

**Rio Grande**  
***Technical Summary for the House Water & Power Committee***  
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## **BACKGROUND**

The Rio Grande Watermaster is responsible for allocating, monitoring and controlling the use of surface water in the Rio Grande Basin from Fort Quitman to the mouth of the Rio Grande. The jurisdiction covers 1173 miles of Rio Grande, 382 miles of U.S. tributaries and approximately 1600 water right accounts.

Unlike elsewhere in Texas where water is a flow resource, surface water in the Rio Grande below Amistad is a stock resource meaning that water accumulates in Amistad and Falcon reservoirs and is released on demand. Amistad and Falcon reservoirs are considered one system with water frequently released from the upstream dam (Amistad) to replenish Falcon reservoir and meet the demands in the Lower Rio Grande Valley. The watermaster is the authorized agent allowed to request releases of United States water held in storage at Amistad/Falcon.

Water rights and distribution in the Rio Grande are based on two factors - 1. the maximum volume assigned by law to each water right holder, by use, and 2. priority of the use. All water rights have a maximum annual allowable, but because the total legal demand for water always exceeds the supply, only the highest priority uses receive the full amount of their water right. The following are the weighted priorities: 1) Domestic Municipal and Industrial (DMI) uses (highest priority), 2) operational, and 3) carry over balances for irrigation water accounts. In order to provide for and protect this municipal based priority system the watermaster divides all US waters held in storage at Amistad/Falcon into three distinct pools. The highest priority pool is the water reserved for all municipal uses. It is reestablished monthly to cover roughly one year's average municipal diversions (225,000 acre-feet). The second highest priority pool, reestablished monthly, is water held in reserve (75,000 acre-feet) to cover in system losses and ensure conveyance of water even in periods of low flow and drought. The lowest priority pool is reserved for agricultural interests and consists of leftover water after the Municipal and Operating pools have been reestablished. This irrigation water pool consists of leftover irrigation storage that has not been used and new net inflows. **Consequently, it is the irrigation reserve that is directly affected by in system losses exceeding inflows and lack of water deliveries.** This priority-based system also mandates that municipal water be treated differently from irrigation in the allocation process. At the beginning of the calendar year, each municipal water right holder's account is replenished to its full amount. No leftover water is rolled over to the new year. Agricultural accounts on the other hand are replenished only when monthly inflows are in excess of losses and the water needed to reestablish the Municipal and Operating reserves.

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## **CURRENT CONDITIONS**

### **Lake Levels**

- The United States began the year with the least amount of water for January at Amistad/Falcon (32.49% or 1,080,676 acre-feet) as compared to any year within the current 10-year drought cycle. Mexico's storage balances at Amistad/Falcon have, since late 2000, consistently remained at or near record low levels. Texas water utilization and markedly reduced inflows over the past few months coupled with Mexico's reserves have caused water levels at Falcon Lake to drop rapidly. We have increased our releases from the upstream reservoir (Amistad) to maintain Falcon and meet our water demands in the lower Rio Grande. It is however evident that absent a significant weather pattern change resulting in beneficial inflows, both Amistad and Falcon reservoirs will hit new low levels this year.

Amistad's previous low level was recorded on August 4, 1998 at an elevation of 1058.4' consisting of 763,121 acre-feet. Falcon's low level was recorded on August 3, 2001 at 246.98' or 199,434 acre-feet. On 4/24/02 Amistad was at 30.92% capacity with an elevation of 1067.47' or 974,471 acre-feet, while Falcon was at 9.62% capacity with an elevation of 250.62' or 255,373 acre-feet. The United States reserves have consistently remained below previous levels for this time of the year, now having dropped to 30.1% or just slightly over 1,000,000 acre-feet. (At conservation capacity the United States can store 3.3 million acre-feet at Amistad/Falcon).

- Given current conditions we are predicting that by the end of May or mid June both Amistad and Falcon will reach new lows. This will not only impact recreational activities but may also impact power generation capabilities at both international reservoirs.

### **Irrigation Water Supply**

Lack of water inflows to the Rio Grande, be it from drought or lack of water deliveries by Mexico, directly and singularly affects irrigation water use. Within the court mandated system we operate for the Rio Grande, irrigation water rights have the lowest priority use. Irrigation however remains a critical and integral part of the local economy.

Impacts due to lack of irrigation water over the past 10 years include the following:

- < Average irrigation diversions from the Rio Grande below Amistad for the United States just prior to cycle 25 (1992-97) totaled 1,333,071 AF. Average irrigation use from 1997 - 2001 was reduced to 770,036 AF, a 563,035 AF or 42% reduction.
- < Irrigation Districts in the Lower Rio Grande began April 2002 with 266,000 acre-feet less water than they had in April 2001. This deficit equates to slightly over one month of total peak irrigation water use.
- < The estimated loss of approximately 103,120 acres of irrigated land in Cameron and Hidalgo counties as compared to 1992 totals.

### **Municipal Water Supply**

The highest priority pool held by the TNRCC's Rio Grande Watermaster program at Amistad/Falcon is the water reserved for all municipal uses. It is reestablished monthly to cover roughly one year's average municipal diversions (225,000 acre-feet). Municipal releases from Falcon, downstream along the Rio Grande and its conveyance through irrigation districts rely heavily on irrigation water being in the conveyance channels. In essence, municipal water "rides" on top of irrigation water. As irrigation districts run out of irrigation water they will require "pushwater" to simply convey municipal water to end users.

Authorizing the use of pushwater represents an additional in-system loss that directly affects all irrigation water right accounts below Amistad, to the benefit of the accounts that use pushwater and the detriment of all others, particularly in reduced allocations and increasing the possibility that negative allocations may have to be implemented from the irrigation accounts further reducing the amount of water available for irrigation.

At least three irrigation districts in the lower Rio Grande are likely to run out of irrigation water in the coming summer months. Each of these districts serve various municipalities.

### *Aquatic Weeds*

While present before the drought, growth of noxious aquatic vegetation (i.e. water hyacinth and hydrilla) has been aided by the lower than normal flows and warmer weather and water temperatures. The growth of these non-native aquatic weeds has inhibited water flows, increased water use as well as water loss due to increased plant consumption as well as via evaporation. Additionally, the weed mats have reduced channel capacity for water conveyance and affected telemetry flow measurement stations at Anzalduas pool near Mission, Texas and downstream to the Gulf of Mexico.

Of principal concern to the Rio Grande Watermaster program is the amount of water, in excess of actual demand, that at times has been released from Anzalduas dam to "push" the demand water to the end user. At times the releases have been increased by as much as 500 cfs above demand to ensure timely delivery of water within travel time estimates. The amount of water over demand released to meet US needs approached 1,000 acre-feet per day during spring and summer months of 2001. Over a peak week's period the amount released in excess of demand roughly represents the total amount of water that many of our small to medium size municipalities utilize in one year. These releases, over demand, result in an overall system loss that is to the detriment of the entire system and to irrigation and mining water right holders and accounts in particular.

Many federal and state funded remedial actions have been implemented over the past few years to include mechanical removal of the weeds as well as introduction of predatory insects. A pilot project, the introduction of predatory fish (triploid carp), is nearing completion. Once approved as many as 20,000 triploid carp costing \$5 - \$10 per fish will be required to address the weed infestation.

Discussions continue with Mexico regarding the use of approved aquatic herbicides to further combat the noted explosive growths along the lower reaches of the Rio Grande.