

LCRA Water Use Summary 2018

In 2018, the Highland Lakes watershed saw both serious drought and significant flooding. The year started very dry, but ended with major flooding on the Llano River that caused Lake Travis to rise to its fifth-highest level.

From January through August, the amount of water flowing into the Highland Lakes on the Colorado River was the fourth lowest on record for that eight-month period.

The weather pattern changed in September, as the basin began to see widespread, frequent rain. Inflows to the Highland Lakes in September were more than the previous eight months combined.

In October, back-to-back floods on the Llano River sent 1.3 million acre-feet of inflows into the Highland Lakes – the highest amount of inflows on record for October. During the flooding, LCRA had flood operations underway at every dam along the Highland Lakes simultaneously.

By the end of the year, lakes Travis and Buchanan – the region’s water supply reservoirs – were full, at the top of their water supply pools.

With dry conditions for so much of the year, municipal water use from the Highland Lakes increased by 16% from 2017 to 2018. The amount of water released from the Highland Lakes for downstream agriculture also increased from 2017 to 2018 – by 130%.



WATER USE BY SOURCE – LCRA uses two basic sources of water to meet customer and environmental needs: water stored in lakes Buchanan and Travis and water naturally flowing in the Colorado River. When the natural flow into the Highland Lakes is greater than the customer and environmental needs, LCRA captures and stores the excess in lakes Buchanan and Travis.

- Highland Lakes water use** – Contracts for water stored in lakes Buchanan and Travis can be for firm or interruptible supply. LCRA also uses water from the Highland Lakes to help maintain environmental flows and to produce hydroelectric energy. In 2018, the Highland Lakes supplied 357,030 acre-feet of water for all uses.
 - Firm water contracts** – These contracts supply cities, businesses and industries that need a reliable long-term water supply. Firm supply is expected to be available through a repeat of the driest conditions the region has experienced. Firm customers accounted for 164,617 acre-feet, including 74 acre-feet to meet emergency needs for electricity, or about 46% of all water used from the Highland Lakes, in 2018.
 - Interruptible water contracts** – These contracts supply agricultural customers. Interruptible water is subject to cutbacks during drought conditions. Interruptible customers used 136,490 acre-feet, or about 38% of all water used from the Highland Lakes, in 2018.
 - Environmental** – From time to time, LCRA releases water from the Highland Lakes to meet environmental flow requirements for the Colorado River downstream of Austin and for Matagorda Bay. In 2018, LCRA released 55,923 acre-feet, or about 16% of water released from the Highland Lakes, for environmental flows.
- Colorado River water use** – In addition to the rights to water from the Highland Lakes, LCRA owns and manages other rights to water from the Colorado River. In 2018, a total of 206,143 acre-feet of water was supplied from the Colorado River for agricultural, municipal, industrial, recreation and firm irrigation uses under these water rights.

HOW DOES 2018 COMPARE?

TYPE OF WATER USE*	2011	2012	2013	2014	2015	2016	2017	2018
Municipal (firm)	246,601	228,570	213,691	203,668	198,738	210,376	221,037	225,861
Water from the Highland Lakes	184,889	122,360	133,317	107,996	98,920	97,134	115,416	133,517
Water from the Colorado River	61,712	106,210	80,374	95,672	99,818	113,242	105,621	92,344
Industrial (firm)	60,617	117,977	96,253	72,817	92,623	39,018	91,188	80,580
Water from the Highland Lakes	54,102	19,133	34,296	14,972	8,956	13,404	23,000	24,433
Water from the Colorado River	6,515	98,844	61,957	57,845	83,667	25,614	68,188	56,147
Recreational and Irrigation (firm)	9,099	6,546	5,680	5,853	5,620	5,123	7,362	6,760
Water from the Highland Lakes	8,759	6,338	5,535	5,599	5,346	4,870	7,225	6,667
Water from the Colorado River	340	208	145	254	274	253	137	93
Agricultural (interruptible)†	529,580	102,668	108,296	88,401	74,723	254,085	235,255	289,665
Water from the Highland Lakes	433,251	8,896	22,346	15,952	0	7,656	59,266	136,490
Water from the Colorado River	96,329	93,772	85,950	72,449	74,723	246,429	175,989	153,175
Environmental‡ <i>(from the Highland Lakes)</i>	33,433	31,285	33,465	4,582	0	54,641	67,762	55,923
TOTAL WATER USE	879,330	487,046	457,385	375,321	371,704	563,243	622,604	658,789

* Water use is in acre-feet.

† Releases from the Highland Lakes for downstream agriculture in the Gulf Coast, Lakeside and Pierce Ranch irrigation operations were suspended from 2012 through 2015 because of the severe drought.

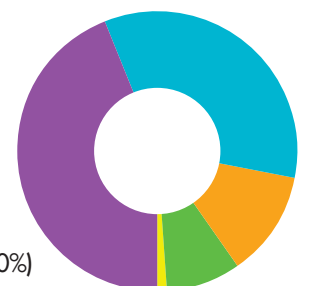
‡ Dedicated environmental releases are the water released solely for the purpose of satisfying environmental needs. In addition, releases for downstream customers and runoff flowing into the river and bay help satisfy environmental needs.

Learn more about the lower Colorado River at lra.org.

Water Rights	2018 Use (in acre-feet)
LCRA Garwood	75,023
LCRA South Texas Project	45,172
LCRA Lakeside	20,138
LCRA Gulf Coast	58,992
LCRA Pierce Ranch	6,818
LCRA Lakes Buchanan and Travis	357,030
SUBTOTAL – LCRA	563,173
City of Austin Water Rights	95,436
Bastrop Energy Partners, LP	180
TOTAL	658,789

Water Use From Highland Lakes and Lower Colorado River (LCRA and Other Water Rights)

- Agricultural (44.0%)**
- Municipal (34.3%)**
- Industrial (12.2%)**
- Environmental (8.5%)**
- Recreation & Irrigation (1.0%)**



Customer Water Use in 2018

2018 Total Water Pumped by LCRA's Firm Water Customers

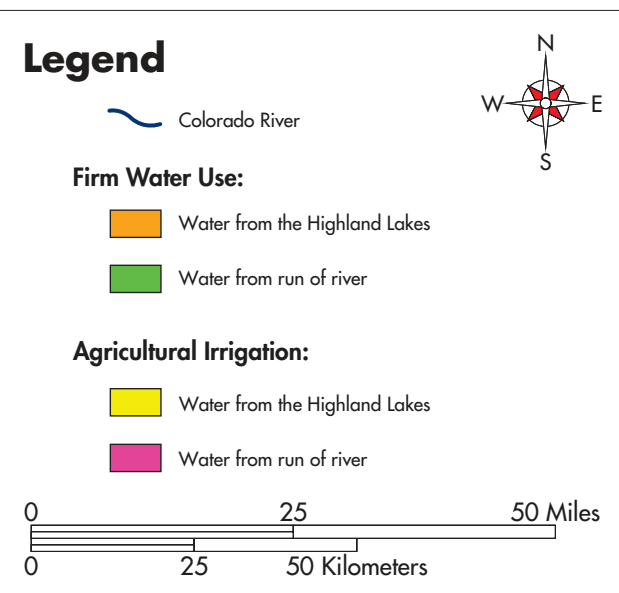
Water supplied from the Highland Lakes	Volume (acre-feet)
City of Austin, municipal and parks	56,698
City of Cedar Park	15,167
LCRA power plants	12,518
• Fayette Power Project (LCRA share)	11,169
• Sim Gideon Power Plant*	0
• Lost Pines 1 Power Project*	0
• Thomas C. Ferguson Power Plant	1,349
City of Leander	7,474
Travis County WCID No. 17	7,449
West Travis County Public Utility Agency	5,553
Austin Energy (AE) power plants	5,336
• Fayette Power Project (AE share)	4,960
• Decker Power Plant	376
City of Pflugerville	5,313
Domestic water users on Highland Lakes	4,230
Travis County MUD No. 4	2,753
Lakeway MUD	2,288
Underground Services Markham, LP	2,195
City of Horseshoe Bay	1,936
Bastrop Energy Partners, LP	1,629
City of Marble Falls	1,449
City of Lago Vista	1,412
Oxea Corporation	1,124
Hurst Creek MUD (The Hills)	1,003
Horseshoe Bay Resort, LTD	878
Travis County WCID No. 18	762
Loop 360 WSC	711
Other firm customers	12,015
• Diverted from Lake Buchanan	546
• Diverted from Inks Lake	546
• Diverted from Lake LBJ	1,929
• Diverted from Lake Marble Falls	0
• Diverted from Lake Travis	3,811
• Diverted from Lake Austin	4,155
• Diverted downstream of Lake Austin	1,028
Subtotal from Highland Lakes**	149,894
Water supplied from other water rights	Volume (acre-feet)
City of Austin, municipal and parks	92,437
South Texas Project Nuclear Operating Co.	45,172
Gulf Coast municipal and industrial use	6,881
• Underground Services Markham, LP	4,780
• Oxea Corporation	2,101
Austin Energy (AE) power plants	2,999
• Fayette Power Project (AE share)	2,016
• Decker Power Plant	983
LCRA Fayette Power Project - Garwood amendment	915
Bastrop Energy Partners, LP	180
Subtotal from other water rights	148,584
Total from both sources	298,478

Emergency releases — On occasion, LCRA releases water through its hydroelectric generators to meet short-term, urgent power needs in the state. LCRA released about 74 acre-feet of water from the Highland Lakes due to emergency electrical power needs in 2018.

Interruptible water released but not pumped by agricultural customers — LCRA estimated that 50,518 acre-feet were released from the Highland Lakes for irrigation customers, but not pumped because the water was lost to evaporation, seeped into the banks of the river or was not needed because of changed conditions. When this amount is added to the water pumped, the total water supplied from the Highland Lakes for agricultural irrigation in 2018 was 136,490 acre-feet.

Evaporation — In 2018, an estimated 167,240 acre-feet of water evaporated from the six Highland Lakes — Buchanan, Inks, LBJ, Marble Falls, Travis and Austin. This is roughly 8% less than the amount that evaporated in 2017.

****Firm water released but not pumped by firm customers** — LCRA estimated that 14,723 acre-feet were released from the Highland Lakes, but not pumped by firm customers because the water was lost to evaporation, seeped into the banks of the river or was not needed because of changed conditions. When this amount is added to the water pumped, the total water supplied from the Highland Lakes for LCRA's firm customers in 2018 was 164,617 acre-feet.



*Groundwater was used to meet demand.

2018 Total Water Pumped for LCRA's Interruptible Water Customers (Agriculture)

Water supplied from the Highland Lakes	Volume (acre-feet)
Garwood Irrigation Division	3,335
Lakeside Irrigation Division	52,035
Gulf Coast Irrigation Division	19,408
Pierce Ranch Irrigation Company	11,194
Subtotal from Highland Lakes	85,972
Water supplied from downstream water rights	Volume (acre-feet)
Garwood Irrigation Division	74,108
Lakeside Irrigation Division	20,138
Gulf Coast Irrigation Division	52,111
Pierce Ranch Irrigation Company	6,818
Subtotal from downstream water rights	153,175
Total from both sources	239,147

Flow to bay — About 2,141,200 acre-feet of fresh water flowed in the Colorado River past Bay City toward Matagorda Bay in 2018. This water came from pass-through releases of excess inflows to the Highland Lakes, and rainfall and runoff occurring below Lake Travis. This natural flow of the river also is a source of water for customers such as STPNOC and downstream interruptible customers. In 2018, LCRA released 42,095 acre-feet of water from the Highland Lakes to help meet freshwater inflow needs.

The City of Corpus Christi holds a senior water right in the lower Colorado River basin. Corpus Christi began using water from the river in 2016. In 2018, Corpus Christi used 5,365 acre-feet.

