2003
SUPPLEMENTAL WATER
PROGRAM REPORT

February 23, 2004



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 minnow's 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.

The Final Rio Grande Supplemental Water Programmatic Environmental Assessment¹ (EA) was developed in compliance with the National Environmental Policy Act of 1969 to analyze the establishment of a Supplemental Water Program that would provide supplemental water to primarily benefit the silvery minnow. The following items that were identified within the EA were evaluated as possible components of the Supplemental Water Program. During 2003, the U.S. Bureau of Reclamation's (USBR) Supplemental Water Program did not include items 4. and 5.

1. San Juan-Chama Water Leases: USBR may conduct a San Juan-Chama Project (SJ-C) water leasing and management program to provide supplemental water to the Rio Grande for approximately five years, from 2001 to 2005.
2. Concurrence with Waiver Requests: USBR may concur with temporary waiver requests from SJ-C contractors to modify the date of their water delivery into the following calendar year, if such waivers benefit the United States.
3. Low Flow Conveyance Channel Water Management Options: USBR may investigate the implementation of additional measures to manage and use waters in the Low Flow Conveyance Channel (LFCC).
4. Off-channel Interim Storage of Water at Refuges: USBR may investigate opportunities with Federal and State refuges along the Rio Grande to use any available capacity in existing ponds for off-stream temporary storage. Examples of refuges that may have limited capacity in existing ponds include Sevilleta National Wildlife Refuge, La Joya State Game Refuge, and the Bosque del Apache National Wildlife Refuge.
5. Use of Groundwater Wells: USBR may investigate the possibility of drilling new wells or leasing the right to pump existing agricultural wells from willing lessors to exchange water with the lessors or directly augment Rio Grande flows during emergencies. Alternatively, USBR may lease water from new wells developed by others.

Summary of the 2003 Supplemental Water Program

The 2003 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).

A total of 13,327 AF of native Rio Grande water ~~stored~~^{RELEASED} under the Emergency Drought Water Agreement, 1,549 native Rio Grande water stored in the Middle Rio Grande Conservation Pool (Conservation Pool) and 14,354 AF of SJ-C water acquired through USBR's water leasing program were used to augment Rio Grande flows for endangered species purposes during 2003. Approximately 20,928 AF water was transferred from the LFCC to the Rio Grande floodway using portable pumps. Table 1 summarizes the water used in 2003 to supplement flows in the Rio Grande between Cochiti and Elephant Butte Reservoir.

Table 1 – Water Used in 2003 to Supplement flows in the Rio Grande

Source of Water	Volume (ac-ft)
Leased 2003 SJ-C Contractor Allocation	14,354
Middle Rio Grande Conservation Pool	1,549
Emergency Drought Water Agreement	13,327
Water Pumped from LFCC into Rio Grande	20,928
TOTAL	50,158

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, 2003 stream flow forecast for the Rio Grande Basin² projected the total spring runoff to be below average based on precipitation at 93% of average and basin snowpack at 76% of average. The May 1st forecast projected the most probable stream flow to range from highs of 95% of average for the Rio Hondo near Valdez to a low of 43% of average for the Rio Grande at San Marcial. It should be noted that NRCS snowmelt forecasts are unregulated forecasts of stream flow that would occur naturally without any upstream influences.

The 2003 spring snowmelt runoff in the Rio Grande basin was a vast improvement over the previous year which was one of the worst on record. March-July runoff stream flows at Otowi Bridge and San Marcial were estimated to be 13% and 2% of average, respectively. Table 2 presents the NRCS May 1, 2003 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, 2003 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)	44,300 (86%)	51,000	27,900 (55%)
El Vado Reservoir Inflow (Mar-Jul)	130,000 (55%)	237,000	164,600 (69%)
Rio Grande at Otowi Bridge (Mar-Jul)	400,000 (53%)	757,000	251,300 (33%)
Santa Fe River near Santa Fe (Mar-Jul)	4,300 (94%)	4,600	1,095 (24%)
Jemez Canyon Reservoir Inflow (Mar-Jul)	21,000 (55%)	38,000	24,326 (64%)
Rio Grande at San Marcial (Mar-Jul)	245,000 (43%)	573,000	13,421 (2%)

Leased SJ-C Water for 2003 Supplemental Water Releases

Table 3 provides a summary of all SJ-C supplemental water leases and releases executed in 2002.

Table 3 – Summary of San Juan-Chama Contractor Water Leased for 2003

Dates of Release	Contractor	Volume (ac-ft)	Reservoir	Purpose
Mar. 7 – Apr. 2	Uncontracted	2,990	Heron	ESA Releases
Apr. 2 – Apr. 8	San Juan Pueblo	2,000	Heron	ESA Releases
Apr. 8 – May 27	Jicarilla Apache	6,500	Heron	ESA Releases
Apr. 30 – May 1	Belen	198	Heron	ESA Releases
Jun. 18 – Jun. 19	Los Lunas	39	Heron	ESA Releases
Jun. 18 – Jun. 19	Red River	60	Heron	ESA Releases
Jun. 18 – Jun. 19	Belen	102	Heron	ESA Releases
Aug. 3 – Aug. 4	Town of Taos	370	Heron	ESA Releases
Aug. 3 – Aug. 4	Los Lunas	61	Heron	ESA Releases
Aug. 20	Town of Taos	48	El Vado	ESA Releases
Aug. 29 – Sep. 1	Los Alamos	1,200	Heron	ESA Releases
Sep. 27	MRGCD	786	Abiquiu	ESA Releases
Dec. – Dec. 30	Santa Fe	2,500	Heron	Held over for '04
Subtotal: 2003 Releases for ESA		14,354		
TOTAL 2003 LEASES		16,854		

Middle Rio Grande Endangered Species Conservation Pool

The Conservation Pool began the year empty. The Pool would have remained empty for the entire year had it not been for a storm event on September 10, when conditions were met under the New Mexico Office of the State Engineer permit (No. 4822) for storage to occur in the Conservation Pool. A total of 1,549 ac-ft was able to be stored. As stated in the Emergency Drought Water Agreement, the water stored in the Conservation Pool was counted towards the 30,000 ac-ft which could have been released. This ended up being a moot point since there was more than 1,549 ac-ft remaining of the 30,000 ac-ft in the EDWA pool at the end of the year.

Low Flow Conveyance Channel Pumping

USBR operated and maintained 17 portable diesel driven pumps to transfer water from the LFCC to the Rio Grande during the 2003 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. An additional pumping station located approximately half way between the north and south boundaries of the Bosque del Apache National Wildlife Refuge became operational in August 2002. This Middle Bosque site provides additional operational flexibility for managing river recession events. Figure 1 provides a map showing the general locations of LFCC pumping stations.

The first day that LFCC pumps operated was February 27, and the last day of pumping occurred on November 5. Approximately 20,928 AF was pumped from the LFCC to the Rio Grande during 2003. The approximate annual volume pumped by location is tabulated in Table 4.

Table 4 – Approximate Annual Volume by LFCC Pumping Location

Pumping Location	No. of Pumps	Approximate Annual Volume (ac-ft)
Neil Cupp	4	3,192
North Boundary Bosque del Apache NWR	3	2,695
Middle Bosque del Apache NWR	2	358
South Boundary Bosque del Apache NWR	5	13,581
Fort Craig	3	1,104
TOTAL	17	20,930

LFCC PUMP LOCATION MAP

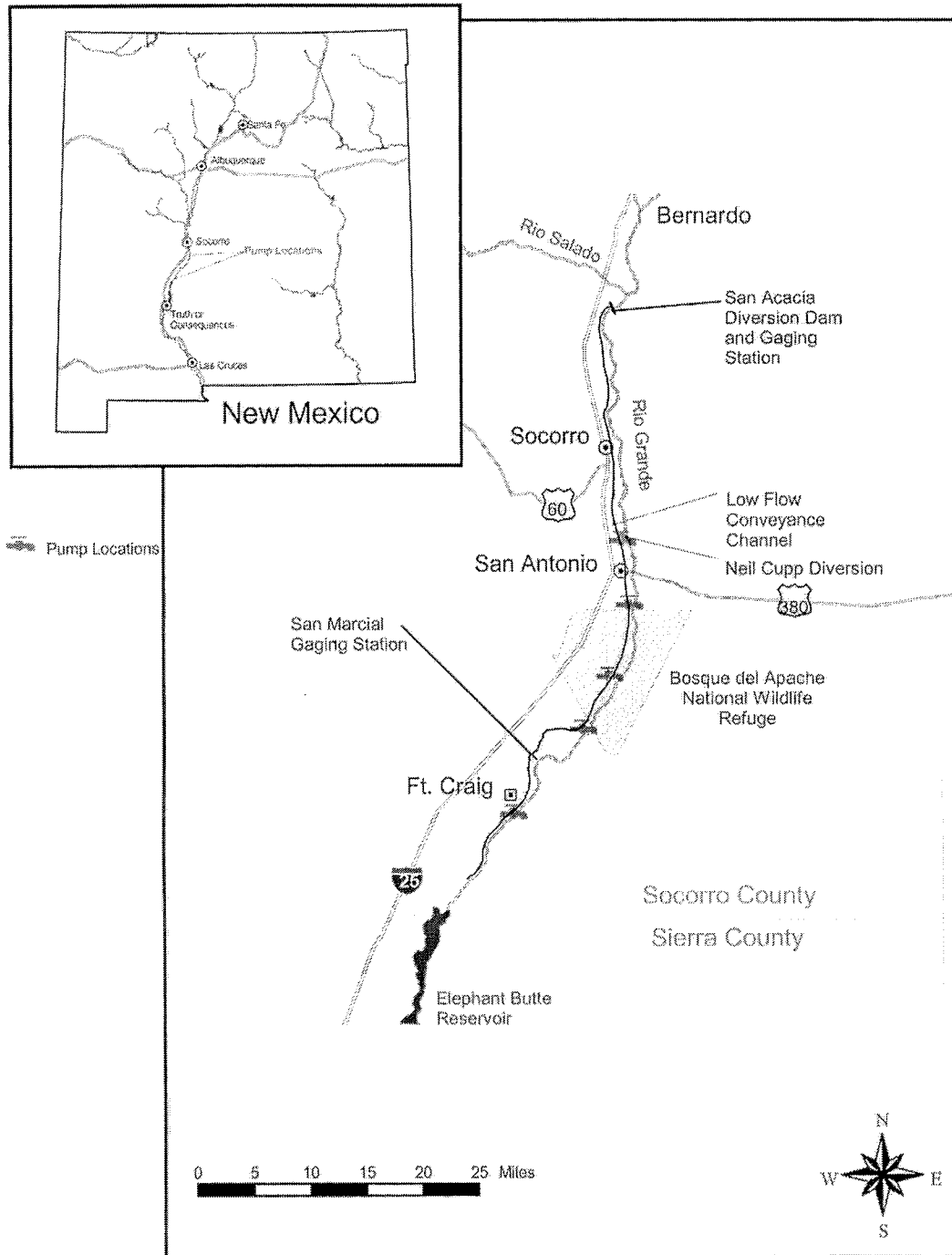


Figure 1 – Map Showing Low Flow Conveyance Channel Pumping Locations

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 now posted on USBR's ET Toolbox web site at the following URL:

www.usbr.gov/rsmg/awards/Nm/rg/RioG/gage/schematic/SCHEMATICsouth.html

Measurement and telemetry installations will be completed at the Middle Bosque del Apache and Fort Craig pump stations during the 2003 calendar year.

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). Unlike in previous years, 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. 2003 was classified as a Dry year since Article VII was in effect, and the protocols for a Dry year were followed.

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

Element E

"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.

Element F

"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 minimum flow of 100 cfs at the Central Bridge (Albuquerque) Gage.

¹ *Final Rio Grande Supplemental Water Programmatic Environmental Assessment*, March 2001 (USBR 2001)

² *New Mexico Basin Outlook Report, May 1, 2003* (USDA / NRCS 2003)

Figure 2 – Measured Albuquerque Discharge

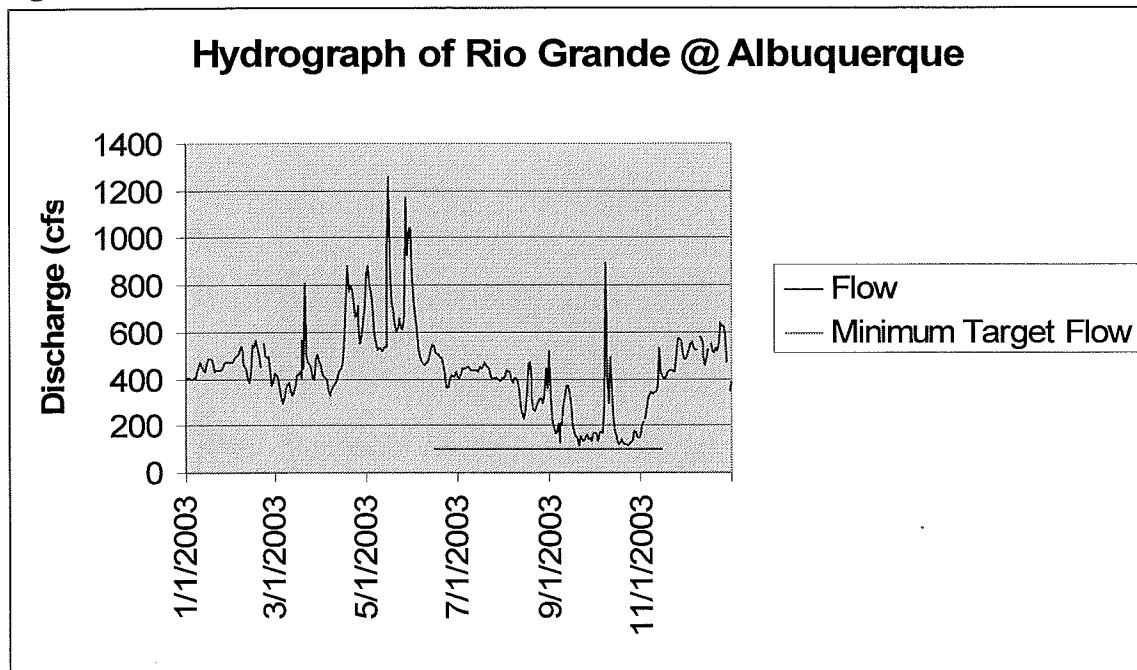


Figure 3 – Measured San Marcial Discharge

