

What Determines the Minimum Flow on the Guadalupe?

The GRTU-GBRA Contractual Trout Protective Flow

First, and most significant, are minimum flows designed to protect the trout fishery in 10 miles below Canyon Dam. In 2001, GRTU and GBRA arrived at a settlement of the 1999 GBRA Canyon Lake Water Right Permit where GRTU contested the permit. The permit increased GBRA's water rights to Canyon Lake by additional 40,000 acre feet, but to gain the water, the natural flow of the river had to be legally captured in the lake and not passed through the dam. This would have reduced the flows to the trout fishery. The settlement granted the following trout protective flows: *"GBRA agrees that the minimum daily release from Canyon Reservoir for each day during the months of May, June, July, August and September of each calendar year during the term of this Contract will be not less than the release specified below for that day (averaged over 24 hours), if and only if Canyon Reservoir reaches an elevation greater than 909.0 feet m.s.l. for any length of time prior to that day during the period between January 1 and September 30 of that year:"*

Month	Day	Minimum Daily Release
May	1-15	140 cfs
May	16-31	170 cfs
June	1-14	210 cfs
June	15-30	240 cfs
July	1-31	200 cfs
August	1-31	200 cfs
September	1-30	200 cfs

The FERC Minimum Flow Requirement

Beyond the Contract, the first regulatory requirement for minimum flows came from the Federal Energy Regulatory Commission (FERC) Requirement. This requirement is the result of the GBRA operated hydro-electric plant at the base of Canyon Dam. Article 405 states: *The licensee shall discharge from the Canyon Dam Project a continuous minimum flow of 90 cubic feet per second, as measured immediately downstream from the project powerhouse to protect and to enhance fish and wildlife resources In the Guadalupe River. The flow may also be reduced to not less than the Inflow to the reservoir during periods of drought. For the purposes of this article, a "drought" begins the day after any period of forty five (45) consecutive days during which the inflow to Canyon Reservoir averages less than 90 (cfs), and shall continue until the reservoir level returns to 909 feet above mean sea level. Additionally, at times other than during periods of drought when the inflow to the reservoir is greater than 90 (cfs), the licensee shall, at a minimum,*

discharge from the project whichever is least (a) the inflow to the reservoir or (b) a continuous minimum flow in accordance with the following schedule:

Month	Discharge
January	100 cfs
February	120 cfs
March	120 cfs
April	120 cfs
May	120 cfs
June	100 cfs
July	100 cfs
August	100 cfs
September	100 cfs
October	100 cfs
November	100 cfs
December	100 cfs

The Texas Commission on Environmental Quality Requirement

If you thought things were complicated, the TCEQ set up their own formulas for minimum flows below Canyon Dam. This was done in conjunction with the 1999 GBRA water permit that granted BRA additional water rights to Canyon Reservoir. The original 1956 water permit granted GBRA 50,000 acre feet per year. With the 1999 permit, they were granted an additional 40,000 acre feet per year for a total of 90,000 acre feet. To manage two permits within one reservoir requires a complicated computer program that divides one 'physical' reservoir into two 'virtual' reservoirs. The TCEQ mandated minimum flows are contingent on the "Base Storage Level" of Canyon Reservoir being above 909.0 msl on any day on, or after, January 1 of the calendar year. It ends when the "Base Storage Level" is below 909.0 and inflows to Canyon Reservoir average less than 90 cfs during any period of 45 consecutive days. The Base Storage Level is a 'virtual' measurement and cannot be determined by physical gage, but by GBRA's spreadsheet.

The TCEQ minimum flow from Canyon Dam is a "pass-thru" requirement. That means flows into Canyon Lake (as measured at the Spring Branch Gage) must at least be as great as the following:

Month	Pass Through Flow
January	108 cfs
February	118 cfs
March	149 cfs
April	164 cfs

May	191 cfs
June	153 cfs
July	97 cfs
August	90 cfs
September	90 cfs
October	90 cfs
November	90 cfs
December	98 cfs

In addition to the "Pass Through" requirement, there is a "Diversion" requirement that could also impact the release from Canyon Dam. *"Water may be diverted from the Guadalupe River at any point downstream of its confluence with the Comal River and upstream of the U.S.G.S. Gauging Station at Gonzales, Texas to the extent such diversions do not reduce the measured stream flow at Gonzales below the specified amounts:*

Month	Gonzales Minimum
January	600 cfs
February	600 cfs
March	600 cfs
April	650 cfs
May	700 cfs
June	650 cfs
July	550 cfs
August	500 cfs
September	500 cfs
October	500 cfs
November	500 cfs
December	550 cfs

If the diversions reduce the flow at the Gonzalez Gage below the above rates, then an additional flow (see the monthly flow values from the Pass Through table) must be allowed to remain in the river to the "salt water barrier".

GBRA-Comal County Contract For Recreational Flow

Comal County arrived at a contract with GBRA in which GBRA agreed to request a deviation in the Corps of Engineers flood control release procedures from Canyon Lake. The lake is in flood whenever the elevation exceeds 909.0 msl. On a year by year basis, the request must be made to the Corps. The deviation allows the lake between 909 and 910 to have a "recreational pool" where the floodwaters are released at a minimum of 250 cfs, or higher, depending on the inflow to Canyon Lake. The deviation is generally in

effect from April through August. The two wettest months are May and June, so this provides additional protection to the trout fishery.

GBRA Selling Water to a Downstream Buyer

One of the primary purposes of GBRA is to act as a water supplier. With the additional amounts of water GBRA is allowed to store in Canyon Reservoir, there is the potential for more water to be sold. Up to this point in time, little use has been made of the water supply function of Canyon Lake. However, with the future demand increasing, more water is available to be sold and a lot of that will be to satisfy demand downstream.

Texas Water Law Requirements

Last, but not least, water rights must be passed through Canyon Lake for more senior water permit holders. In Texas, first, in time is first in right. So if a water right exceeds the 1956 or 1999 permit dates to Canyon Lake, any water flowing into Canyon Reservoir must be "passed through" the reservoir and to the more senior permit. These flow amounts are generally insignificant.