

Mono Lake, Walker, Parker, Lee Vining and Rush Creek, and the LA Aqueduct: A Good Lake and its Tributaries Injured

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In order to understand what is presented in this paper, you need to understand some background information on the LA Aqueduct and more specifically the Mono Basin Project.

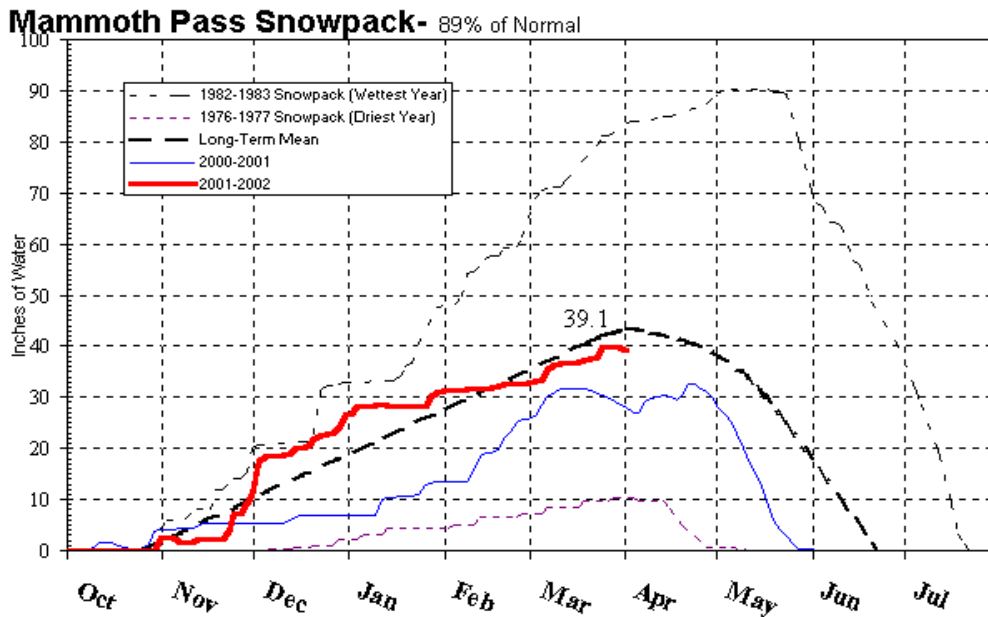
The Mono Basin Project was developed to bring and obtain more water for the city of Los Angeles that was growing rapidly and needed more water. The city of LA applied for permits to divert water from Lee Vining, Walker, Parker, and Rush Creeks. By diverting this water it allowed LA to supply water for 500,000 more people. They had one giant thing standing in their way though, the Mono Craters. They decided to build an 11-mile tunnel that went under the Mono Craters. Once completed it increased LA's water supply by 35% up to 300 million gallons per day.

MONO LAKE

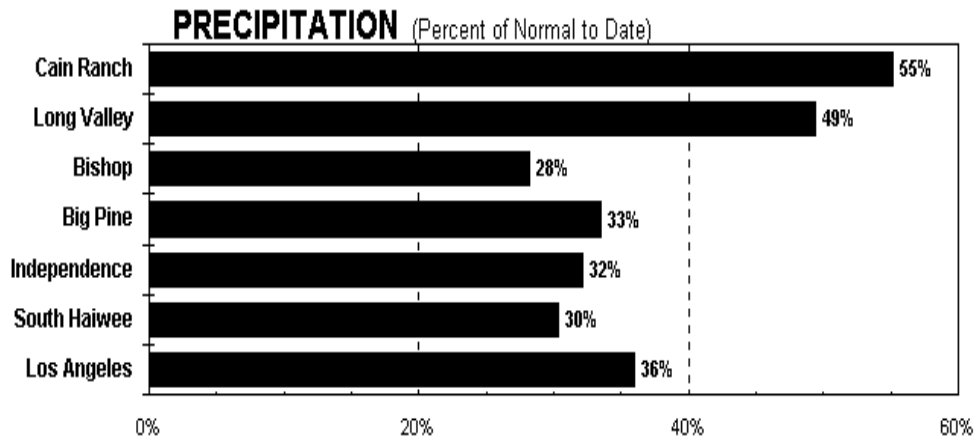
In 1941 Los Angeles started diverting water from Mono Lake's tributaries, about 350 miles south of LA. As Mono Lake became deprived of its freshwater sources the lake level began to drop, and almost halved.

The current volume of Mono Lake is 2.6 million acre-feet at 6382.8 ft. This current year so far the runoff of snow and rain is slowly becoming a dry/normal season. So far this year the total is 99,800 acre-feet of runoff, the average is 122,124 acre-feet.

Below is a graph showing the snow pack for Mammoth Pass, which does feed into creek and streams and other sources that feed into Mono Lake. The snow pack helps in what was mentioned before in run-off.



Another contributing factor to the dry runoff so far is precipitation. Below is chart showing the percent of normal precipitation to date.



Precipitation percentage of normal to current date

SNOW SURVEY'S

About 65% of the water comes from the Sierra Nevada Mountains runoff. Accurate measures of the snow are very important to LA in order to be able to forecast each year's water supply. Each winter Department of Water and Power (DWP) trek it up into the Sierra's to measure the depth and water content in the snow at certain specific points and over periods of many years forecasters can accurately predict the amount of runoff each year.

STREAMS DIVERTED by the LA AQUEDUCT

Lee Vining Creek is the second largest stream in the Mono Basin, carrying about 33% of the total runoff. It's a 47 square mile watershed that starts at 13,053 ft. at the foot of Mt. Dana in the Ansel Adams Wilderness. Before the dams where built peak stream

flows would reach as high as 650 cfs at the height of snowmelt.

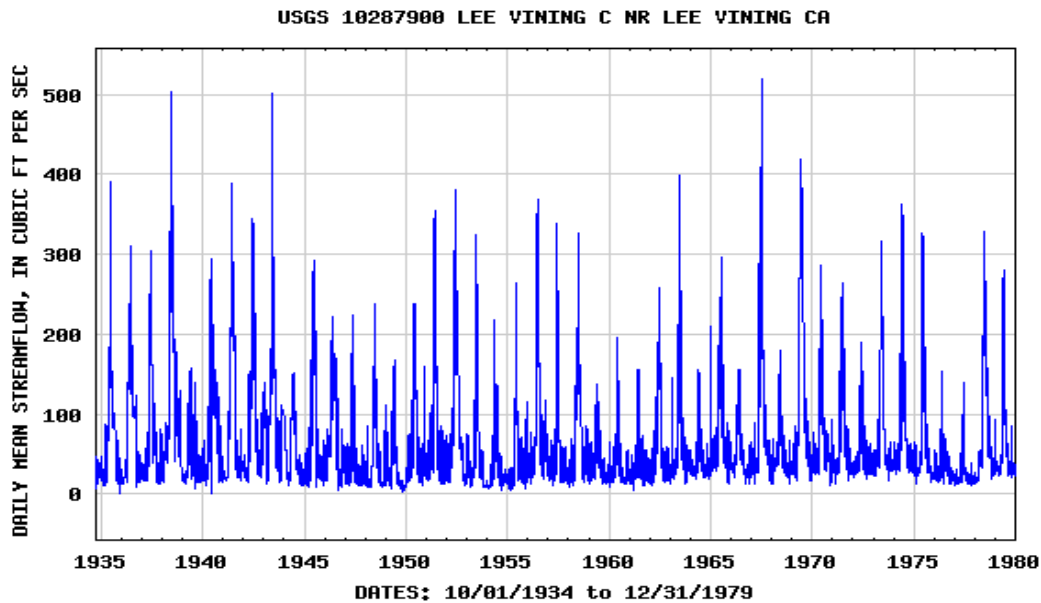


Figure shows stream flows from 10/1935 till 12/79
http://waterdata.usgs.gov/nwis/discharge/?site_no=10287900

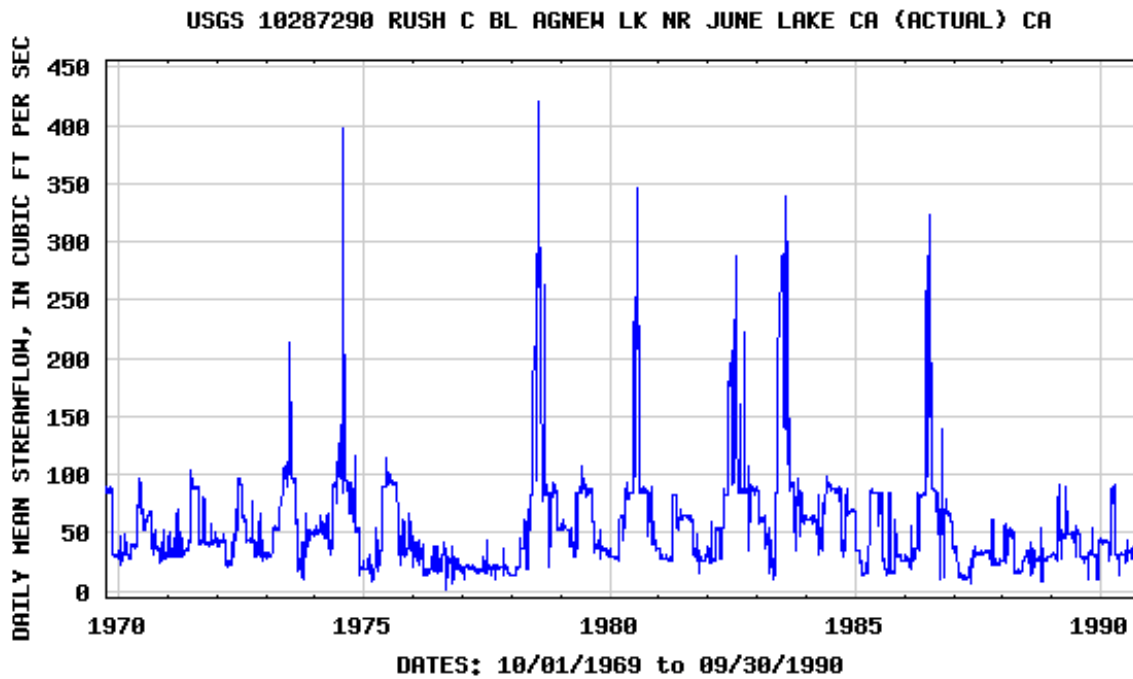
Each year has a different stream flow than the year before. Really high peaks on the chart show years that had a very high stream flow, example 1943. When the peaks are much lower the year is having a low flow year. This could be the result of a lot of things. For example, low snowfall, not much rain, maybe LA diverted some of the water and at the point these readings were taking they were lower than the structure that diverts the water.

In 1941 diversions from Lee Vining creek into the aqueduct began. After 1971 high runoff stopped and irrigation ended, causing the stream to dry up. From below Hwy 395 vegetation declined and was severely affected all the way to Mono Lake. Up until 1969 the stream was basically dry, until a flood caused widening of the stream.

As of 1989 there was a loss of 50% of what existed before 1941. Currently there are various measures being used to restore the creek to the way it was before 1941.

Rush creek is the largest stream in the Mono Basin carrying about 41% of the total runoff. It's a 141 square mile watershed that begins Mt. Lyell at about 13,000 ft. also in the Ansel Adams Wilderness. Each year the stream provides an average of 59,200 acre-feet of runoff. Before the damn was built peak stream flows would reach 1100 cfs.

As you can see from the chart below that has changed since the aqueduct was put in.

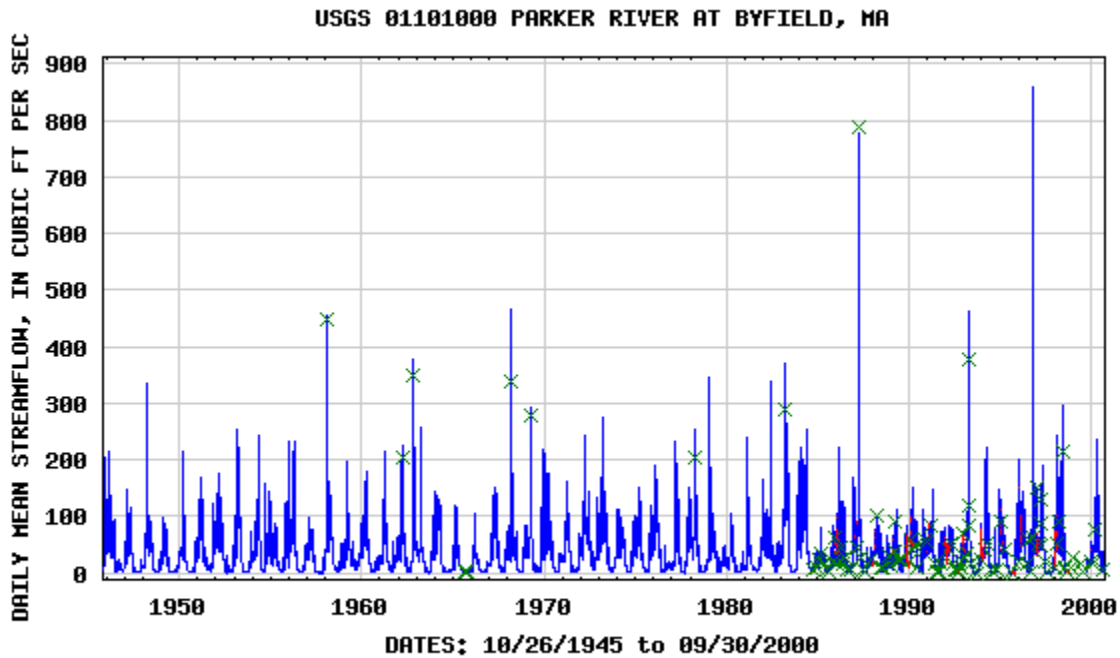


EXPLANATION
— **DAILY MEAN STREAMFLOW** — **ESTIMATED STREAMFLOW**

Figure shows stream flows from 10/1969 till 9/1990
http://waterdata.usgs.gov/nwis/discharge/?site_no=10287290

From 1947-1951 there was very low runoff and below Hwy 395 pine trees died. Low releases continued again in the early 1960's causing a loss of vegetation. With the vegetation dying extreme floods scoured the channels and removed large amounts of live and dead vegetation and topsoil in 1967 and 1969. By this time Mono Lake had dropped 28 feet, and Rush Creek's floodplain had dropped in order to reach this lower lake level.

The third creek is Parker Creek, which carries 6% of the total of the Mono Basin runoff. Its 12 square mile watershed begins at 13,000 ft. at the foot of Kuna Peak in the Ansel Adams Wilderness. The average runoff each year is 9100 acre-feet and at peak snowmelt flows can reach 90 cfs.



EXPLANATION
 — DAILY MEAN STREAMFLOW × MEASURED STREAMFLOW — ESTIMATED STREAMFLOW
 Figure shows daily, measured, and estimated stream flow from 10/1945 till 9/2000
http://waterdata.usgs.gov/nwis/discharge/?site_no=01101000

Lee Vining crosses Parker Creek above irrigated land. Since 1947 LA has diverted almost all of the water in Parker Creek into the aqueduct. This caused the creek to dry up below the conduit. When it began to dry up this caused a loss of vegetation and aquatic habitat. Gravel was then pushed into the dry channel by CalTrans, which formed a feature know as “Parker Plug,” which was removed in 1990, marking the start of the Parker Creek restoration project. (p. 3C-25, Mono Basin EIR, 1993)

As of 1989 there were 49 acres of woody vegetation, 9 acres less than before 1941 conditions. In 1990 water flowed down Parker Creek again due to a court order.

The last creek to be diverted is Walker Creek. Walker Creek carries 4% of the total Mono Basin Runoff. An average of 5400 acre-feet of runoff each year flows, and during peak snowmelt average peak flows could reach 70 cfs.

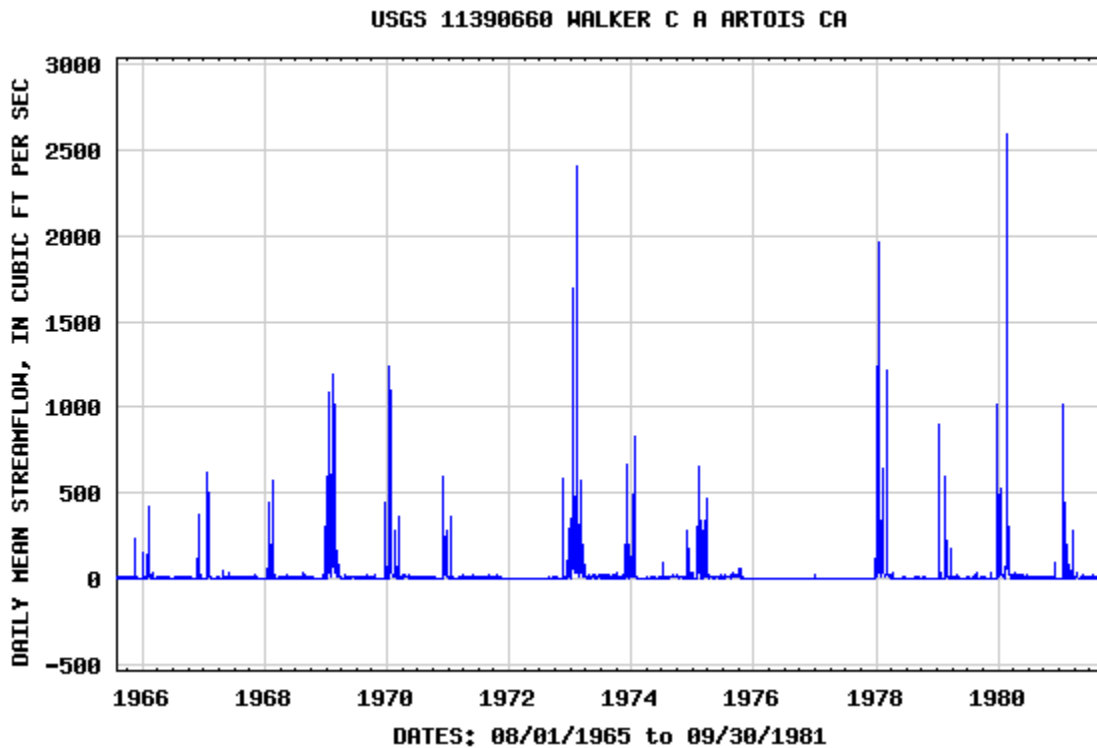


Figure shows stream flow from 8/1965 till 9/1981
http://waterdata.usgs.gov/nwis/discharge/?site_no=11390660

Since 1947 LA diverted virtually all of the water in Walker Creek. This caused the stream to dry up below the conduit causing a loss of vegetation and aquatic habitat. Currently there are 7 acres less than pre-1947 conditions. In 1990 water started flowing down the stream again as a result of a court order.



Figure shows creeks, lakes, and conduits.
<http://web.ladwp.com/~wsoweb/Aqueduct/realtime/monorealtime.htm>

Since 1941 LA has been diverting water via the aqueduct. This is not the only place that they have taken water from. For about 50 years LA diverted water uncontested, until people started to realize what exactly was happening to the environment around. By people stepping up and starting to take action the LA Aqueduct has been ordered to return Mono Lake back to a set depth and to return the streams to set court orders.

WORKS SITED

<http://www.monobasinresearch.org>

<http://www.laaqueduct.com>

<http://www.usgs.gov>

<http://waterdata.usgs.gov>