

Sewer conservation

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sew·er sō·ci·ol·ō·gy, the science of society, social institutions, and social relationships viewed through the eyes of a sewer; specifically, the systematic study of the development, structure, interaction, and collective sewer use of organized groups of human beings.

Most sewer flows are characterized by repeatable diurnal patterns that vary across weekdays, weekends, and holidays. Differences in land use are also apparent, and distractions and disruptions of daily life can often be observed.

This month, we take a look at the impact of a major drought as observed from the eyes of a sewer.

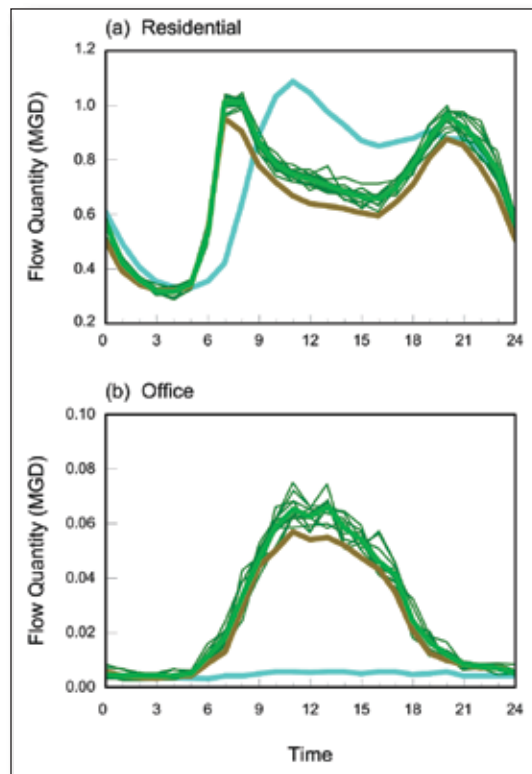
The Southeastern United States was hit hard by drought conditions from 2006 through 2009, and water supplies throughout the region were severely affected. Water use restrictions were put in effect, and water conservation efforts were encouraged.

The drought affected sewer use by two different means: a reduction of ground water infiltration and a reduction in water use due to conservation efforts.

Figure 1 shows a composite hydrograph of sewer use from a residential area located in the Atlanta metropolitan area. Weekdays from the early months of 2007 are shown in green, and weekends are shown in blue. Weekdays from near the end of the year of 2007 are shown in brown. We can see that the shape of the weekday diurnal pattern remains the same, but the magnitude decreases in the later data. This is due to declining groundwater elevations reducing the groundwater infiltration entering the sewer.

Figure 2 shows composite hydrographs illustrating successful water conservation efforts in residential and office areas during 2007. Note that the minimum sewer flows remain the same in both before (green) and after (brown) data sets; this indicates that these areas are not affected by declining groundwater elevations. However, the decrease in sewer flows during the rest of the day shows the effect of residents making a conscious effort to conserve water. Everyone can help a little bit; and small contributions add up to observable results.

Figure 2. Evidence of water conservation



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Figure 1. Evidence of drought

