FRIO RIVER

STATE Texas
PROJECT NO. F-6-R-1, Job A-1
PERIOD July 1, 1953 to June 30, 1954

Segment Completion Report

by

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TITLE

Basic Survey of the Nueces, Frio and Atascosa Rivers.

OBJECTIVES

To gather fundamental data on the chemical and physical characters of the waters entering Lake Corpus Christi.

PROCEDURE

On July 22 and 27, 1953 project personnel worked on the Atascosa River. Stream Survey Forms were filled out to describe ecological factors at seventeen stations, mostly located at road crossings along the river and three tributary creeks. Water samples were taken at nine of the stations and temperature, alkalinity, salinity and pH tests were made. Reagents for the oxygen and carbon dioxide tests were not available at the time. Because of low water conditions in the fall and the lack of waders in the winter, no work was done on the Nueces and Frio Rivers.

OBSERVATIONS

During the period of the survey, the Atascosa River was suffering severely from the drouth. At four of the upstream stations and at two of the tributary creek stations there was no flowing water. Running water was observed at seven of the downstream stations as a result of wells flowing into the river. Only at four stations was running water observed which appeared to be natural flow. An abandoned oil well converted to an artesian well was flowing water for cattle into the river at Leale. This water contained about 1,000 ppm of chlorides. Four large artesian wells at Campbellton were operated by the Lower Nueces River Water Supply District to help maintain the water level of Lake Corpus Christi. Water from these wells entered the river at temperatures from 112 to 139 degrees Fahrenheit. No fish were found within 500 yards downstream of the wells and small fish placed in the hot water died almost immediately.

The Atascosa River runs through sandy loam soils, the uplands being used mostly for farming while the stream bottoms are mostly in pasture. The commonest trees are mesquite, hackberry, elm, willow and ash. Stream banks are usually sharply cut and the stream bottom is almost always silt or sand. Driftwood piles show that the stream is frequently subject to flash floods. Pools are long and narrow, seldom exceeding four feet in depth and, in the upper river they are widely scattered but, due to the wells, they are almost continuous in the lower river.

The methyl orange alkalinity range was from 136 ppm to 1,488 ppm while the pH varied from 7.9 to 9.5. Temperature, excluding the hot artesian water, varied from 82 to 96 degrees Fahrenheit. Turbidity readings were not taken but the stream was generally clear except for a few small mud-bottomed pools.

SUMMARY

Water samples were taken and analyzed and ecological notes were made at seventeen stations on the Atascosa River and three tributaries in July of 1953. The affects of the drouth were shown in that only four stations were noted to have apparently natural flowing water. Flow in the lower part of the river was maintained by four artesian wells. Chemical analysis showed the river to be highly alkaline. No work was done on the Frio and Nueces Rivers because of extremely low water conditions in the fall and the lack of waders during the winter.