

Questions & Answers

November 1999

about reservoirs

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Does Dallas Water Utilities serve only the City of Dallas?

No, it provides drinking water for about 1.9 million people in Dallas and 19 nearby communities. In addition, three entities are untreated water customers: Denton, Lewisville and Upper Trinity Regional Water District, which serves a number of cities in North Texas.

What lakes does Dallas Water Utilities use for water supply?

Lewisville Lake, Ray Roberts Lake, Grapevine Lake, Lake Ray Hubbard, Lake Tawakoni.

Are these natural lakes?

No.

Who built the lakes?

Lewisville Lake and Ray Roberts Lake were built by the U.S. Army Corps of Engineers and paid for by the federal government, the City of Dallas and the City of Denton.

Grapevine Lake was built by the U.S. Army Corps of Engineers and paid for by the federal government, the City of Dallas, Park Cities Municipal Utility District and the City of Grapevine.

Lake Ray Hubbard was built and paid for by the City of Dallas.

Lake Tawakoni was built by the Sabine River Authority and was paid for by the City of Dallas and the Sabine River Authority.

Why were these lakes built?

The lakes were built for multiple purposes. The two-fold, primary purpose for Corps of Engineers lakes (Lewisville, Ray Roberts and Grapevine) is municipal water supply and flood control. For lakes Ray Hubbard and Tawakoni, the primary purpose is drinking water supply. Secondary purposes are environmental and recreational.

Who owns the lakes?

Each of these lakes is owned and operated by the entity that built it (see “Who built the lakes?” above).

Who owns the water in the lakes?

The State of Texas. The State has granted water rights to the entities who participated in the cost of the lakes. Water rights are granted by the State for specific uses, and uses are given different levels of priority. Dallas has water rights in some of the area lakes for providing drinking water and other municipal uses.

Who has major water rights in the lakes?

Ray Roberts Lake — Dallas, Denton;
Lewisville Lake — Dallas, Denton;
Grapevine Lake — Dallas, Grapevine, Park Cities Municipal Utility District;
Lake Ray Hubbard — Dallas;
Lake Tawakoni — Sabine River Authority (Dallas has a contract with Sabine River Authority to use the water).

Why is water released from the lakes?

Lake water is released to treat and use for municipal uses and to provide flood control.

Why have the levels of local lakes been dropping recently?

Shortage of rain, evaporation and customer water use have contributed. While some of the water is treated for municipal water supply, much of the water is lost from the lakes due to evaporation. In warm, dry, windy weather, up to one-half inch of water a day can evaporate from a lake. If Dallas stopped using water from the lakes, without rain the lakes would continue to drop at a substantial rate, just due to evaporation.

How does Dallas operate the lakes, and are there policies or formal guidelines?

Withdrawals are limited by permits from the Texas Natural Resource Conservation Commission. Each permit has unique limits and requirements.

Although Dallas is not required to have any additional lake operating guidelines, Dallas adopts informal operating guidelines for internal use. These guidelines are revised as needed. Generally, the guidelines are intended to minimize the cost to our customers while ensuring adequate supplies for our customers through a drought as severe as our record drought, which occurred in the 1950s. **During dry periods, the goals are to operate the lakes to minimize evaporation and maximize ability to store water for a drought.** We do not know if other water providers have any formal or informal guidelines.

During wet periods, the lakes northwest of Dallas (Ray Roberts, Lewisville, Grapevine) are the preferred sources of drinking water because the water is less expensive to transport to treatment plants. Water from the eastern lakes must be pumped to the water treatment plant at a substantial cost for power, while water from the western lakes flows by gravity via the Elm Fork of the Trinity River.

Can water be released from Ray Roberts Lake to fill Lewisville Lake?

This would not be prudent water supply management. These two lakes are operated as a system. Ray Roberts Lake was built for water supply and flood control, not to keep Lewisville Lake at a constant level. **Dallas' goal is to maximize Dallas' available supply through a drought as severe as the record drought,** which occurred in the 1950s.

At higher lake levels, if water were released from Ray Roberts Lake to fill Lewisville Lake, then water would have to be released downstream unnecessarily if it rained in the Lewisville Lake watershed. Then less water would be available to our customers near the end of a drought.

Is the City of Dallas concerned about the effect of lower lake levels on adjacent property owners and lake users?

Has Dallas made any adjustments in its lake operations this year in light of current conditions?

Are the lakes dangerously low?

Is it unusual for the lakes to be this low?

In addition, water stored in Lewisville Lake suffers more evaporation loss than water stored in Ray Roberts Lake because Ray Roberts is a deeper lake with less surface area exposed to evaporation. For this reason, releasing water from Ray Roberts Lake to Lewisville Lake would result in a larger total surface area exposed to evaporation. This increased evaporation would reduce the amount of drinking water available to customers toward the end of a drought should we be at the early stages of a long-term drought. Since **the lakes and Dallas' operating guidelines were designed to have enough water to supply municipal demands during a drought equal to the drought of record**, allowing increased evaporation would reduce this supply to less than would be needed during such a drought. Putting nearly two million people out of drinking water near the end of a drought by increasing evaporation in the early part of a drought is not prudent water management.

Yes, Dallas is concerned about the effects of low lake levels. However, Dallas' responsibility is to its water customers, and lake operation decisions are based on this responsibility. Due to the recent hot, dry weather, all area lakes are somewhat depleted. Dallas has now heard from citizens who live around all of its supply lakes, including the eastern lakes, requesting that Dallas withdraw water from its other lakes. As a prudent water manager, Dallas cannot reduce or endanger the water supply available for drinking water customers and for fire protection and public health during a drought in order to raise the level temporarily at any one lake.

Yes. As planned for in our operating guidelines, Dallas has been taking a higher percentage of water from its eastern sources, primarily Lake Tawakoni. Dallas also has been releasing water from Ray Roberts Lake, and that amount was increased in October 1999.

In terms of recreation, maybe. However, the lakes have been lower in the past than they are now. Lower water levels expose more underwater hazards for boaters. At such times, recreational users of these lakes should watch out for tree stumps and other hazards or consider not boating until rain fills the lakes again.

In terms of water supply, the lakes are operating as designed. They have stored water during rainy periods so that water would be available during dry periods, such as we are experiencing now. In Dallas Water Utilities' Water Management Plan, which outlines progressive steps to conserve or even restrict water use during a shortage, the lake levels have not yet reached even the first level — Water Awareness.

No. We have become accustomed to high lake levels due to the wet weather that has occurred since 1989. In some years, the lakes were so full from heavy rains that there were public concerns about high water levels. In recent years, the lakes have returned to a more normal wet/dry cycle. Generally, the lake levels are not unusual when compared with previous years and what would be expected from the hydrological record for this area.

Are we in a drought?

The State of Texas considers North Central Texas to be in a moderate drought, but no one can predict how long this will last.

Is customer water use higher now than it was at this time last year? If so, why?

Yes. For example, water use in October 1999 averaged 502 million gallons per day, compared to 426 million gallons per day in October 1998. Warm, dry weather has caused customers to continue watering their foundations and their landscapes. Only about one to 1.5 percent of the higher water use can be attributed to population growth.

Does Dallas have a plan for restricting customer water use if dry conditions continue?

Dallas has a four-stage Water Management Plan, which calls for progressive levels of restrictions if there is an extended drought or other condition that limits our ability to provide water to customers.

Would Dallas restrict customer water use to keep lake levels up?

Dallas is monitoring lake levels daily and would enact prescribed measures if water supply drops to levels specified in the City Council-adopted Water Management Plan. As a public water supplier, Dallas cannot restrict its customers' water use at the request of recreational lake users.

Does Dallas have plans for increasing its water supply capacity?

An engineering consultant is nearing completion of an update of Dallas' Long Range Water Supply Plan. The updated plan will include short-term recommendations for connecting water supplies being held in reserve (Lake Palestine and Lake Fork) and long-term recommendations for acquiring additional water supplies.

Why haven't Ray Roberts and Lewisville Lakes filled with this year's rains?

A lake is filled by rainfall runoff in its watershed. Overall, rainfall for this area is more than nine inches below normal. Much of the rain that has occurred this year soaked into the ground instead of running off. In addition, there are many smaller dams upstream of these lakes that have been catching some of the runoff. Much of the rain this year missed the watersheds — occurring south and east of these lakes.

DALLAS WATER SUPPLY

