

Water costs rise - Lake levels drop

Maintaining Amenity Lakes is a Growing Concern

By Jim Box, Chairman of the Board, Harris-Galveston Subsidence District

Fifty years ago, when a person needed water in the greater Houston area the process was relatively simple. They would call a company to drill a water well in their back yard, hook it up to electricity, and connect the plumbing to the house. Cities, utility districts, industries, farmers, golf courses - just about everyone -- did the same thing, and our reliance on groundwater was quickly established. As Houston's population grew, the use of groundwater grew right along with it.

In the early 1970's, groundwater use in Harris and Galveston Counties hit an all-time average high of a little more than 450 million gallons per day. It became apparent that the aquifers could not produce enough water to quench this astounding thirst for groundwater, and the water levels in the aquifers began to plummet. Additionally, groundwater was being pulled from surrounding clay layers. The removal of the groundwater from layers of clay in the aquifers allowed the clay layers to collapse, or compact, resulting in land surface elevation loss - or subsidence.

In 1975, the Texas Legislature created the Harris-Galveston Subsidence District to regulate groundwater pumpage to help halt or minimize the impact subsidence was having throughout the region. The District targeted the worst areas first, developing a regulatory strategy that called for reductions in groundwater usage in the coastal areas by mandating that an alternative supply of water be used. Many cities, industries and others recognized



the need for conversion from groundwater to surface water and acted quickly to protect themselves and, in fact, surface water from rivers and lakes was introduced into the area even before the District's plan was put into place.

Today, much of the area has converted - or is in the process of converting -- from groundwater to surface water. It hasn't been cheap or easy. In some cases, entirely new infrastructure has had to be constructed to deliver surface water to existing utility districts. After decades of taking our water supplies for granted, today folks are not only concerned about the availability of water but what it will cost, as well.

Dealing with today's water realities...

Let's face it... the water we use today costs more than it did a decade ago...and it will certainly cost more in the future. There is

some indication that we are beginning to use water more wisely than we did in the past...at least we're becoming more sensitive about not wasting this valuable resource. Subsidence has been dramatically slowed or even stopped in southeastern Harris County and throughout Galveston County. Those in north and west Harris County are in the process of managing the shift to surface water, but some very dramatic incidences of subsidence have already occurred in those areas. Hopefully, the conversions will produce the same beneficial results as accomplished south of Houston.

Neighborhoods that were designed with a developer created amenity lake(s) are being especially hard hit by the rising cost of water. As new subdivisions have been built in more recent years, it has been common for the flood detention area to be dug a little larger

and little deeper than is needed to just catch rainfall runoff. Groundwater is often pumped to augment the rainfall runoff during drier times, to create a pleasing asset instead of a dry depression. In the past, when groundwater was cheap, there was not a large price tag for filling an amenity lake. This provided a nice added value to local properties. However, with the mandated conversion to surface water, many lake owners are experiencing "sticker shock" at the cost of keeping their lakes full.

What are the options?

Lake managers often believe that only two options are available to them: 1) Continue to feed the lakes with groundwater and pay the higher cost for water; or 2) Reduce the lake levels and lower water costs. The first option would likely cause a significant increase in resident association dues to offset the higher water costs...and higher fees are seldom welcome. Option two decreases the aesthetics of the lake and may even affect the surrounding prop-

erty values...an outcome no one wants.

In reality, lake owners may have other options to consider, including treated effluent reuse, utilizing creek or bayou water, or a system redesign. These options will require time, effort and money to accomplish. Treated effluent reuse may be economical if the lake is near enough to a wastewater treatment facility and transmission to the lake is not difficult. Different levels of permitting will be needed from the Texas Commission on Environmental Quality (TCEQ), depending on how the lake is used. Water from a nearby creek or bayou may be an option as well, but also will require a permit from the TCEQ. In either case, location of an alternative supply is the main component for a successful solution.

Since many amenity lakes also act as temporary storage basins for storm-water runoff, the neighborhood probably drains into the lake already, but if the lake is not capturing runoff, redesign-

ing the lake to do so may be very worthwhile. Additionally, keeping the lake at a lower level by redesigning its overall look and shoreline may also result in a reduced water requirement.

Choices lie ahead...

For some lake owners, filling their lake or pond will simply not be an option in the future. For others, better management of lake levels or an alternative water supply may offer a solution. Anyone considering building a new lake; however, should design it for maximum efficiency, and consider using treated effluent if at all possible.

The cost of water is not going to decrease. Current lake owners and managers will have to determine the value of their lake and determine if this outweighs the higher costs of maintaining it. Water is not only essential to life, but water amenities often offer a soothing influence in daily living. Exploring cost-effective ways to enjoy this wonderful natural resource is certainly worth the challenge. ■