

WATERSHED WEEK IN REVIEW



Gage or Gauge?

In last week's newsletter, we discussed gaging stations. A reader inquired as to why we use 'gage' rather than the traditional 'gauge'. Turns out there is a USGS story behind this.

Guess if you invent it, you get to spell it.

Of note, the USGS gage at Embudo, NM along the Rio Grande is still in use.

And the Answer Is...

A crew from the Lower Colorado River Authority was out on the Llano River near Mason this past Monday making a stream discharge measurement. Due to Covid-19 restrictions, it had been three months since the last measurement.



Meas. Number	Date	Time	Time Datum	Measurement Used?	Who	Measuring Agency	Stream flow (ft ³ /s)	Gage Height (ft)	GH Change (ft)	Meas. Duration (hr)	Meas. Rated	Control
474	2020-06-08	09:13	CDT	Yes	LCRA	LCRA	121	0.60	0.00	0.83	Good	Clear

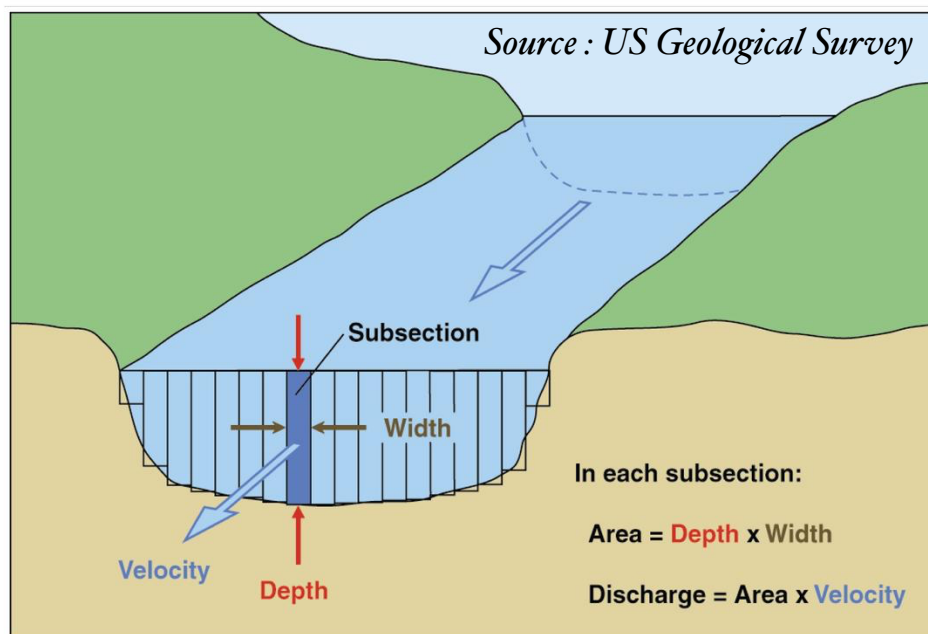
The discharge Monday measured 121 cfs. As we speculated last week, using this new measurement, USGS has updated the online reading they were previously providing from 84 cfs to 132 cfs, very close to the 130 cfs estimate provided by LCRA for the same day.

Stream Discharge Measurements

So how are stream discharge measurements made?

Discharge is the volume of water moving in a river over a given unit of time. In the US, we reference this as cubic feet per second, or cfs. The rest of the world uses cubic meters per second.

A cubic foot of water is 7.48 gallons. Why this unusual amount? Discharge is calculated as *Discharge = Area x Velocity*.



As seen in the photo on page 1, a calibrated wire called a tag line is stretched across the river. The hydrologist then measures the depth of the water along selected points (generally 25 cross sections) on the tag line and records the velocity of the water at a point a little more than one-half the depth.

So as an example, if a cross section is 2 foot wide and 3 feet deep and the velocity of the water 2 feet per second, the discharge for that cross section would be $2 \times 3 \times 2$ or 12 cfs (almost 90 gallons). Each cross section is then summed to obtain the total stream discharge.

for more detail and other methods

Llano Pocket Gopher

Continuing our discussion re species unique to the Llano Watershed...



Photo : Texas Tech Natural Science Research Lab

The Llano Pocket Gopher (*Geomys texensis*) are located exclusively in Texas. A subspecies, *Geomys texensis llanensis*, is found only in Mason and Llano counties. They are found in mostly in deep brown sands or sandy soils close to streams. As they are locally abundant, there are listed as a species of least concern. They have a fur-lined cheek pouch or 'pocket' between their incisors and lips where they can store food.

While Llano Pocket Gophers can be a pest for crops, they do aerate soil through their burrows. It is speculated they were isolated from other pocket gophers about 10,000 years ago when lengthy drought caused accelerated soil erosion and a decrease in mesic (moderate moisture) vegetation.

Chupacabra



This newly-released document shows the Llano watershed may also be home to the elusive Chupacabra. Chupacabras are from the family Canidae (same as dogs and hyenas) and possess little to no fur. They are usually 4-5 feet in length and weigh 35-45 pounds, with the males usually being larger.

Using spatial data analysis of annual precipitation, human population density, road networks, land use, and goat population densities, researchers show that most of the western portion of the state may be suitable habitat for these creatures.

