

VILLAGE CREEK SUBWATERSHED

This subwatershed is the smallest within the basin, and contains a single reservoir: Lake Arlington. This reservoir is an important source of drinking water for the city of Arlington and for northeastern Tarrant County. The natural yield of this reservoir is greatly supplemented with imports from both Cedar Creek and Richland-Chambers Reservoirs.

Physical Description

The Village Creek subwatershed is located in Johnson and Tarrant Counties and contains a single segment, Lake Arlington, which is designated segment 0828. This subwatershed is situated primarily in the Eastern Cross



the importation of water from Richland-Chambers and Cedar Creek reservoirs by the Tarrant Regional Water District. In general, the water quality in the reservoir is good. The only issue noted in the State's 2002 305 (b) report is a concern over high temperatures. This is of intuitive concern as there is a large power plant which uses the reservoir for cooling water. However, on only three dates were exceedances of the temperature stream standard measured, and each of these, while barely above the standard, were recorded during July and August of 1999. In addition to the USGS, the the Tarrant Regional Water District has initiated a monitoring program on this reservoir and should provide additional data with which to evaluate this concern.

Draft 2002 305(b) Results

Segment	Description	Impairments/Concerns/Threats
828	Lake Arlington	General Use (ps)

ns—non-support; ps—partial support; uc—use concern; c—concern; t—threatened

Timbers with a very small portion laying in the Grand Prairie. Landuse is mostly rural in its headwaters and urban based near its terminus. Much of the watershed is within the city limits of Arlington and is primarily residential urban with light industry.

Water Quality

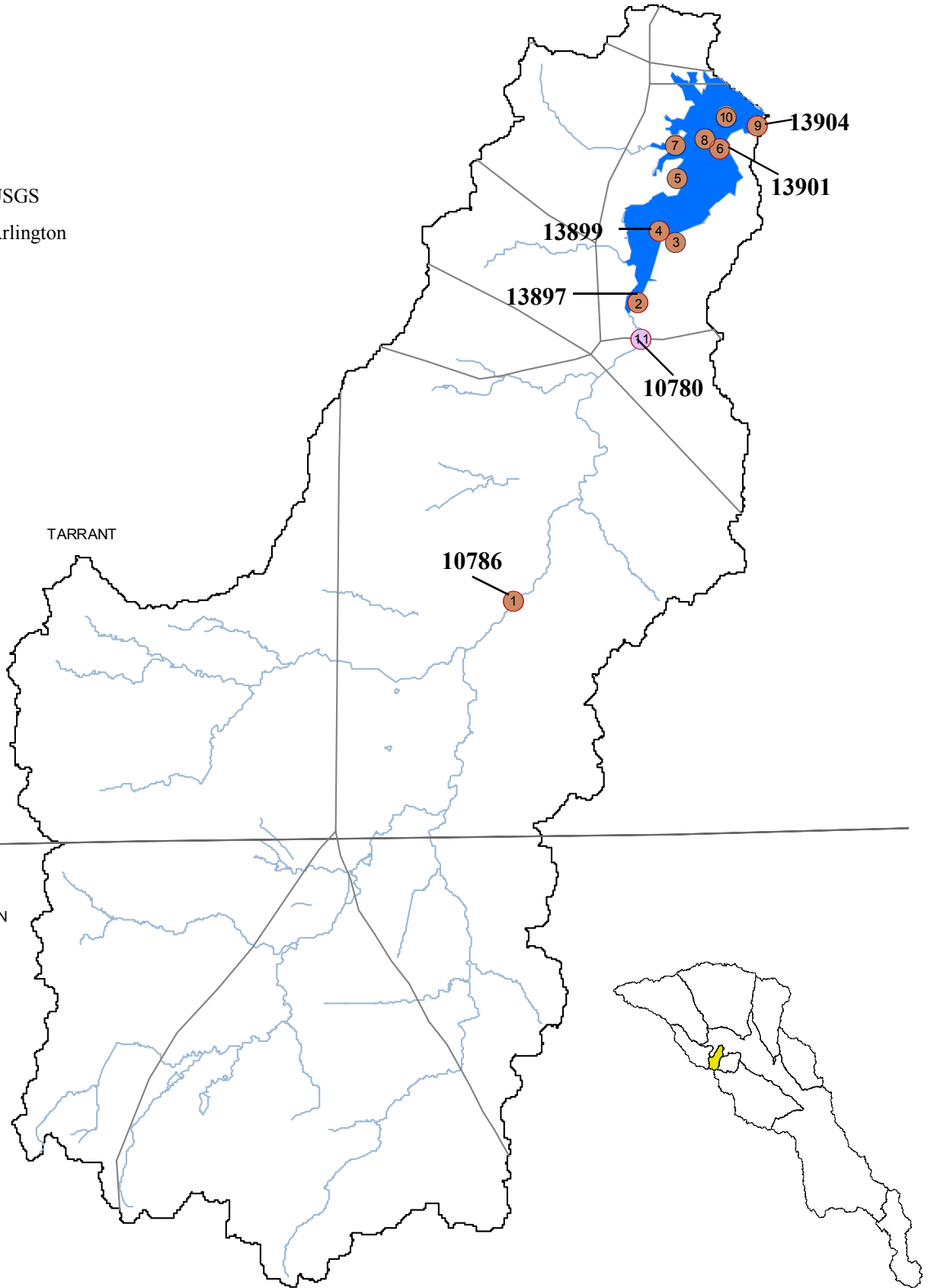
The water quality of Lake Arlington is not only influenced by factors in its immediate watershed such as landuse and point sources, but is also greatly influenced by



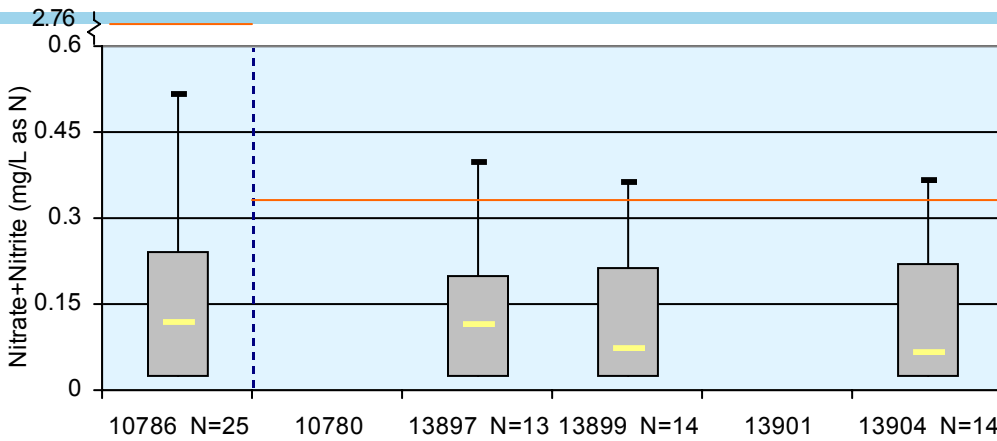
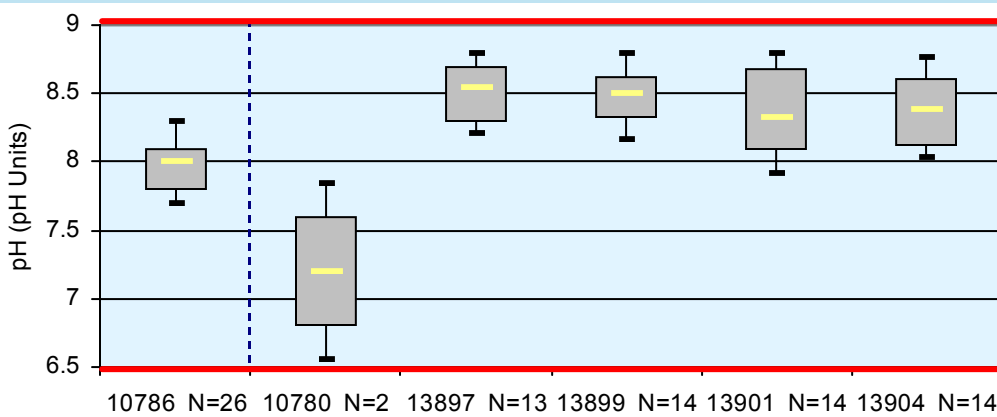
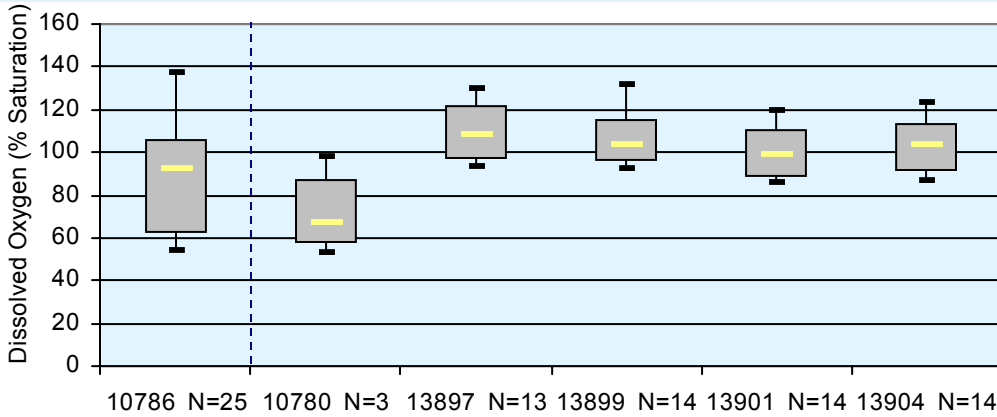
**TXU
Handley
power plant
on Lake
Arlington**

Village Creek Subwatershed

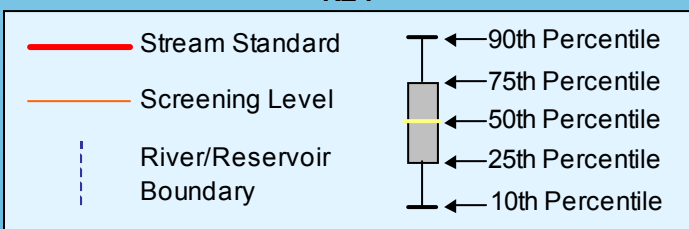
- USGS
- Arlington



Water Quality Overview



KEY



Stations presented in hydrologic order
N = number of measurements

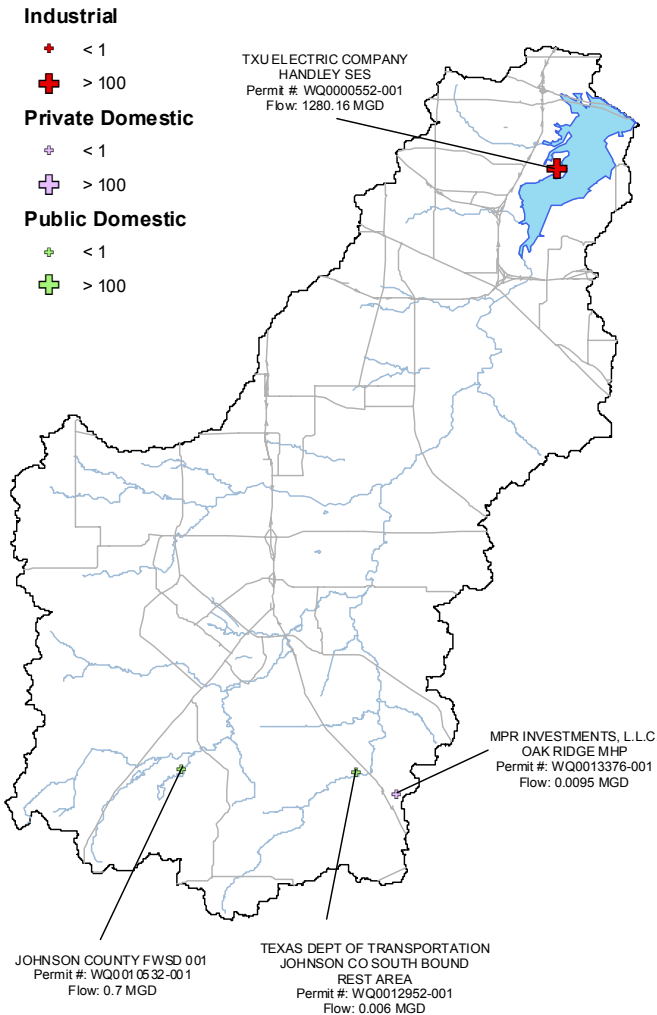
Dissolved oxygen concentrations are somewhat elevated in this subwatershed, particularly in Lake Arlington. With the exception of 10786 on Village Creek above Lake Arlington, extremes in DO do not seem to be dramatic. In addition, the large differences between minimum and maximum DO values at site 10786 are not surprising given that the creek in that location is quite small and is known to be intermittent.

pH values do not appear to exceed stream standards for this segment. The relatively low concentrations at station 10780 (Village Creek at IH-20, just within the headwaters of the lake) are somewhat curious, but remained above the stream standard more than 90% of the time.

Nutrient concentrations only occasionally exceed screening criteria in this segment and are not believed to be problematic.

(As phosphorus data were limited for this subwatershed, nitrogen is used here in its stead to represent nutrients.)

Village Creek Waste Water Discharge Permit Sites



Village Creek below Lake Arlington



The Lake Use Paradigm

Lake Caddo, created by an earthquake centuries ago, is the only natural lake of any size in the State of Texas. The remainder were created for one or more specific purposes such as water supply, flood control or to serve as a cooling pond for power plants. In addition, almost all reservoirs are used extensively for ancillary purposes such as recreation (swimming, boating and fishing) and all must provide some level of aquatic life support. These different uses however often come into conflict, with one interfering with one or more of the others. A good example of this was seen with Lake Arlington during the drought of the late 1990's. Lake Arlington, pictured to the right, was constructed by the city of Arlington for water supply purposes and currently receives imported water from lakes Richland-Chambers and Cedar Creek. As demand exceeded supply during this dry period, the lake was drawn down. This left many docks high and dry and prompted a wave of public criticism from adjacent land owners. The drawn-down reservoir was certainly not aesthetically appealing and interfered with some recreational uses. The alternative however, would have been to stop using the reservoir for drinking water, which is a major source of water for not only the city of Arlington, but also much of Tarrant County. A similar situation occurred with Lake Lewisville during the summer of 2000, when a pipeline broke, spilling gasoline into Lake Tawakoni and prompting the city of Dallas to temporarily stop using it as a source of drinking water. Water withdrawals from Lewisville were used to overcome the deficit. This resulted in the reservoir being drawn down and led to a situation similar to that described above for Lake Arlington. Another possible conflict involving lake uses concerns nutrients. For recreational purposes, clear water devoid of algae is most desirable. To achieve this, nutrient concentrations must be reduced (to potentially unachievable levels). For many southern sport fishes, however higher concentrations of algae are beneficial and therefore desirable. Conflicts such as these will require a great deal of communication between, and sometimes education of, users to reach consensus based decisions.

