

# How the Highland Lakes work

## Securing a reliable water supply through flood and drought

### Harnessing the lower Colorado River

Central Texas, known as “Flash Flood Alley,” is home to frequent, sudden heavy rains and flooding.

The region also is subject to droughts.

By building the six dams that created the Highland Lakes, LCRA made it possible to manage floodwaters and store water for use during droughts.

LCRA operates the lower Colorado River and the Highland Lakes together as one system to manage the region’s water supply efficiently.

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**Pass-through lakes:** Lakes Inks, LBJ, Marble Falls and Austin are pass-through lakes.

- There’s no room for additional storage in these lakes, so water that comes in, must go out.
- The levels of these lakes can fluctuate, especially during a flood. They are not “constant level.”

**Storage reservoirs:** Lakes Buchanan and Travis serve as water supply reservoirs, storing water for communities, industries, agriculture and the environment.

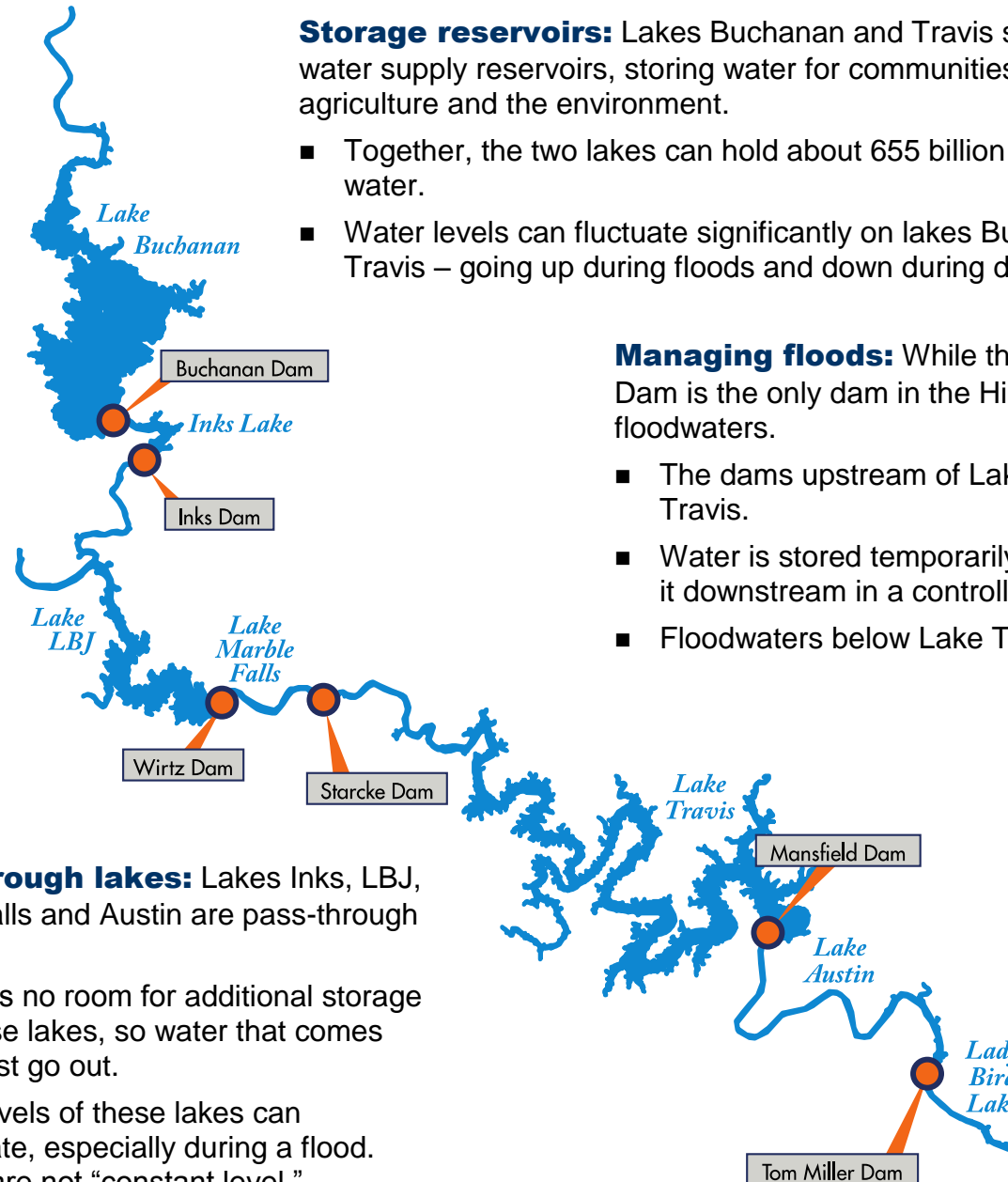
- Together, the two lakes can hold about 655 billion gallons of water.
- Water levels can fluctuate significantly on lakes Buchanan and Travis – going up during floods and down during droughts.

**Managing floods:** While the dams were built to help manage floods, Mansfield Dam is the only dam in the Highland Lakes chain designed to hold back floodwaters.

- The dams upstream of Lake Travis pass floodwaters downstream to Lake Travis.
- Water is stored temporarily in the Lake Travis flood pool until LCRA can release it downstream in a controlled manner.
- Floodwaters below Lake Travis flow along the Colorado River to Matagorda Bay.

**Providing water during droughts:** During droughts, customers draw from the water stored in lakes Travis and Buchanan.

- The levels of these lakes go down as water is used by customers, released for the environment or evaporates in hot and windy weather.
- Nature causes droughts and only nature can end a drought. Rain is needed to feed the rivers and streams that flow into the lakes.



### How long is the Texas Colorado River?

- About 862 river miles. LCRA has responsibility for roughly the lower 600 miles of the river.

### How big is the lower Colorado River watershed?

- About 18,300 square miles – about the size of Maryland and Massachusetts combined.

### When did LCRA build the dams and lakes?

- 1935 through 1951.

### How much water can lakes Travis and Buchanan hold?

- 2.01 million acre-feet, or about 655 billion gallons.

### What is an acre-foot?

- An acre-foot is the amount of water it would take to cover 1 acre 1 foot deep.
- 1 acre-foot of water is equal to 325,851 gallons of water.

### Water inflows

- Water flowing into the Highland Lakes from the Colorado River and its tributaries is called inflows.
- When storms drop heavy rain in the Highland Lakes watershed, the Colorado River and its tributaries swell, sending water into the lakes.
- In dry times, the amount of water flowing into the Highland Lakes decreases significantly.

### Water uses

- The lower Colorado River supplies clean, reliable water for more than a million Texans, industries, power production and agriculture.
- Matagorda Bay, on the Gulf Coast, also depends on the river to maintain a healthy habitat for fish and other aquatic life.
- LCRA can use its dams to produce about 295 megawatts of clean, renewable hydroelectricity. It does so only when passing water through the dams to meet downstream water needs, during flood operations or during a power generation emergency.

### Water Management Plan

- LCRA's Water Management Plan governs the operation of lakes Travis and Buchanan.
- During drought, the plan requires the curtailment or cutback of Highland Lakes water for interruptible customers so water will be available for the basic needs of cities, businesses and industries.

### Planning for the future

- LCRA is taking proactive steps to expand the water supply.
- LCRA installed new groundwater wells to serve the Lost Pines Power Park in Bastrop County. The wells supply cooling water for the plant, reducing the demand for water from the Highland Lakes. The wells can supply as much as 10,000 acre-feet per year under certain conditions.
- LCRA is building a downstream reservoir in Wharton County. The Lane City Reservoir, a 40,000 acre-foot, off-channel reservoir, could be refilled multiple times in a year and has the potential to produce up to 90,000 acre-feet of firm yield per year. We expect the reservoir to be operational by 2018. The reservoir will benefit the entire basin by helping reduce the amount of water otherwise required to be released from the Highland Lakes for downstream industrial, agricultural and environmental purposes.
- LCRA also received an \$8 million federal partnership award to help construct another new reservoir, this one in Colorado County. The Prairie Conservation Reservoir in Eagle Lake will include a 2,000 acre-foot, off-channel reservoir. It will increase the efficiency of LCRA's irrigation operations and help conserve water.
- LCRA also is exploring additional water strategies for our region, including using surface water, treated effluent and groundwater.