



Region I

East Texas Regional
Water Planning Group



Regional Water Planning Group Meeting

etexwaterplan.org

January 10, 2024

East Texas Regional Water Planning Group Meeting

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments

Item 6

Consideration and Approval of the minutes of the October 04,2023 meeting

Item 7

Reports from the City of Nacogdoches

Item 8 Reports of Adjoining Regions' Activity

Region C – David Montagne

Region D – John McFarland

Region H – Scott Hall

Interregional Liaison – Kelley Holcomb

Item 9

Reports from Standing Committees

Executive Committee – John Martin

Finance Committee – Kelley Holcomb

Bylaws Committee – David Alders

Technical Committee – Scott Hall

Nominations Committee – Monty Shank

Item 10

Consideration and Approval of updates
to the Bylaws

Item 11

Report from Consultant Team

Today's Discussion

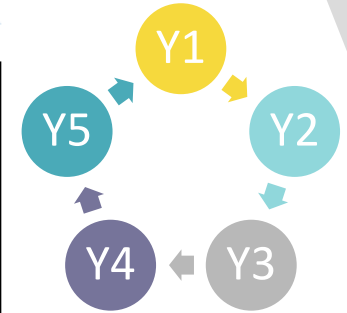
Overview of Project Schedule

- a) TWDB Adoption Revision to Population and Demand Projection
- b) Progress on Surface Water Supply Projection
- c) Progress on Groundwater Supply Projection
- d) Progress on Draft Water Needs and Demand Allocations
- e) Conservation and Reuse Methodology
- f) Status Update on Infeasible Water Strategies
- g) Status Updates on the Hydrological Variance Request for Surface Water Supplies
- h) Next Meeting/Agenda

Abbreviations:

TWDB = Texas Water Development Board

Sixth Cycle of Regional Water Planning (2026 Regional Water Plans)
Working Schedule (as of March 2023)^A

[illegible]

Notes: ^A Estimated timeline based on currently available agency resources and subject to change

^b DB27 is the updated, online water planning database for the 2027 State Water Plan

^c Anticipated database availability dates are estimates based on currently available agency resources

¹² Subject to available funding

2026 Plan Short-Term Schedule

Date	Schedules Events/Tasks
Oct 2023 – March 2024	Prepare the technical memorandum
Feb 15, 2024	Next RWPG Meeting
March 4, 2024	Technical memorandum due date
March 4, 2024	Interregional Planning Council Report due date
Jan – June 2024	TWDB Board adopts identified WMSs and WMSPs as infeasible (Amendments due 6/5/2024)

Abbreviations:

RWPG = Regional Water Planning Group
TWDB = Texas Water Development Board

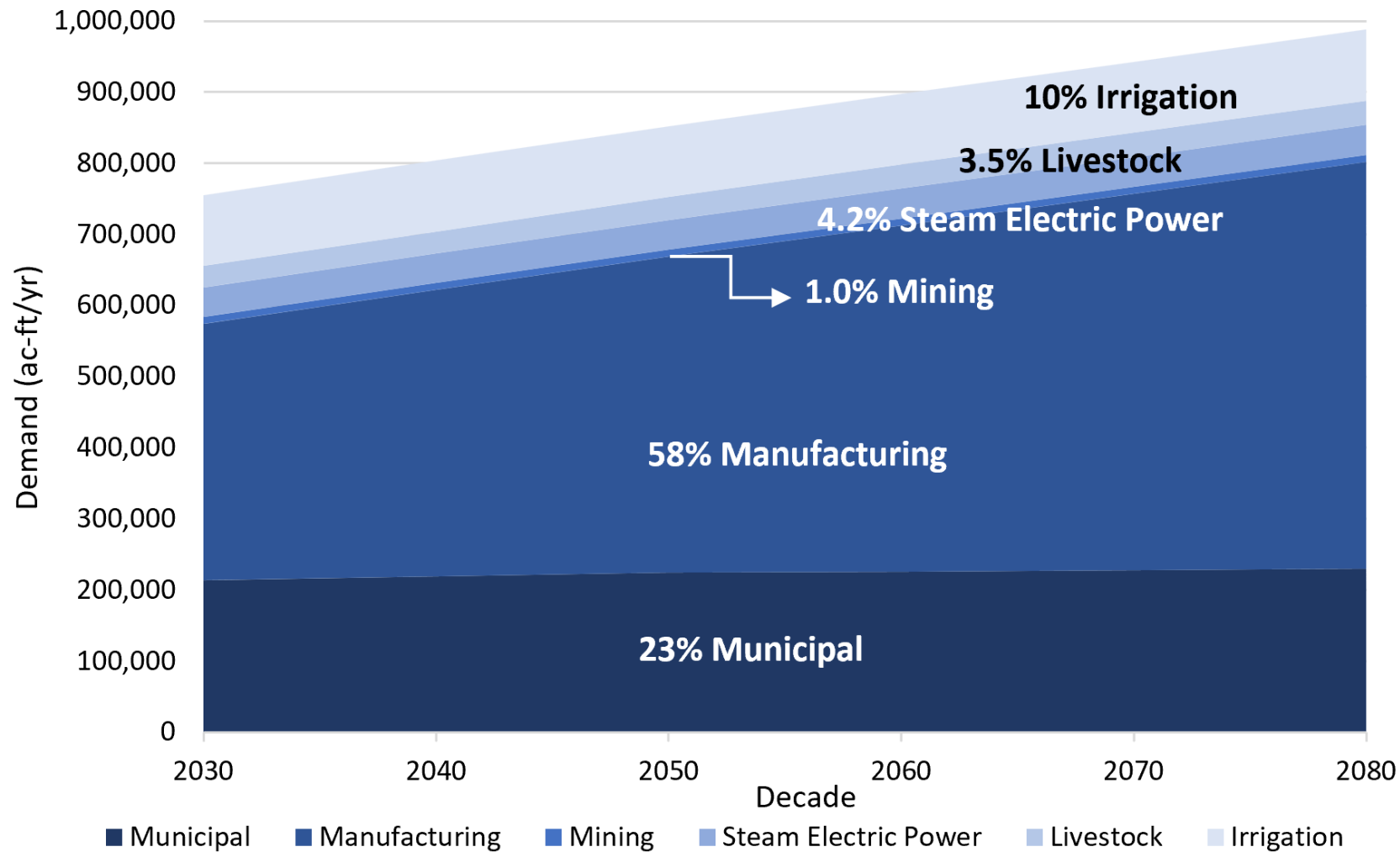
WMSs = Water Management Strategies
WMSPs = Water Management Strategy Projects

TWDB Adopted Revisions to Population and Demand Projection (11a)

2026 Demand Projections Finalized

- TWDB adopted final projections on November 9, 2023
- Proposed demand is accepted
- Minor adjustments to ensure consistency with neighboring regions, and the following specific case:
 - Mauriceville SUD — TWDB agreed to proposed 2030 growth rate, recommended lower growth rates from 2040-2080 due to expected regional population declines

Demand Projection by Category



Adopted Demand in ETRWPA

Water Use Category	2030	2040	2050	2060	2070	2080	Comparison to Previous Cycle (a)
Municipal	214,040	219,630	224,789	226,176	227,792	229,673	-6%
Manufacturing	360,181	402,032	444,136	486,507	529,147	572,071	50%
Mining	9,673	9,759	9,847	9,952	10,062	10,179	-17%
Steam Electric Power	41,782	41,782	41,782	41,782	41,782	41,782	-38%
Livestock	30,001	31,116	32,434	33,979	34,460	34,460	-47%
Irrigation	99,429	99,429	99,429	99,429	99,429	99,429	1%
Total for ETRWPA (b)	755,106	803,748	852,417	897,825	942,672	987,594	12%

Note: (a) Comparison reflects the difference between the 2070 Demand in the 2026 RWP and the 2070 Demand in the 2021 RWP.

(b) Total may not sum due to rounding.

Abbreviations:

ETRWPA = East Texas Regional Water Planning Area

Item 11a

- Update on the TWDB Adopted Revisions to the Population and Demand Projection in the 2026 Regional Water Plan (2026 RWP)

Surface Water Supply Projection (11b)

Surface Water Supplies in Regional Water Planning

Assess regional surface water availability



Distribute availability by county/WUG/WWP

Abbreviations:

WUG = water user group

WWP = wholesale water provider

Surface Water Rights in Texas

Prior Appropriation

- Water is a resource of the State, based solely on permit provisions
- “First in time is first in right”
- Rights assigned a priority date
 - “Seniors” vs “Juniors”
- Administered by Texas Commission on Environmental Quality (TCEQ)

Surface Water Availability Evaluation



- Determined using modified TCEQ Water Availability Model (WAM) Run 3
 - Existing permanent rights and e-flow requirements
 - Priority order
 - No return flows
 - Full authorized diversions
- Modifications made according to hydrologic variance request
 - Approved by RWPG at 10/2023 meeting
 - Reflect current and future reservoir conditions (i.e., sedimentation)

Surface Water Availability

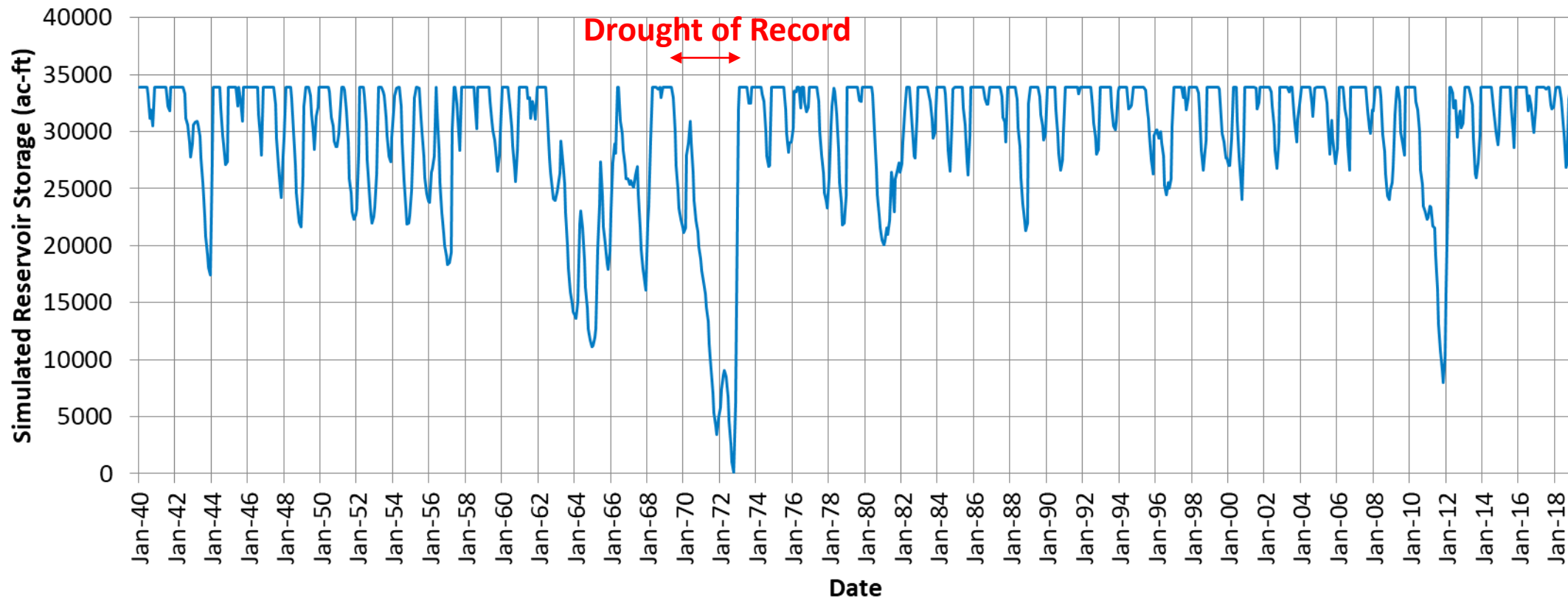
Reservoirs

- Determined using **firm yield**
 - Maximum water volume a reservoir can reliably provide each year under a repeat of the drought of record
- Account for sedimentation
- Evaluated individually
- Listed by reservoir or system



Surface Water Availability

Firm Yield Example



Firm yield: How much can you take out every year such that available reservoir storage never goes empty during a repeat of the worst historical drought?

Surface Water Availability

Run-of-River

- Determined using **minimum annual diversion**
- Aggregated by county and river basin
 - Individual municipal rights
 - Irrigation rights > 10,000 acre-feet per year (af/y)

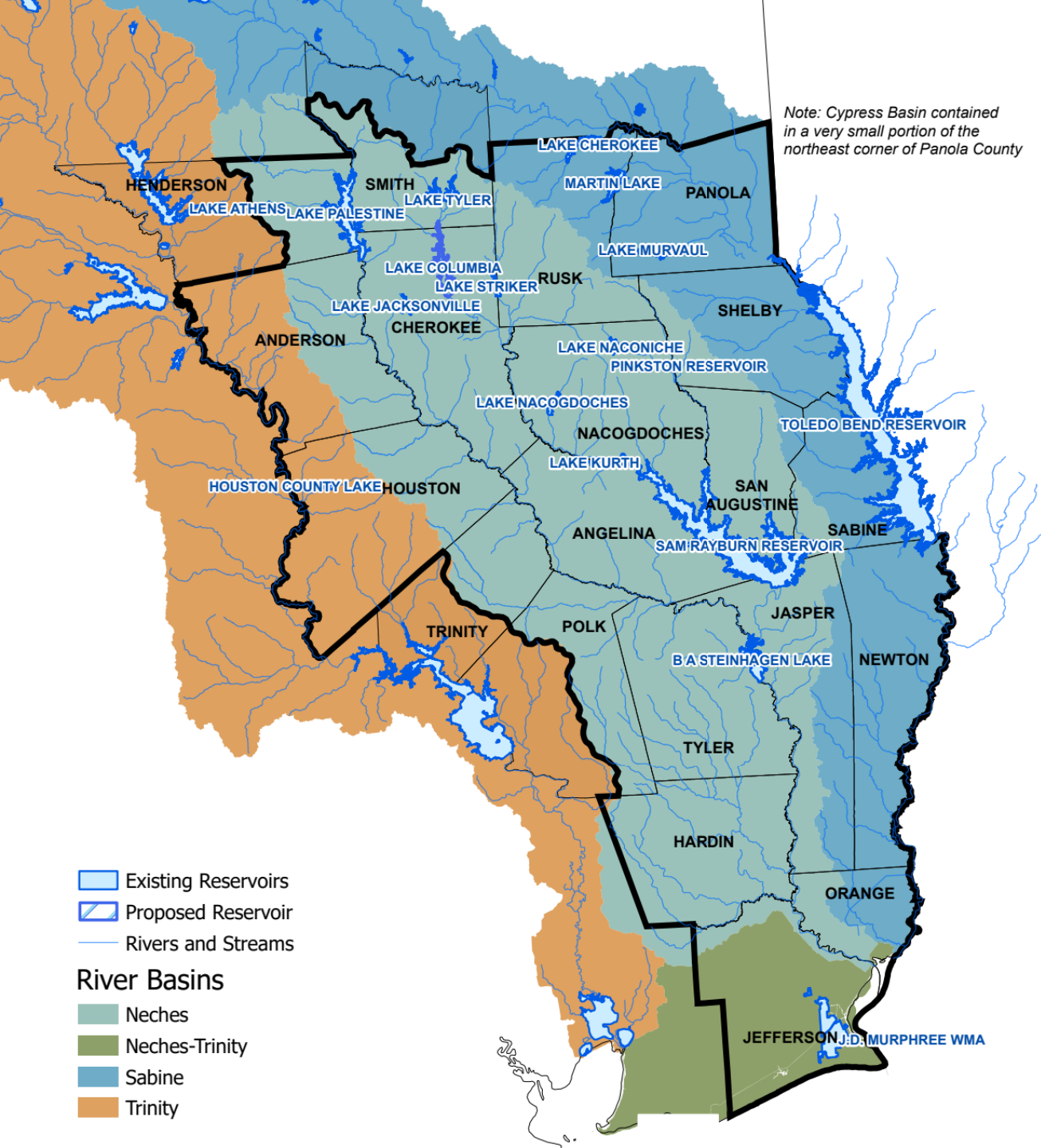


Surface Water Availability

Local Supplies




- Determined using **TWDB historical use data**
- Non-permitted supply (e.g., stock tanks, mining gravel pits)
- Listed by county and river basin





Major Surface Water Sources in Region I

Note: Cypress Basin contained in a very small portion of the northeast corner of Panola County

 Existing Reservoirs
 Proposed Reservoir
 Rivers and Streams

River Basins

- Neches
- Neches-Trinity
- Sabine
- Trinity

Surface Water Availability Evaluation

Neches River Basin

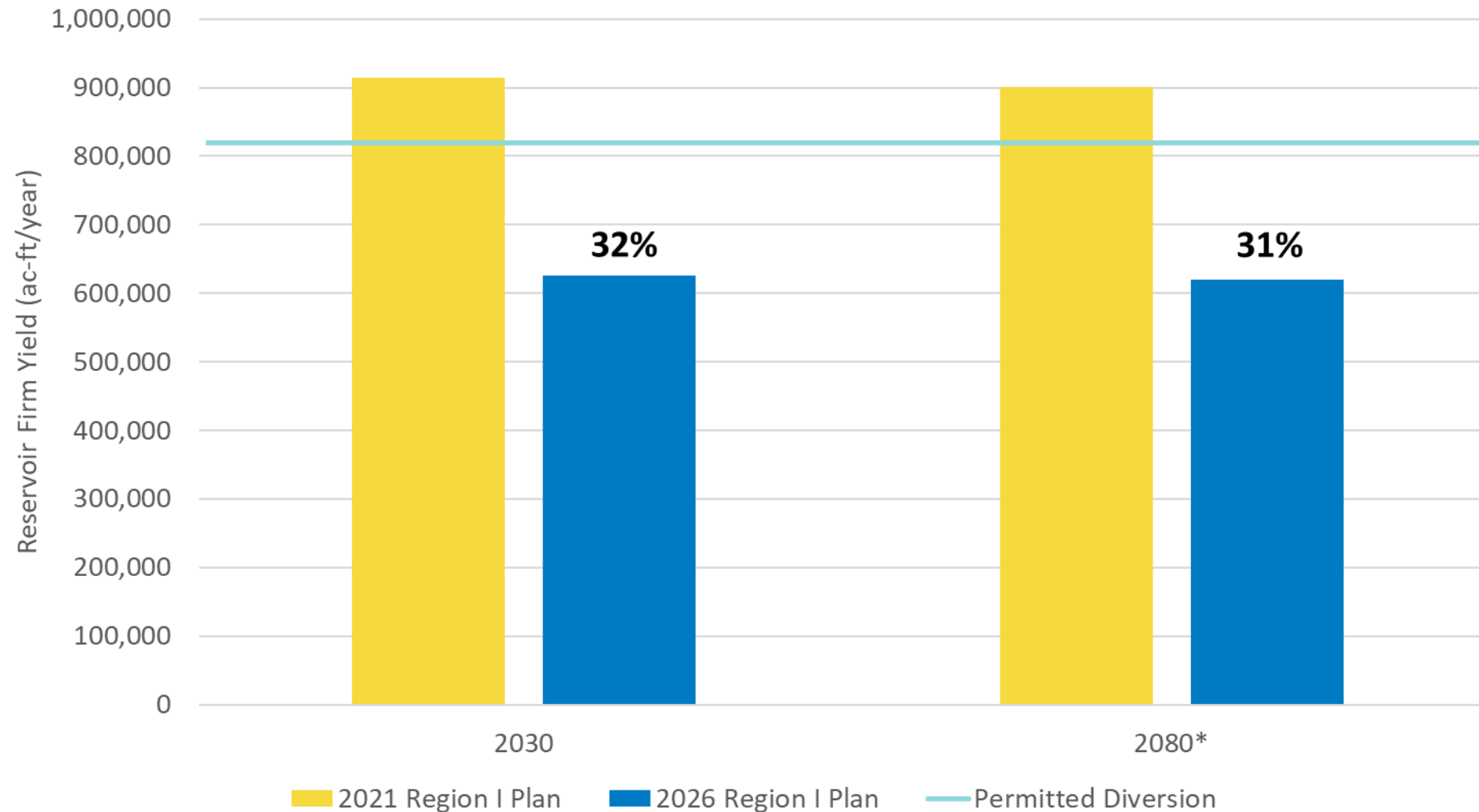
- Neches WAM Run 3 updated in 2021
 - Used for 2026 Region I Plan
 - Hydrology data (inflows, evaporation) extended through 2018
 - Extension includes major droughts not in original
- 2021 Region I Plan used original version of Neches WAM Run 3
 - Hydrology data (inflows, evaporation) available through 1996

Reservoir Water Availability

Neches River Basin

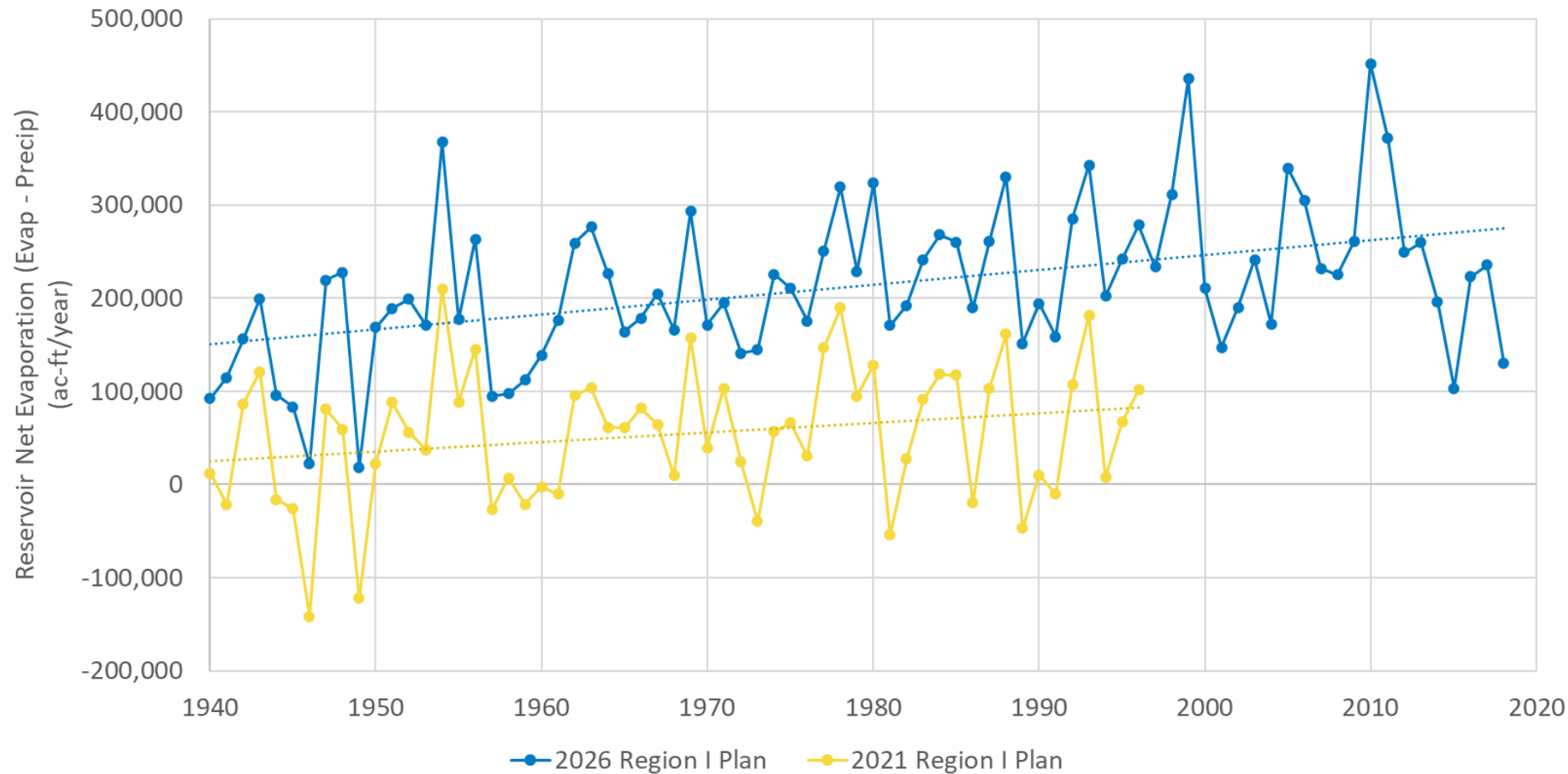
Neches Basin Reservoirs	Permitted Diversion (ac-ft/yr)	Projected Yield (ac-ft/yr)			
		2021 Plan		2026 Plan	
		2030	2070	2030	2080
Lake Athens	8,500	5,864	5,520	4,540	4,240
Lake Columbia	85,507	75,720	75,400	68,187	68,187
Lake Jacksonville	6,200	8,495	7,560	7,560	6,485
Lake Kurth	19,100	18,502	18,510	17,425	17,540
Lake Nacogdoches	22,000	15,800	14,200	14,335	12,525
Lake Palestine	238,110	196,110	189,010	177,110	166,910
Lake Pinkston	3,800	3,800	3,800	3,800	3,800
Lake Rayburn/Steinhagen	820,000	913,610	901,080	625,190	619,351
Lake Striker	20,600	19,635	14,690	10,500	7,950
Lake Tyler	40,325	34,666	34,010	32,900	31,750
Lakes Timpson, Bellwood, Rusk, & San Augustine	3,995	4,647	4,647	4,114	4,114
Neches River Basin Total		1,296,849	1,268,427	966,324	943,164
Total Neches River Basin Reservoir Yield Percent Reduction				-26%	-26%

Yield Reduction Lakes Rayburn/Steinhagen



*2070 yield shown for 2021 Plan.

Increased Reservoir Net Evaporation Sam Rayburn Reservoir



Reductions in reservoir yield primarily driven by increases in reservoir net evaporation in the updated Neches WAM

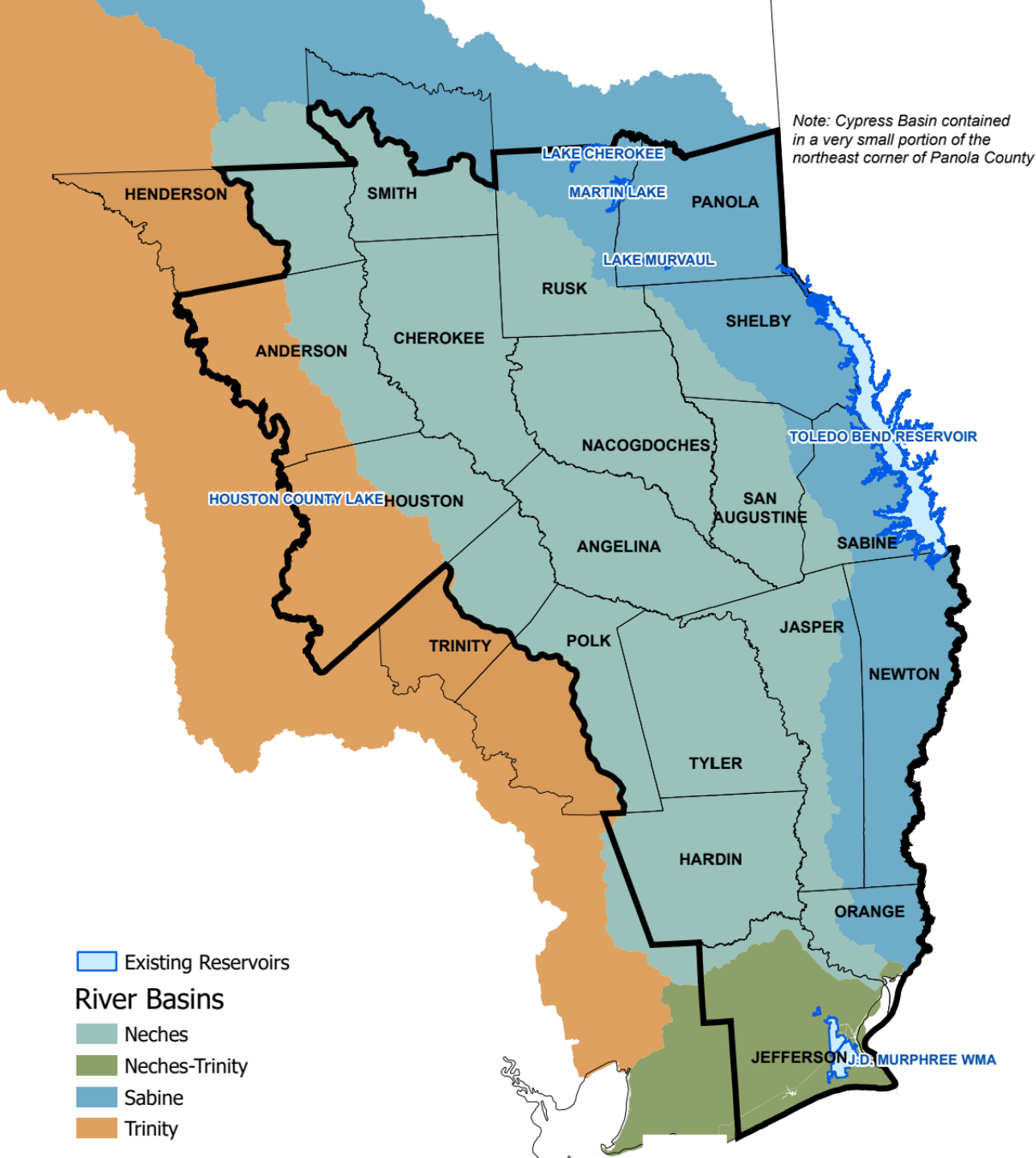
Run-of River Water Availability

Neches River Basin

County	Projected Yield (ac-ft/yr)			
	2021 Plan		2026 Plan	
	2030	2070	2030	2080
Anderson	162	162	80	80
Angelina	45	45	10	10
Cherokee	108	108	58	58
Hardin	57	57	54	54
Houston	208	208	147	147
Jasper ¹	382,554	382,554	382,512	382,512
Jefferson ²	16,732	21,588	12,102	12,969
Nacogdoches	69	69	82	82
Rusk	82	82	59	59
Sabine	178	178	162	162
Smith	50	50	45	45
Tyler	89	89	88	88
TOTAL	400,335	405,191	395,414	396,281

1 Lower Neches Valley Authority (LNVA) run-of-river firm diversions included under Jasper County.

2 Beaumont run-of-river firm diversions estimated using Beaumont daily model.



Major Reservoirs Sabine, Trinity, and Neches-Trinity River Basins

Reservoir Water Availability

Sabine and Trinity River Basins

Sabine Basin Reservoirs	Permitted Diversion (ac-ft/yr)	Projected Yield (ac-ft/yr)			
		2021 Plan		2026 Plan	
		2030	2070	2030	2080
Lake Cherokee	62,400	31,309	31,100	31,480	30,200
Lake Martin	25,000	31,480	31,371	32,210	31,850
Lake Murvaul	22,400	22,865	17,282	20,845	16,935
Lake Toledo Bend	970,067	959,398	958,450	969,750	968,420
Lake Center	1,460	1,460	1,460	1,460	1,460
Sabine River Basin Total		1,044,225	1,039,693	1,055,700	1,048,810

Trinity Basin Reservoirs	Permitted Diversion (ac-ft/yr)	Projected Yield (ac-ft/yr)			
		2021 Plan		2026 Plan	
		2030	2070	2030	2080
Houston County Lake*	3,500	3,500	3,500	3,500	3,500
Trinity River Basin Total		3,500	3,500	3,500	3,500

*Supply estimate still in progress by Region C

Run-of-River Water Availability

Sabine, Neches-Trinity, and Trinity River Basins

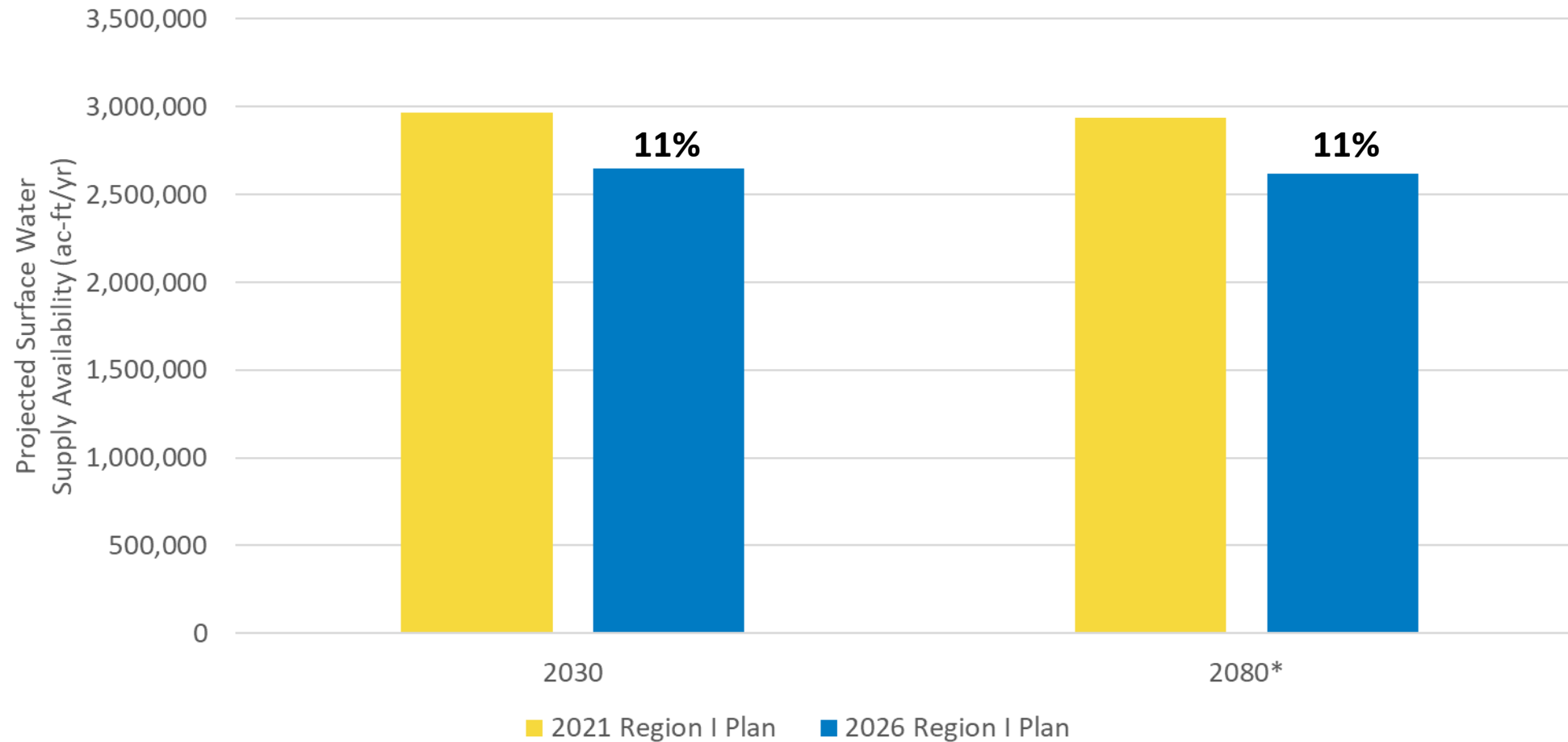
River Basin	County	2030-2080 Projected Yield (ac-ft/yr)	
		2021 Plan	2026 Plan
Sabine	Newton	133,128	130,146
	Orange	28	28
	Panola	687	580
	Polk	137	137
	Total	133,981	130,892
Trinity	Anderson	1,290	1,290
	Houston	2,522	2,522
	Total	3,812	3,812
Neches-Trinity	Jefferson	51,274	51,274
	Total	51,274	51,274

Local Supply Availability

County	2030-2080 Projected Availability (ac-ft/yr)		County	2030-2080 Projected Availability (ac-ft/yr)	
	2021 Plan	2026 Plan		2021 Plan	2026 Plan
Anderson	1,017	1,275	Orange	276	98
Angelina	661	997	Panola	1,254	2,596
Cherokee	1,574	1,694	Polk	416	147
Hardin	155	184	Rusk	2,346	1,415
Henderson	770	632	Sabine	705	201
Houston	1,790	1,791	San Augustine	536	1,835
Jasper	547	646	Shelby	3,332	10,269
Jefferson	1,910	800	Smith	605	313
Nacogdoches	2,880	8,913	Trinity	449	233
Newton	313	157	Tyler	247	239
			Regional Total	21,783	34,435

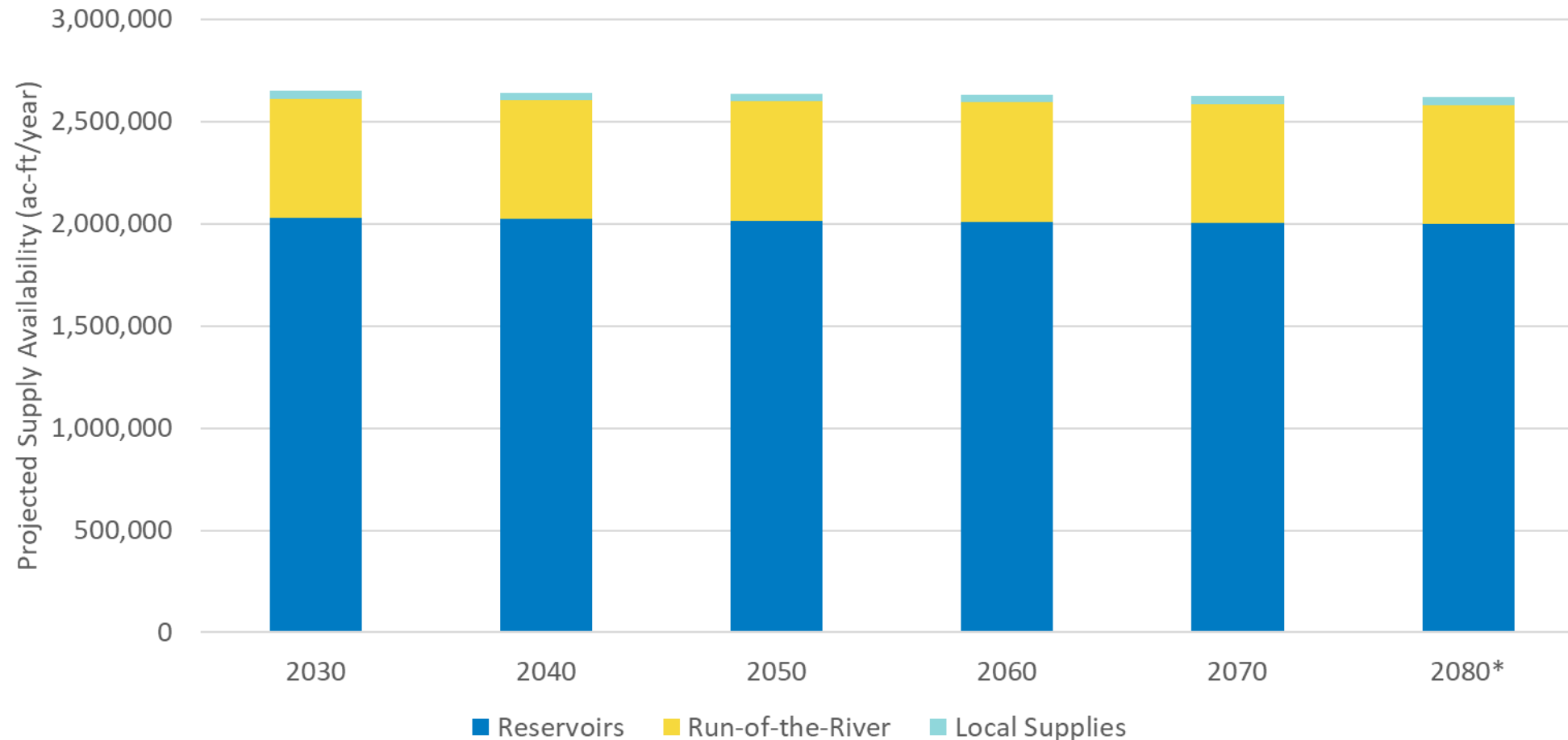
2026 Region I Plan availability updated to reflect maximum historical livestock surface water use reported by county from 2010-2020 not accounted for in surface water rights or sales from water right holders (i.e., permitted water)

Projected Surface Water Supplies Regional Total



*2070 availability shown for 2021 Plan.

Projected Surface Water Supplies Regional Total



1,121 acre-feet per year \approx 1 million gallons per day (MGD)

Item 11b

- Discussion of Updates on Surface Water Supply Projection

Groundwater Availability Projection (11c)

Outline

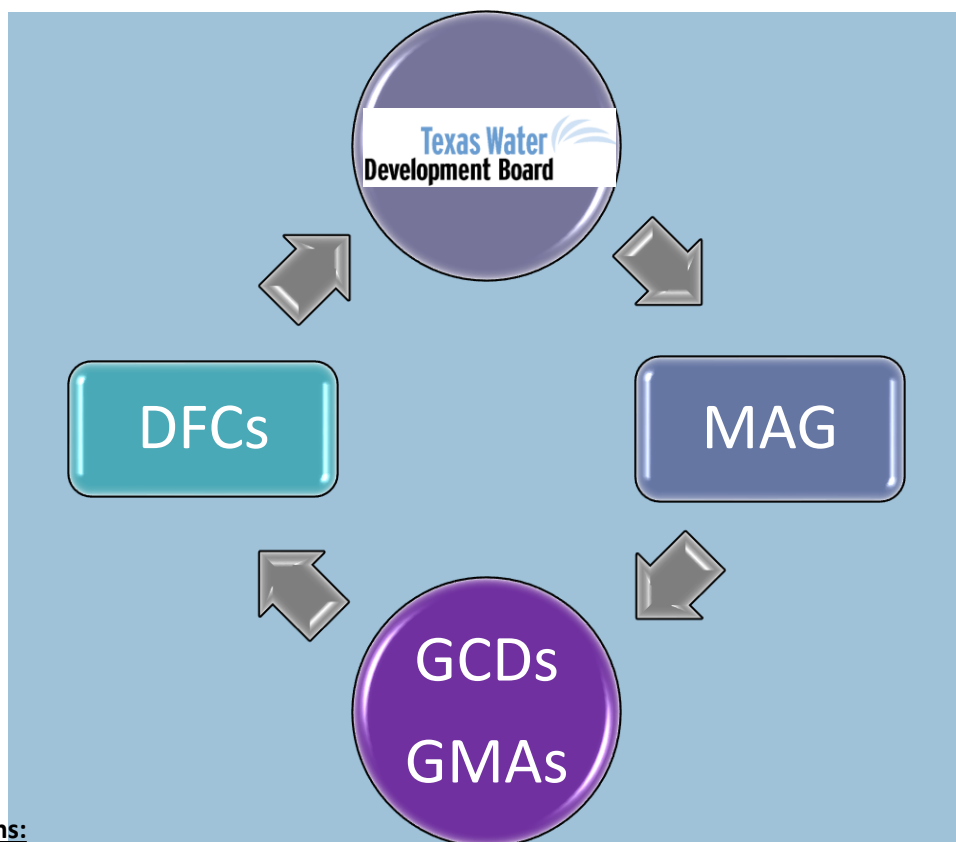
- Review and compare current groundwater availability to previous round
- Total groundwater availability = MAG availability + Non-MAG availability

Abbreviations:

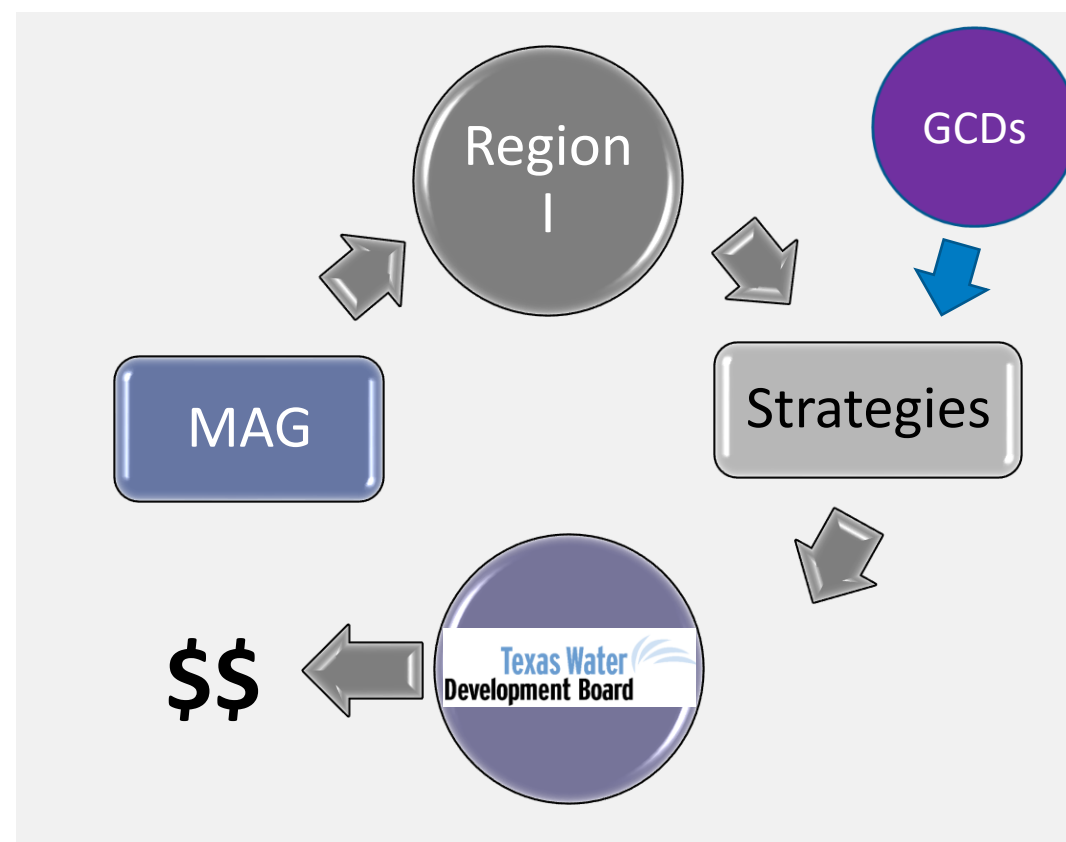
MAG = modeled available groundwater

The Groundwater Planning Cycle

Joint Groundwater Planning



Regional Water Planning



Abbreviations:

DFCs = desired future conditions
GCDs = groundwater conservation district
GMAs = groundwater management areas
MAG = modeled available groundwater

Groundwater Availability

- Groundwater produced from 2 major and 3 minor aquifers, plus several “other” aquifers
- Groundwater availability in Region I is ~500,000 ac-ft/yr
- Comprised of “MAG” and “Non-MAG” availability
 - “MAG” = Modeled Available Groundwater
 - MAGs are determined by the TWDB based on desired future conditions (DFCs) adopted in the joint groundwater planning process (GMAs)
 - MAG = Availability
 - Availability cannot be adjusted except by using a “MAG Peak Factor”
 - Non-MAG availability are established by the TWDB but not based on the joint groundwater planning process
 - Non-MAG availability can be adjusted at the request of the RWPG

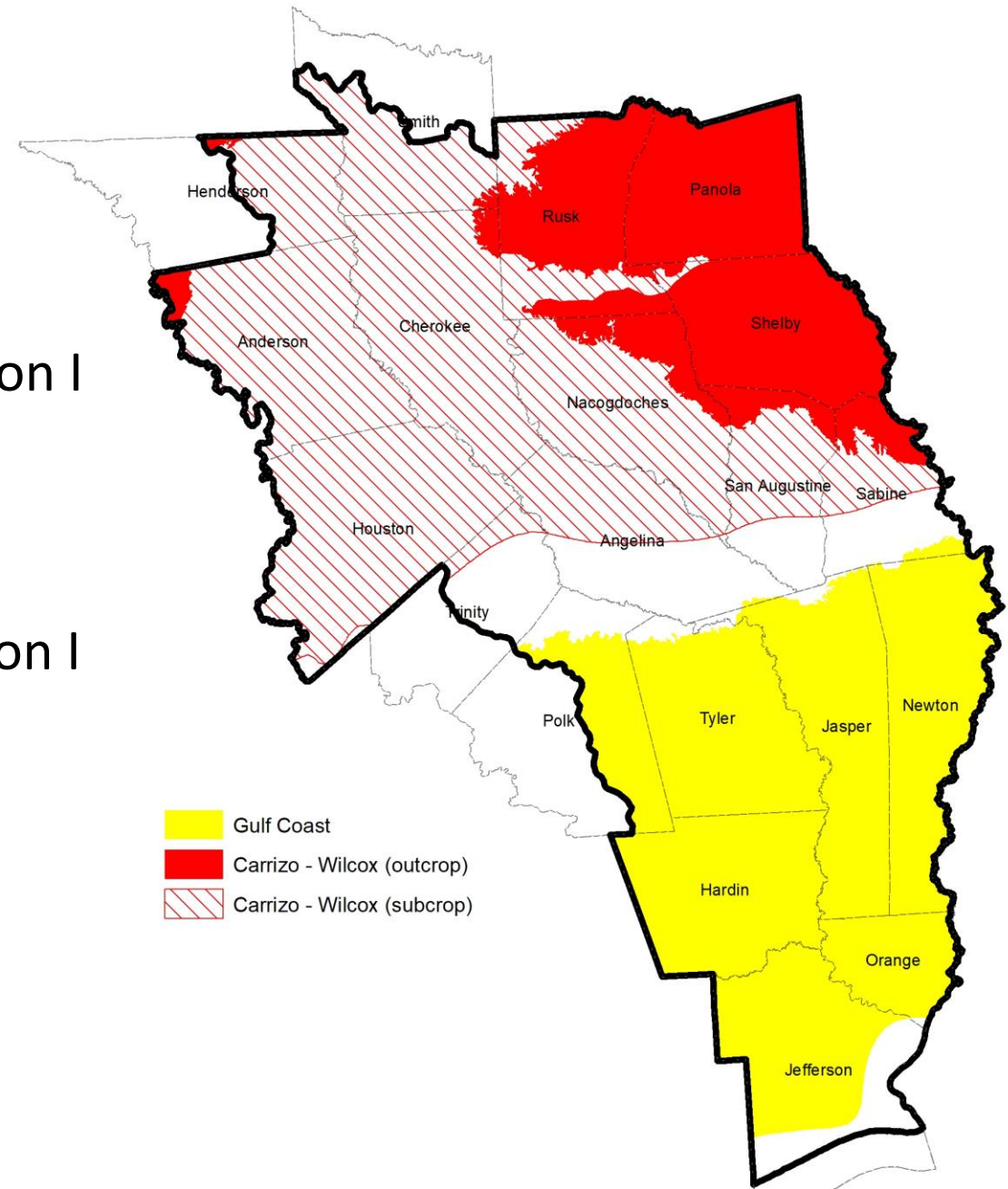
Major Aquifers

Gulf Coast

- Present in southern portion of Region I
- Significant availability

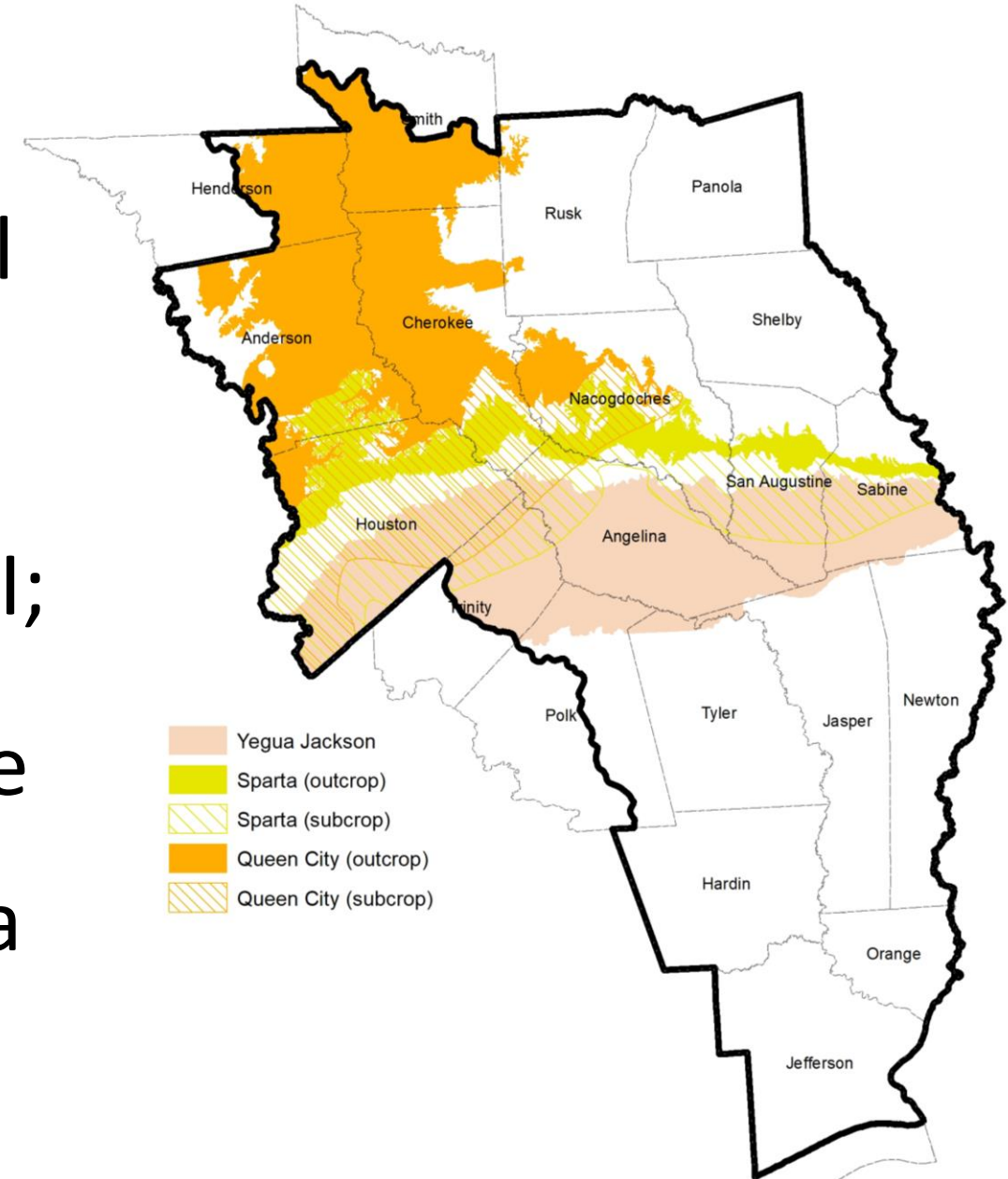
Carrizo-Wilcox

- Present in northern portion of Region I
- Significant availability



Minor Aquifers

- Sparta- Present in the central portion of Region I; limited availability
- Queen City- Present in the northwest portion of Region I; low availability
- Yegua-Jackson- Present in the central portion of Region I; limited availability except in a few counties

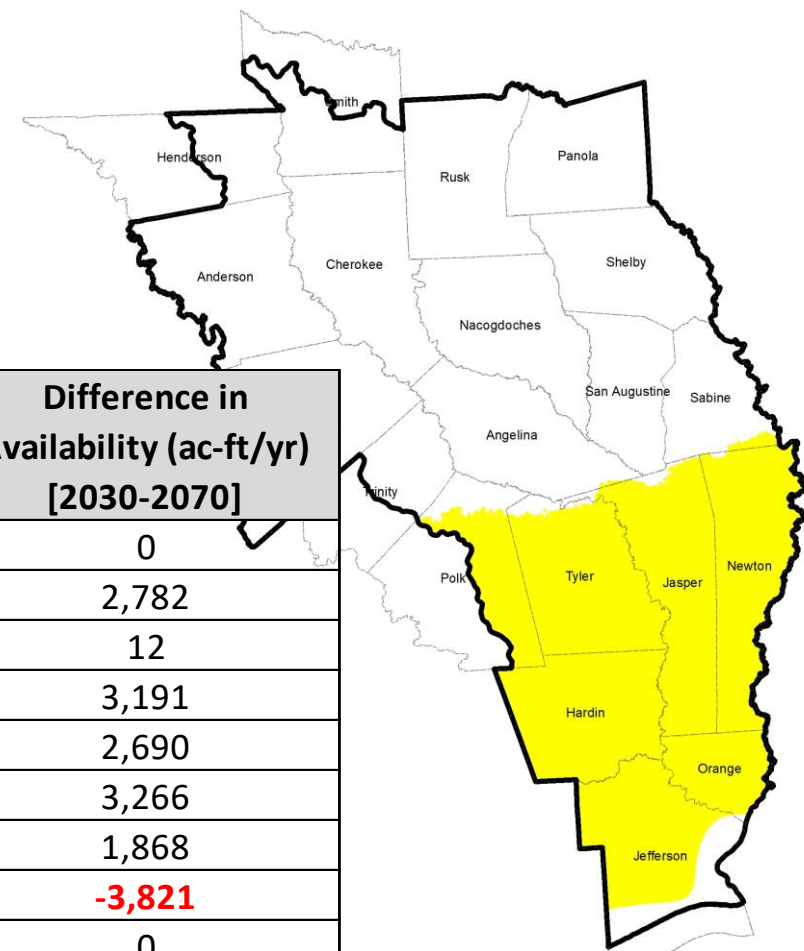


Notes on Availability

- Groundwater availability has been combined by county and basin
- Aquifer availability is mostly consistent through the planning period
- If availability varies over the planning period, it may be shown like “5,000 to 4,000”, reflecting the availability from the beginning to end of the planning period
- Total availability is comprised of “MAG” plus “Non-MAG” availability
 - “MAG” = Modeled Available Groundwater
 - Non-MAG availability are established by the TWDB but not based on the joint groundwater planning process
- 2022 availability for 2020 to 2070; 2027 availability for 2030 to 2080
- “NA” for 2022 availability means there was no availability during the last planning cycle

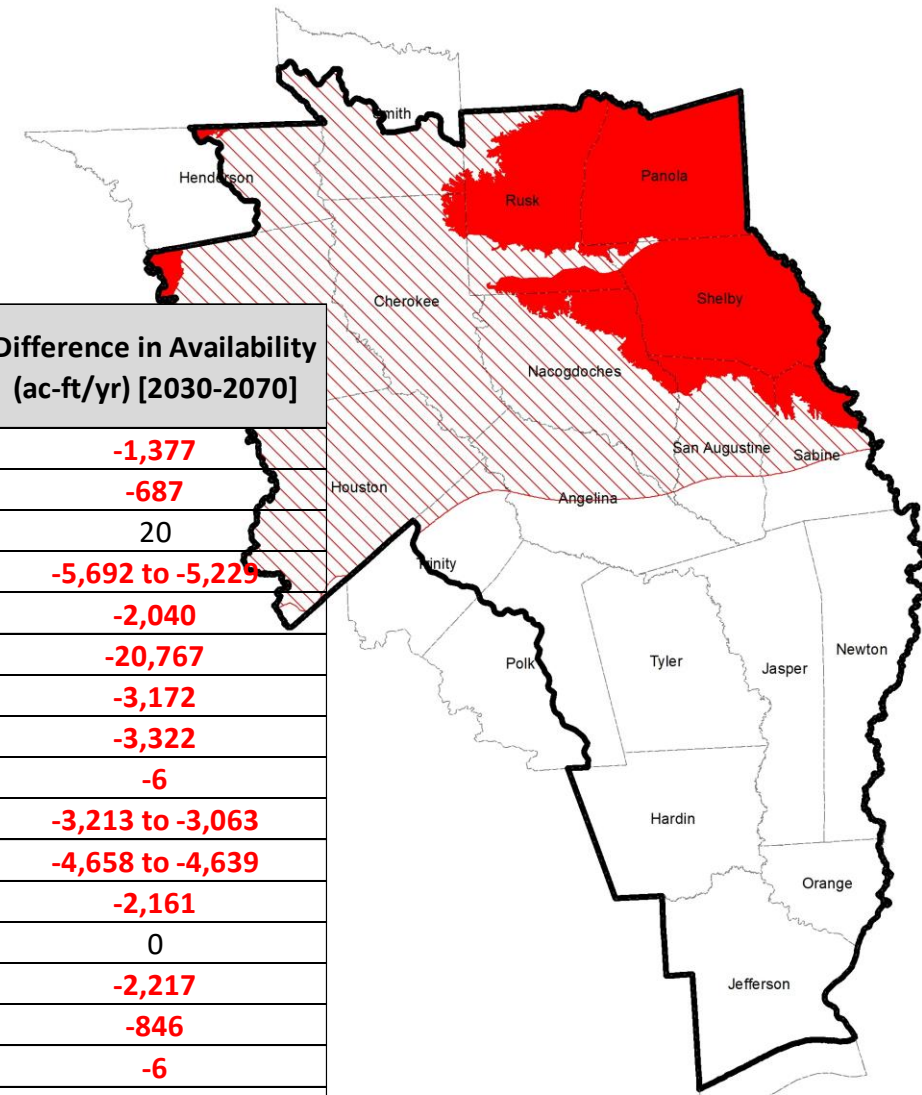
Gulf Coast Aquifer

Aquifer Name	County	Basin	Type	2022 Total Availability (ac-ft/yr) [2020-2070]	2027 Total Availability (ac-ft/yr) [2030-2080]	Difference in Availability (ac-ft/yr) [2030-2070]
Gulf Coast	Sabine	Sabine	Non-MAG	NA	0	0
Gulf Coast	Hardin	Neches	MAG	34,789	37,571	2,782
Gulf Coast	Hardin	Trinity	MAG	138	150	12
Gulf Coast	Jasper	Neches	MAG	37,630	40,821	3,191
Gulf Coast	Jasper	Sabine	MAG	29,854	32,544	2,690
Gulf Coast	Newton	Sabine	MAG	34,043	37,309	3,266
Gulf Coast	Polk	Neches	MAG	14,897	16,765	1,868
Gulf Coast	Tyler	Neches	MAG	38,211	34,390	-3,821
Gulf Coast	Polk	Neches	Non-MAG	1,060	1,060	0
Gulf Coast	Jefferson	Neches	MAG	803	1,853	1,050
Gulf Coast	Jefferson	Neches-Trinity	MAG	1,722	13,571	11,849
Gulf Coast	Orange	Neches	MAG	3,287	6,266	2,979
Gulf Coast	Orange	Neches-Trinity	MAG	256	280	24
Gulf Coast	Orange	Sabine	MAG	15,821	18,659	2,838
Gulf Coast	Newton	Neches	MAG	176	199	23
	TOTAL			212,687	241,438	28,751

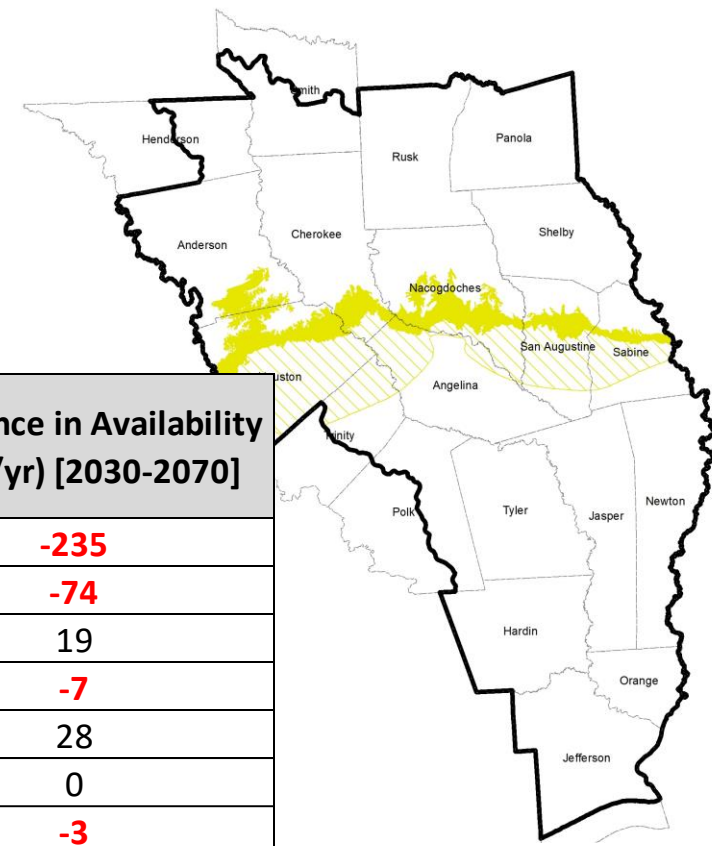


Carrizo-Wilcox Aquifer

Aquifer Name	County	Basin	Type	2022 Total Availability (ac-ft/yr) [2020-2070]	2027 Total Availability (ac-ft/yr) [2030-2080]	Difference in Availability (ac-ft/yr) [2030-2070]
Carrizo-Wilcox Aquifer	Anderson	Neches	MAG	23,335	21,958	-1,377
Carrizo-Wilcox Aquifer	Anderson	Trinity	MAG	5,753	5,066	-687
Carrizo-Wilcox Aquifer	Angelina	Neches	MAG	27,591	27,611	20
Carrizo-Wilcox Aquifer	Cherokee	Neches	MAG	20,933 to 20,470	15,241	-5,692 to -5,229
Carrizo-Wilcox Aquifer	Henderson	Neches	MAG	6,036	3,996	-2,040
Carrizo-Wilcox Aquifer	Houston	Neches	MAG	22,488	1,721	-20,767
Carrizo-Wilcox Aquifer	Houston	Trinity	MAG	3,806	634	-3,172
Carrizo-Wilcox Aquifer	Nacogdoches	Neches	MAG	24,181	20,859	-3,322
Carrizo-Wilcox Aquifer	Panola	Cypress	MAG	6	0	-6
Carrizo-Wilcox Aquifer	Panola	Sabine	MAG	8,370 to 8,062	4,999	-3,213 to -3,063
Carrizo-Wilcox Aquifer	Rusk	Neches	MAG	11,769 to 11,750	7,111	-4,658 to -4,639
Carrizo-Wilcox Aquifer	Rusk	Sabine	MAG	9,068	6,907	-2,161
Carrizo-Wilcox Aquifer	Sabine	Neches	MAG	356	356	0
Carrizo-Wilcox Aquifer	Sabine	Sabine	MAG	3,249	1,032	-2,217
Carrizo-Wilcox Aquifer	San Augustine	Neches	MAG	1,149	303	-846
Carrizo-Wilcox Aquifer	San Augustine	Sabine	MAG	290	284	-6
Carrizo-Wilcox Aquifer	Shelby	Neches	MAG	2,577 to 2,018	2,621	333 to 603
Carrizo-Wilcox Aquifer	Shelby	Sabine	MAG	8,317 to 7,081	3,698	-4,456 to 3,383
Carrizo-Wilcox Aquifer	Smith	Neches	MAG	22,705	17,607	-5,098 to -5,086
Carrizo-Wilcox Aquifer	Trinity	Neches	MAG	269	266	-3
	TOTAL			202,248 to 199,651	142,270	-59,368 to -57,381

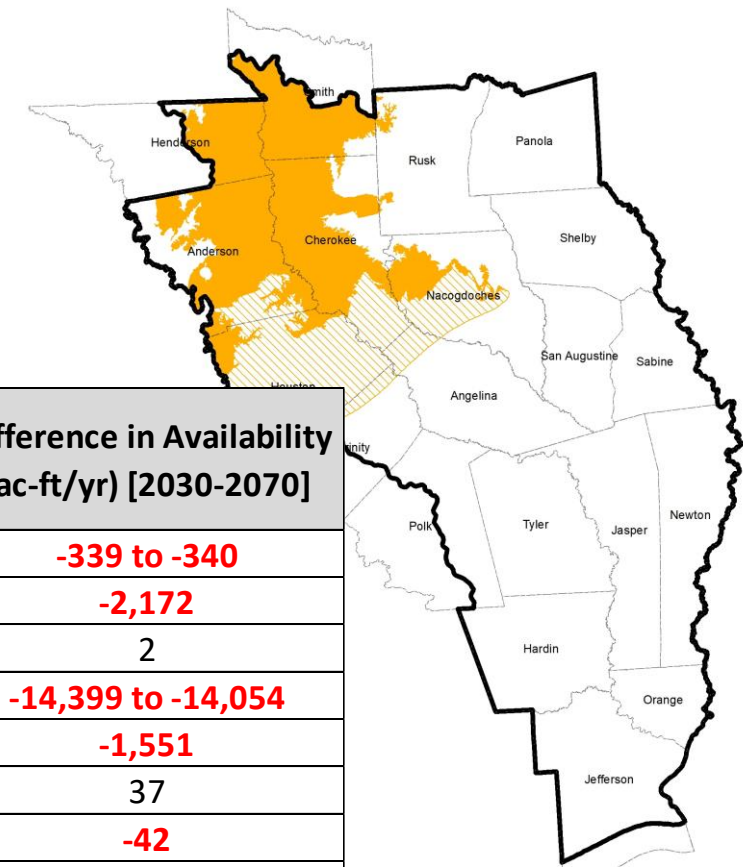


Sparta Aquifer



Aquifer Name	County	Basin	Type	2022 Total Availability (ac-ft/yr) [2020-2070]	2027 Total Availability (ac-ft/yr) [2030-2080]	Difference in Availability (ac-ft/yr) [2030-2070]
Sparta Aquifer	Anderson	Neches	MAG	344	109	-235
Sparta Aquifer	Anderson	Trinity	MAG	272	198	-74
Sparta Aquifer	Angelina	Neches	MAG	371	390	19
Sparta Aquifer	Cherokee	Neches	MAG	359	352	-7
Sparta Aquifer	Houston	Neches	MAG	477	505	28
Sparta Aquifer	Houston	Trinity	MAG	977	977	0
Sparta Aquifer	Nacogdoches	Neches	MAG	365	362	-3
Sparta Aquifer	Rusk	Neches	MAG	NA	0	0
Sparta Aquifer	Sabine	Neches	MAG	37	36	-1
Sparta Aquifer	Sabine	Sabine	MAG	160	13	-147
Sparta Aquifer	San Augustine	Neches	MAG	163	163	0
Sparta Aquifer	San Augustine	Sabine	MAG	3	3	0
Sparta Aquifer	Shelby	Sabine	MAG	NA	0	0
Sparta Aquifer	Smith	Neches	MAG	NA	0	0
Sparta Aquifer	Trinity	Neches	MAG	154	152	-2
	TOTAL			3,682	3,260	-422

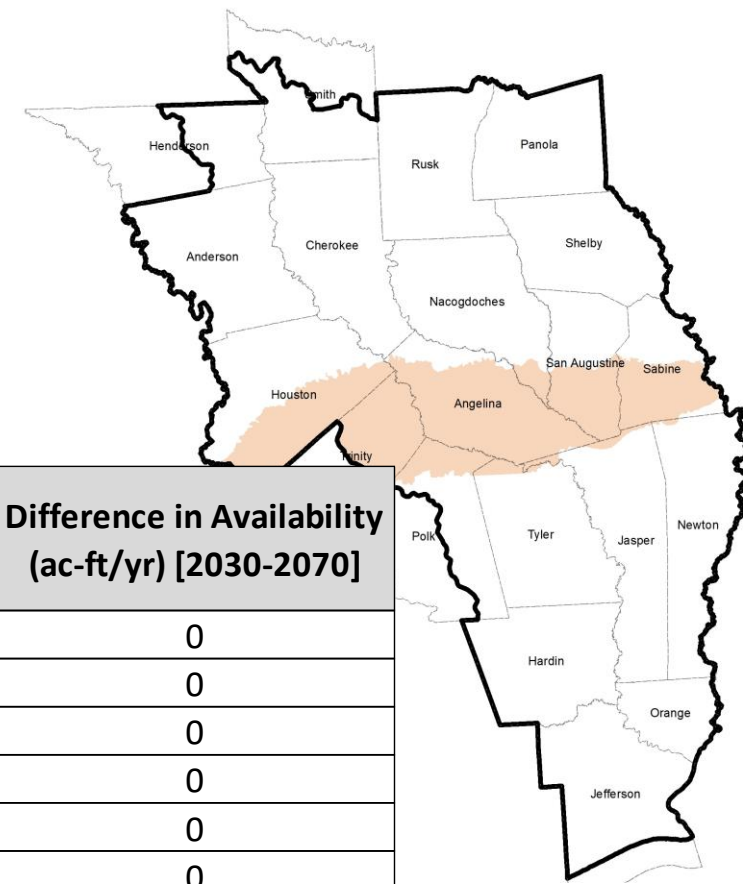
Queen City Aquifer



Aquifer Name	County	Basin	Type	2022 Total Availability (ac-ft/yr) [2020-2070]	2027 Total Availability (ac-ft/yr) [2030-2080]	Difference in Availability (ac-ft/yr) [2030-2070]
Queen City Aquifer	Anderson	Neches	MAG	11,828	11,489 to 11,488	-339 to -340
Queen City Aquifer	Anderson	Trinity	MAG	7,274	5,102	-2,172
Queen City Aquifer	Angelina	Neches	MAG	1,093	1,095	2
Queen City Aquifer	Cherokee	Neches	MAG	23,211 to 22,866	8,812	-14,399 to -14,054
Queen City Aquifer	Henderson	Neches	MAG	12,067	10,516	-1,551
Queen City Aquifer	Houston	Neches	MAG	2,043	2,080	37
Queen City Aquifer	Houston	Trinity	MAG	258	216	-42
Queen City Aquifer	Nacogdoches	Neches	MAG	2,985	2,946	-39
Queen City Aquifer	Rusk	Neches	MAG	40	39	-1
Queen City Aquifer	Rusk	Sabine	MAG	18	20	2
Queen City Aquifer	Sabine	Neches	MAG	NA	0	0
Queen City Aquifer	Sabine	Sabine	MAG	NA	0	0
Queen City Aquifer	San Augustine	Neches	MAG	NA	0	0
Queen City Aquifer	Shelby	Sabine	MAG	NA	0	0
Queen City Aquifer	Smith	Neches	MAG	30,692	20,121	-10,571
Queen City Aquifer	Trinity	Neches	MAG	0	0	0
	TOTAL			91,509 to 91,164	62,436 to 62,435	-29,073 to -28,729

NA = No Availability in the 2022 Planning Cycle

Yegua-Jackson Aquifer



Aquifer Name	County	Basin	Type	2022 Total Availability (ac-ft/yr) [2020-2070]	2027 Total Availability (ac-ft/yr) [2030-2080]	Difference in Availability (ac-ft/yr) [2030-2070]
Yegua-Jackson Aquifer	Angelina	Neches	Non-MAG	16,890 to 16,507	16,890 to 16,507	0
Yegua-Jackson Aquifer	Houston	Neches	Non-MAG	1,324	1,324	0
Yegua-Jackson Aquifer	Houston	Trinity	Non-MAG	4,061	4,061	0
Yegua-Jackson Aquifer	Jasper	Neches	Non-MAG	NA	0	0
Yegua-Jackson Aquifer	Nacogdoches	Neches	Non-MAG	235	235	0
Yegua-Jackson Aquifer	Newton	Neches	Non-MAG	NA	0	0
Yegua-Jackson Aquifer	Newton	Sabine	Non-MAG	NA	0	0
Yegua-Jackson Aquifer	Polk	Neches	Non-MAG	570	570	0
Yegua-Jackson Aquifer	Sabine	Neches	Non-MAG	3,724	3,724	0
Yegua-Jackson Aquifer	Sabine	Sabine	Non-MAG	575	575	0
Yegua-Jackson Aquifer	San Augustine	Neches	Non-MAG	2,102	2,102	0
Yegua-Jackson Aquifer	San Augustine	Sabine	Non-MAG	9	9	0
Yegua-Jackson Aquifer	Trinity	Neches	Non-MAG	700	700	0
Yegua-Jackson Aquifer	Tyler	Neches	Non-MAG	NA	0	0
	TOTAL			30,190 to 29,807	30,190 to 29,807	0

NA = No Availability in the 2022 Planning Cycle

Other Aquifers

- Not official aquifers per the TWDB, none of which are defined

Aquifer Name	County	Basin	Type	2022 Total Availability (ac-ft/yr) [2020-2070]	2027 Total Availability (ac-ft/yr) [2030-2080]	Difference in Availability (ac-ft/yr) [2030-2070]
Other Aquifer	Anderson	Trinity	Non-MAG	298	298	0
Other Aquifer	Angelina	Neches	Non-MAG	812	812	0
Other Aquifer	Cherokee	Neches	Non-MAG	268	268	0
Other Aquifer	Henderson	Neches	Non-MAG	5	5	0
Other Aquifer	Henderson	Trinity	Non-MAG	680	680	0
Other Aquifer	Houston	Neches	Non-MAG	378	378	0
Other Aquifer	Houston	Trinity	Non-MAG	888	888	0
Other Aquifer	Nacogdoches	Neches	Non-MAG	1,131	1,131	0
Other Aquifer	Rusk	Neches	Non-MAG	270	270	0
Other Aquifer	Rusk	Sabine	Non-MAG	469	469	0
Other Aquifer	Sabine	Sabine	Non-MAG	336	336	0
Other Aquifer	San Augustine	Neches	Non-MAG	1,395	1,395	0
Other Aquifer	Smith	Neches	Non-MAG	922	922	0
Other Aquifer	Trinity	Neches	Non-MAG	700	700	0
	TOTAL			8,552	8,552	0

Groundwater Availability (by decade)

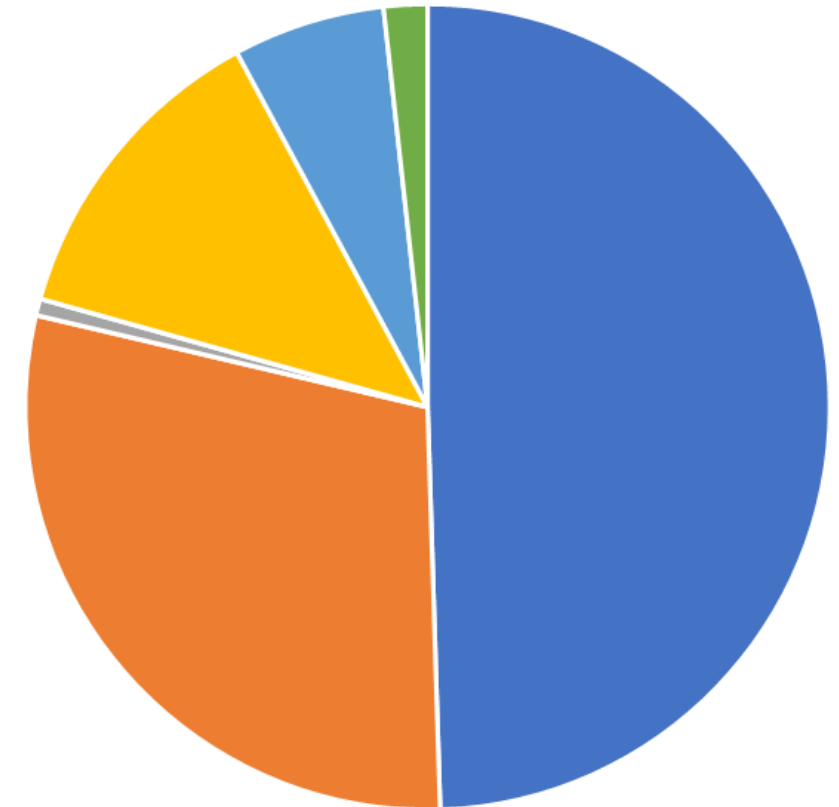
Aquifer	Total Availability in 2030 (ac-ft/yr)	Total Availability in 2040 (ac-ft/yr)	Total Availability in 2050 (ac-ft/yr)	Total Availability in 2060 (ac-ft/yr)	Total Availability in 2070 (ac-ft/yr)	Total Availability in 2080 (ac-ft/yr)
MAJOR AQUIFERS						
Gulf Coast	241,438	241,438	241,438	241,438	241,438	241,438
Carrizo-Wilcox	142,270	142,270	142,270	142,270	142,270	142,270
Total Major Aquifer Availability	383,708	383,708	383,708	383,708	383,708	383,708
MINOR AQUIFERS						
Sparta	3,260	3,260	3,260	3,260	3,260	3,260
Queen City	62,436	62,436	62,435	62,435	62,435	62,435
Yegua-Jackson	30,190	30,190	30,190	30,190	29,807	29,807
Other Aquifers	8,552	8,552	8,552	8,552	8,552	8,552
Total Minor Aquifer Availability	104,438	104,438	104,437	104,437	104,054	104,054
TOTAL GROUNDWATER AVAILABILITY	488,146	488,146	488,145	488,145	487,762	487,762

Changes in Groundwater Availability (by decade)

Aquifer	Change in Availability in 2030 (ac-ft/yr)	Change in Availability in 2040 (ac-ft/yr)	Change in Availability in 2050 (ac-ft/yr)	Change in Availability in 2060 (ac-ft/yr)	Change in Availability in 2070 (ac-ft/yr)
MAJOR AQUIFERS					
Gulf Coast	28,751	28,751	28,751	28,751	28,751
Carrizo-Wilcox	-59,368	-59,231	-58,630	-58,044	-57,381
Total Major Aquifer Availability	-30,617	-30,480	-29,879	-29,293	-28,630
MINOR AQUIFERS					
Sparta	-422	-422	-422	-422	-422
Queen City	-29,073	-29,073	-29,074	-28,902	-28,729
Yegua-Jackson	0	0	0	0	0
Other Aquifers	0	0	0	0	0
Total Minor Aquifer Availability	-29,495	-29,495	-29,496	-29,324	-29,151
TOTAL GROUNDWATER AVAILABILITY	-60,112	-59,975	-59,375	-58,617	-57,781

Summary of Groundwater Availability

Aquifer	Total Availability in 2030 (ac-ft/yr)	Total Availability in 2080 (ac-ft/yr)
MAJOR AQUIFERS		
Gulf Coast	241,438	241,438
Carrizo-Wilcox	142,270	142,270
Total Major Aquifer Availability	383,708	383,708
MINOR AQUIFERS		
Sparta	3,260	3,260
Queen City	62,436	62,435
Yegua-Jackson	30,190	29,807
Other Aquifers	8,552	8,552
Total Minor Aquifer Availability	101,178	100,794
TOTAL GROUNDWATER AVAILABILITY	484,886	484,502



■ Gulf Coast ■ Carrizo-Wilcox ■ Sparta ■ Queen City ■ Yegua-Jackson ■ Other Aquifers ■

Groundwater Availability Decreases

- Availabilities (MAG or non-MAG) have decreased in at least one county in four of six aquifers:
 - Gulf Coast
 - Carrizo-Wilcox
 - Queen City
 - Sparta

Groundwater Availability Issues

- Reviewed water management strategies (WMS) and assigned supplies from last planning cycle; review focused on decreases in availability
- For all non-MAG availabilities we also reviewed historic pumping

Decrease in MAG Availabilities

Aquifer Name	County	Basin	2030				2070			
			2022 MAG Availability	2027 MAG Availability	MAG Availability Difference	Percent Change MAG Availability	2022 MAG Availability	2027 MAG Availability	MAG Availability Difference	Percent Change MAG Availability
Carrizo-Wilcox	Anderson	Neches	23,335	21,958	(1,377)	-5.90%	23,335	21,958	(1,377)	-5.90%
Carrizo-Wilcox	Anderson	Trinity	5,753	5,066	(687)	-11.94%	5,753	5,066	(687)	-11.94%
Carrizo-Wilcox	Cherokee	Neches	20,933	15,241	(5,692)	-27.19%	20,470	15,241	(5,229)	-25.54%
Carrizo-Wilcox	Henderson	Neches	6,036	3,996	(2,040)	-33.80%	6,036	3,996	(2,040)	-33.80%
Carrizo-Wilcox	Houston	Neches	22,488	1,721	(20,767)	-92.35%	22,488	1,721	(20,767)	-92.35%
Carrizo-Wilcox	Houston	Trinity	3,806	634	(3,172)	-83.34%	3,806	634	(3,172)	-83.34%
Carrizo-Wilcox	Nacogdoches	Neches	24,181	20,859	(3,322)	-13.74%	24,181	20,859	(3,322)	-13.74%
Carrizo-Wilcox	Panola	Cypress	6	0	(6)	-100.00%	6	0	(6)	-100.00%
Carrizo-Wilcox	Panola	Sabine	8,212	4,999	(3,213)	-39.13%	8,062	4,999	(3,063)	-37.99%
Carrizo-Wilcox	Rusk	Neches	11,769	7,111	(4,658)	-39.58%	11,750	7,111	(4,639)	-39.48%
Carrizo-Wilcox	Rusk	Sabine	9,068	6,907	(2,161)	-23.83%	9,068	6,907	(2,161)	-23.83%
Carrizo-Wilcox	Sabine	Sabine	3,249	1,032	(2,217)	-68.24%	3,249	1,032	(2,217)	-68.24%
Carrizo-Wilcox	San Augustine	Neches	1,149	303	(846)	-73.63%	1,149	303	(846)	-73.63%
Carrizo-Wilcox	San Augustine	Sabine	290	284	(6)	-2.07%	290	284	(6)	-2.07%
Carrizo-Wilcox	Shelby	Sabine	8,154	3,698	(4,456)	-54.65%	7,081	3,698	(3,383)	-47.78%
Carrizo-Wilcox	Smith	Neches	22,705	17,607	(5,098)	-22.45%	22,693	17,607	(5,086)	-22.41%
Carrizo-Wilcox	Trinity	Neches	269	266	(3)	-1.12%	269	266	(3)	-1.12%
Gulf Coast	Tyler	Neches	38,211	34,390	(3,821)	-10.00%	38,211	34,390	(3,821)	-10.00%
Queen City	Anderson	Neches	11,828	11,489	(339)	-2.87%	11,828	11,488	(340)	-2.87%
Queen City	Anderson	Trinity	7,274	5,102	(2,172)	-29.86%	7,274	5,102	(2,172)	-29.86%
Queen City	Cherokee	Neches	23,211	8,812	(14,399)	-62.04%	22,866	8,812	(14,054)	-61.46%
Queen City	Henderson	Neches	12,067	10,516	(1,551)	-12.85%	12,067	10,516	(1,551)	-12.85%
Queen City	Houston	Trinity	258	216	(42)	-16.28%	258	216	(42)	-16.28%
Queen City	Nacogdoches	Neches	2,985	2,946	(39)	-1.31%	2,985	2,946	(39)	-1.31%
Queen City	Rusk	Neches	40	39	(1)	-2.50%	40	39	(1)	-2.50%
Queen City	Smith	Neches	30,692	20,121	(10,571)	-34.44%	30,692	20,121	(10,571)	-34.44%
Sparta	Anderson	Neches	344	109	(235)	-68.31%	344	109	(235)	-68.31%
Sparta	Anderson	Trinity	272	198	(74)	-27.21%	272	198	(74)	-27.21%
Sparta	Cherokee	Neches	359	352	(7)	-1.95%	359	352	(7)	-1.95%
Sparta	Nacogdoches	Neches	365	362	(3)	-0.82%	365	362	(3)	-0.82%
Sparta	Sabine	Neches	37	36	(1)	-2.70%	37	36	(1)	-2.70%
Sparta	Sabine	Sabine	160	13	(147)	-91.88%	160	13	(147)	-91.88%
Sparta	Trinity	Neches	154	152	(2)	-1.30%	154	152	(2)	-1.30%

MAG Availability Issues

Carrizo-Wilcox

- Virtually all counties had decreases in availability, some significant
- Henderson, Houston, Panola, Rusk, San Augustine, Shelby, and Smith counties now have MAGs less than 2021 assigned supplies
- Houston County- MAG decreased from 3,806 to 634 ac-ft/yr; Houston County WCID#1 WMS for 3,500 ac-ft/yr
- Rusk County- MAG decreased from 11,750 to 7,111 ac-ft/yr; 3 strategies for 5,722 to 4,967 ac-ft/yr (problem when considering assigned supplies)

Queen City

- Some significant decreases in availability
- None that appear to impact 2021 assigned supplies or strategies

Sparta

- Some significant decreases in availability (either in volume or percentage)
- Anderson County now has MAG less than 2021 assigned supplies

Potential Solutions to MAG Declines

- Few options to update MAG availabilities
- MAG Peak Factor- Most decreases may be too much for a MAG Peak Factor to accommodate both the 2021 assigned supplies and the 2021 strategies

Non-MAG Availability Issues

- No decreases in non-MAG availability
- One recommended change to non-MAG availability
 - Yegua-Jackson Aquifer in Jasper County-
 - ✓ Current non-MAG availability is zero
 - ✓ 310-407 ac-ft/yr of municipal pumping from 2013 to 2020 (last year of available data)
 - ✓ Rookeland FWSD; Rayburn Country MUD
 - ✓ Recommend at least 500 ac-ft/yr availability

Miscellaneous Groundwater Issues

- Reviewing methodology used in the last round of planning
- Allocation of supplies when availability decreases (in some areas, significantly decrease)- weight decreases based on WUG type?? Equal reductions across all WUGs??

Item 11c

- Discussion of Updates on Groundwater Supply Projection

Water Needs and Demand Allocation (11d)

Basic Water Planning Definitions

Demand – The volume of water required to meet the anticipated domestic, public, and/or economic activities of a WUG during drought conditions.

Existing Supply – The maximum amount of water that is physically and legally accessible for immediate use by an WUG under a repeat of drought-of-record conditions.

Need – A potential water supply shortage, based on the difference between water demands and existing water supplies and/or recommended water management strategies.

Process Diagram

Identify Demand Projection and Existing Supply



Allocate Existing Supplies to Meet Demands



Remaining Unmet Demand = Needs

Development of Needs



Item 11d

- Discussion of Draft Water Needs and Updates on Demand Allocations

Conservation and Reuse Methodology (11e)

Task 5C Scope: Conservation Recommendations

- Evaluate WUGs' water conservation plans (**WCPs**) and Model WCPs to inform **WMSs**
- Explain **non-recommendation** of conservation WMSs, if applicable
- Determine **highest** practicable water conservation levels
- **NEW:** Set drought-based gallon per capita per day (**GPCD**) goals for municipal WUGs
- **NEW:** Develop separate **water loss** mitigation WMS

Review Recommendations in 2021 Plan

- For municipal conservation
 - Enhanced Public and School Education
 - Water Conservation Pricing
 - Enhanced Water Loss Control Program
- For non-municipal conservation
 - Considered for Irrigation Demand
 - ✓ Information and education program
 - ✓ Meter repair and replacement program
 - ✓ Water billing based on water usage
 - ✓ Canal water loss reduction
 - ✓ Neches River saltwater barrier

Current Reuse Activity in East Texas

- Water reuse was not for municipal use last cycle, but it is this cycle.
- As of March 2022, the City of Beaumont is considering the recharge of treated water into a spreading basin.

County	2020 Reuse Activity by County (AFY)			
	Municipal Reuse	Mfg Reuse	Mining Reuse & Brackish	Total
ANGELINA	0	42	2	44
CHEROKEE	6	0	1	7
HENDERSON	20	0	0	20
JASPER	0	0	1	1
JEFFERSON	702	1,153	0	1,855
NACOGDOCHES	0	0	27	27
PANOLA	0	0	315	315
RUSK	0	0	26	26
SAN AUGUSTINE	0	0	106	106
SHELBY	0	0	31	31
SMITH	0	37	0	37
Total	728	1,232	509	2,469

Abbreviations:

AFY = acre-feet per year

Mfg = manufacturing

Sources: Texas Water Development Board water use survey.

Approach to Reuse for 2026 Plan

- Review of current reuse practices in Region I, along with exploring existing opportunities.
- Identification of both direct and indirect strategies for the reuse of treated wastewater in Region I.
 - Potential collaboration with Major Water Providers.

Item 11e

- Discussion of Conservation and Reuse Methodology

Infeasible Water Strategies (11f)

Item 11f – Update on Infeasible Water Strategies

- No change since last meeting
- No infeasible water strategies have been identified in the 2021 RWP

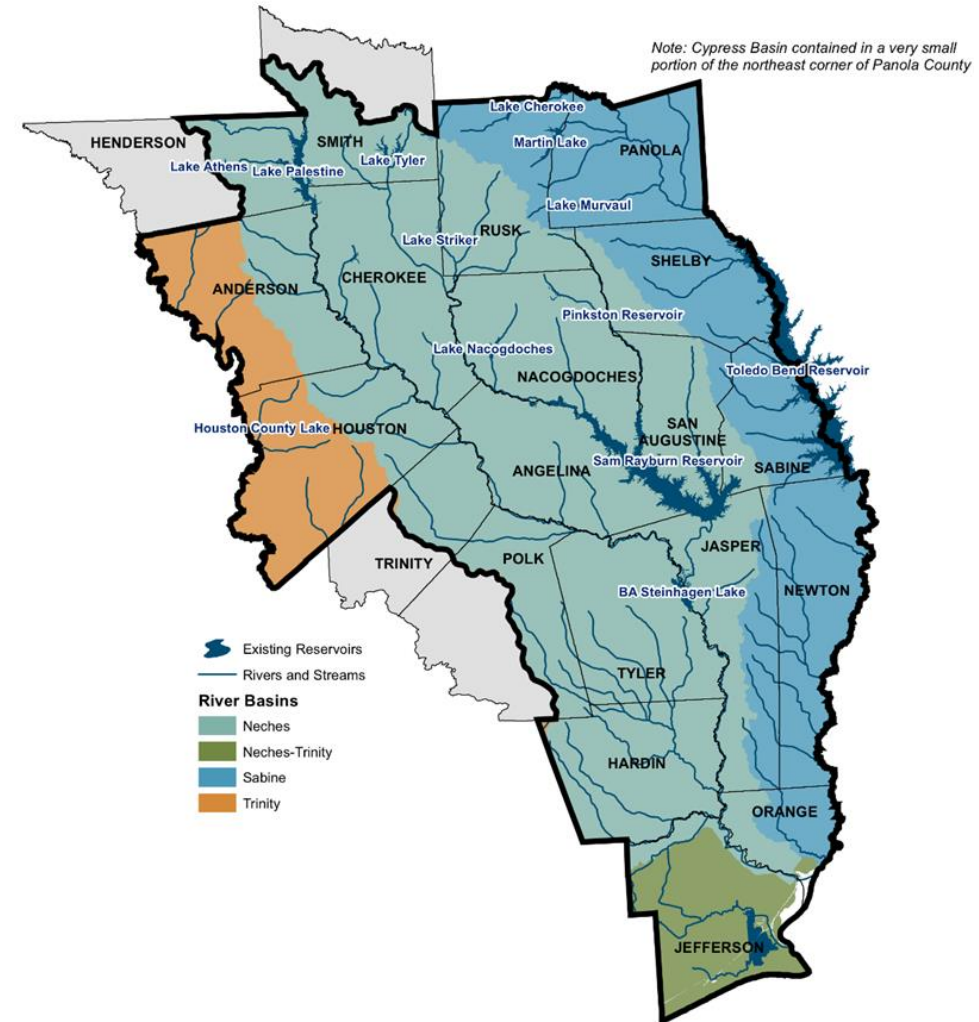
Task 5B Notice to Proceed

- Approved by TWDB for initial strategies presented at October meeting

Hydrological Variance Request (11g)

Surface Water in Regional Water Planning

- TWDB requires the use of the TCEQ WAM Run 3 (Full Appropriation)
 - Assumes first in right is first in time
 - All water rights are fully used
- To make adjustments, need to request a hydrologic variance from the TWDB



Consulting Team Recommended Hydrologic Variances

- Neches-Trinity Coastal Basin
 - Adopt the current WAM run by TCEQ
- Trinity Basin
 - Adopt updated Trinity WAM run by Region C
- Sabine Basin
 - Adopt updated Sabine WAM run by Region I
- Neches Basin
 - Adopt updated Neches WAM run by Region I

Item 11g

- Status Update on the Hydrological Variance Request for Surface Water Supplies

Item 12

Reports from other state agencies

- a) Texas Water Development Board – Lann Bookout
- b) Texas Department of Parks & Wildlife – Stephen Lange
- c) Texas Department of Agriculture – Manual Martinez
- d) Texas Soil and Water Conservation Board – Trey Watson
- e) Groundwater Management Areas 11 and 14 – John Martin/John McFarland

Item 13

General Discussion

Item 14

Next Meeting

February 15, 2024 at 10 am

- 14-day notice, 7-day materials posting
- Approval of Technical Memorandum (due March 4, 2024)

Next Meeting in February

- Approval of Technical Memorandum (due March 4, 2024)

Technical Memorandum (due 3/4/24)

1. TWDB DB27 data reports
2. Process used to identify potentially feasible WMSs
3. List of potentially feasible WMSs to date
4. Any hydrologic variance requests to date
5. Methodology for calculating the anticipated sedimentation rate and revising the area-capacity rating curve
6. Table of details of hydrologic models used
7. Documentation of methodologies for groundwater availabilities to date
8. Region's interregional coordination efforts to date
9. List of infeasible WMSs and WMSPs from the region's 2021 RWP
10. Electronic model files used in determining water availability

Questions?



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