Summary of East Texas (I) Region

The East Texas Regional Water Planning Area is composed of all or parts of 20 counties, stretching from the Golden Triangle of Beaumont, Port Arthur, and Orange in the south to Tyler in the north and from the Texas-Louisiana border in the east to the Trinity River Basin boundary in the west (Figure I.1). The largest cities include Beaumont, Tyler, Lufkin, and Nacogdoches. The major economic sectors are petrochemical, timber, and agriculture. The principal surface water sources are the Sabine and Neches rivers and their tributaries. The members of the East Texas Planning Group are listed on the last page of this summary.

Population and Water Demands

Approximately 4 percent of the state's population is projected to live in the East Texas Region in 2010. By 2060, the region's population is projected to grow 36 percent to 1,482,448 (Figure I.2). Water demands in the region are projected to increase 41 percent, from 896,455 acre-feet in 2010 to 1,261,320 acre-feet in 2060 (Figure I.3). The greatest increase is in manufacturing water demand, which is projected to grow 48 percent, from 401,790 acre-feet in 2010 to 593,454 acre-feet in 2060 (Table I.1). Steam-electric power generation water demand is projected to increase 252 percent, from 43,985 acre-feet in 2010 to 154,611 acre-feet in 2060, and municipal water demand is expected to grow 24 percent, from 151,477 acre-feet to 188,161 acre-feet.

Existing Water Supplies

The existing water supply in the East Texas Region is projected to be 1,158,261 acre-feet in 2010, decreasing slightly to 1,154,161 acre-feet by 2060

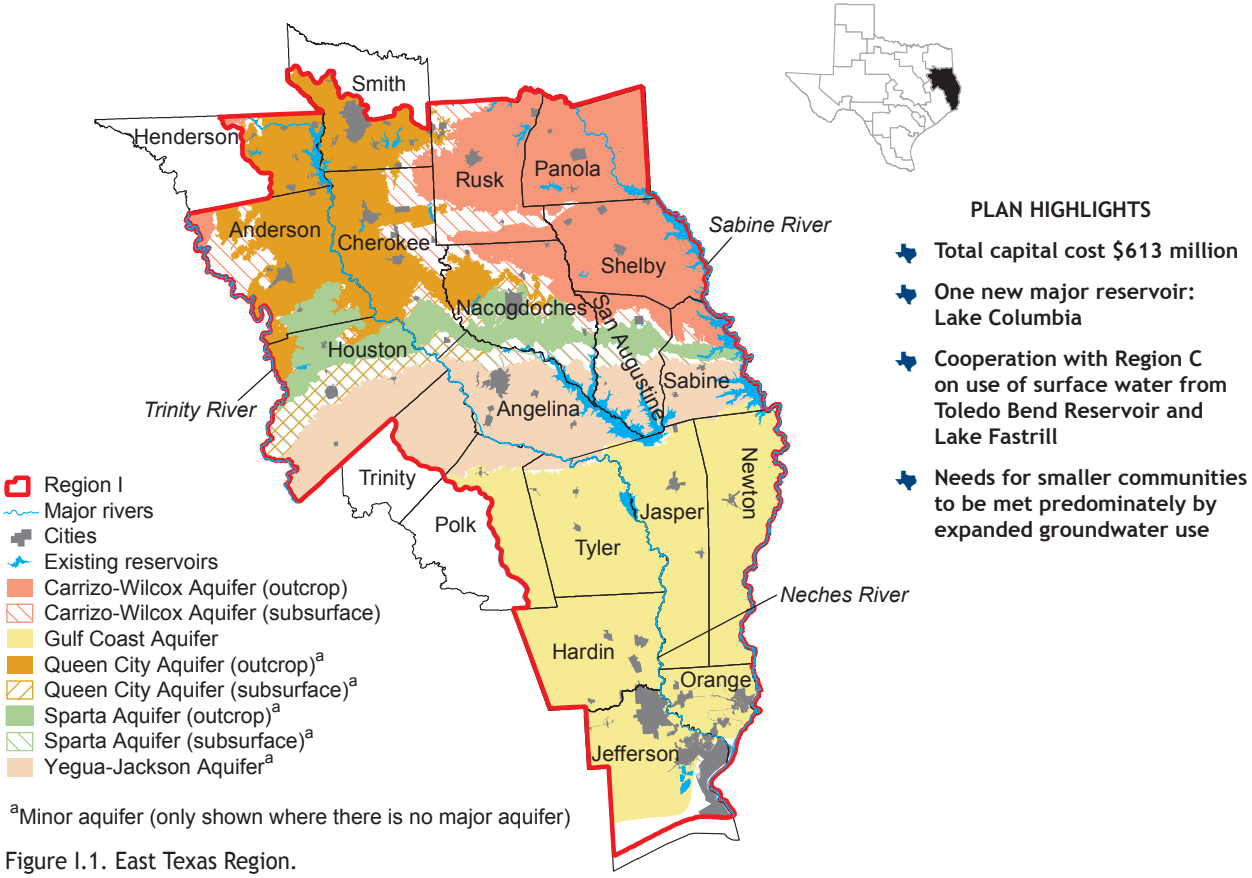


Figure I.1. East Texas Region.

(Table I.2). Surface water, which accounts for 80 percent of the total existing water supply, declines from 921,683 acre-feet in 2010 to 917,947 acre-feet in 2060 primarily due to reservoir sedimentation. Groundwater from the Gulf Coast, Carrizo-Wilcox, and other aquifers accounts for 222,638 acre-feet in 2010, declining to 222,208 acre-feet in 2060.

Needs

Although the region as a whole appears to have enough supply to meet demands through 2060, the total water supply is not readily available to all water users. Between 2010 and 2060, the region's water needs will increase from 18,142 acre-feet to 175,782 acre-feet (Figure I.4, Table I.3). The largest needs are projected for the steam-electric power generation industry, with a 2060 need of 89,236 acre-feet, about half of the total needs for the region. The next largest volume of needs in 2060 is for the manufacturing sector at 42,064 acre-feet, or approximately 24 percent of total needs.

Recommended Water Management Strategies and Cost

Water management strategies recommended for the East Texas Regional Water Plan result in 324,756 acre-feet of additional water supply to meet all projected needs by the year 2060 (Figure I.5) at a **total capital cost of $613,434,703** (Appendix 2.1).

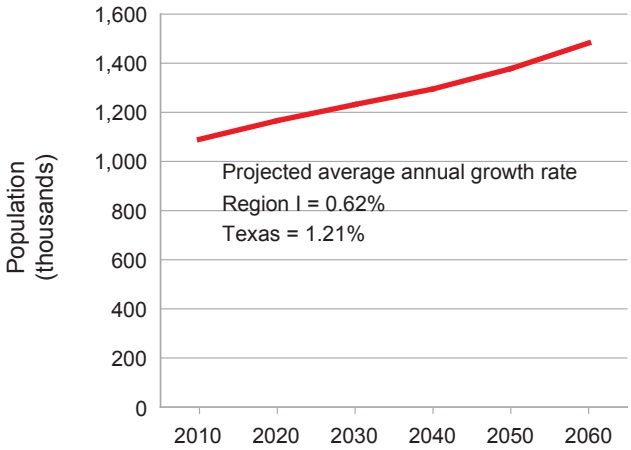


Figure I.2. Projected population for 2010-2060.

Conservation Recommendations

Water conservation was evaluated for every municipal water user group with a need and a gallons per capita per day use of more than 140 gallons. Municipal conservation accounts for 1,916 acre-feet of savings by 2060, and most municipal needs will be partially met through conservation. Water conservation in the East Texas Regional Water Planning Area is driven more by economics than the lack of a readily available supply and is not always the most cost-effective strategy for a water user group with a need.

Table I.1. Projected water demands for 2010-2060

Category	2010 (acre-feet)	2060 (acre-feet)	Percent change in demand 2010-2060	Percent of overall demand in 2010	Percent change in relative share of overall demand, 2010-2060
Municipal	151,477	188,161	+24	+17	-2
County-other	38,082	45,461	+19	+4	-1
Manufacturing	401,790	593,454	+48	+45	+2
Mining	14,662	20,314	+39	+2	0
Irrigation	222,846	224,786	+1	+25	-7
Steam-electric	43,985	154,611	+252	+5	+7
Livestock	23,613	34,533	+46	+3	0
Region	896,455	1,261,320	+41		

Figure I.3. Projected total water demand and existing water supplies for 2010-2060.

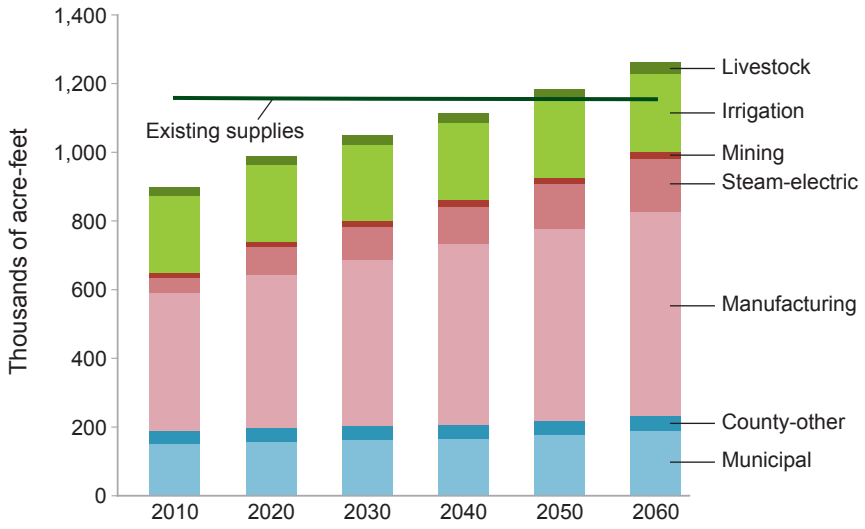
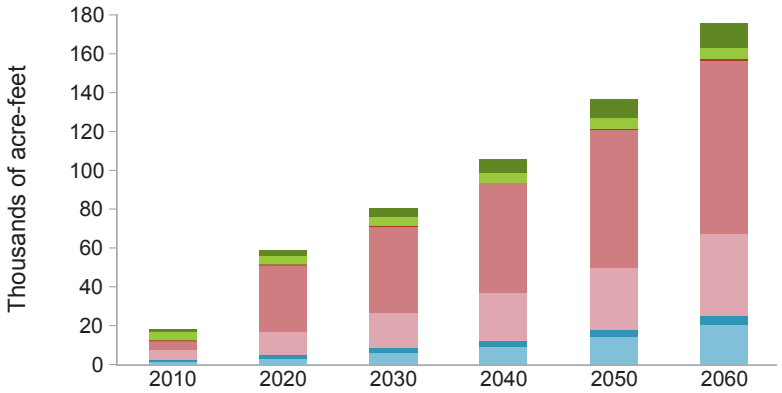


Figure I.4. Projected water needs for 2010-2060.



	2010	2020	2030	2040	2050	2060
Livestock	1,443	2,768	4,604	6,802	9,418	12,486
Irrigation	4,420	4,550	4,901	5,280	5,699	6,159
Mining	65	194	281	392	492	583
Steam-electric	4,828	34,101	44,095	56,279	71,132	89,236
Manufacturing	5,008	12,047	18,495	25,018	31,968	42,064
County-other	1,174	2,014	2,597	2,951	3,589	4,807
Municipal	1,204	2,949	5,744	9,115	14,225	20,447

Figure I.5. Recommended water management strategy water supply volumes for 2010-2060.

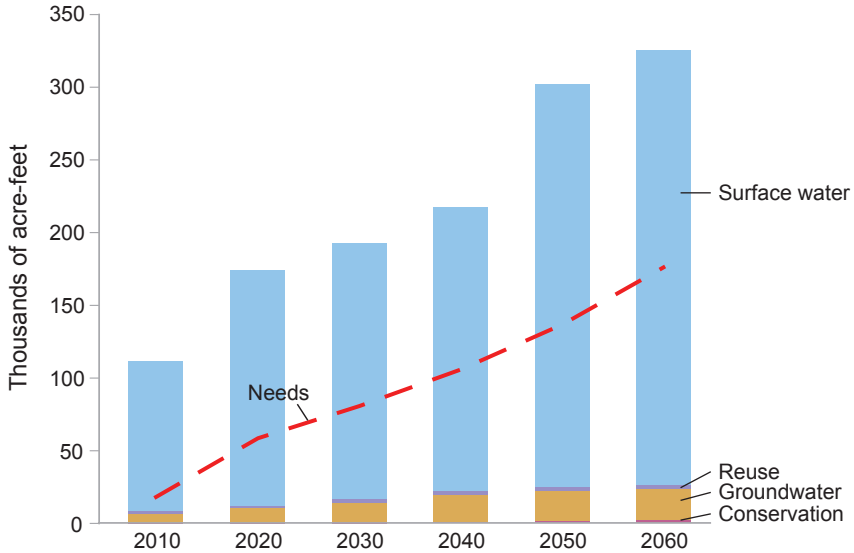


Table I.2. Existing water supplies for 2010 and 2060

Water supply source	2010 (acre-feet)	2060 (acre-feet)
Surface water		
Neches River run-of-river Pine Island Bayou	309,708	309,708
Sam Rayburn-B.A. Steinhagen Reservoir system	226,256	225,351
Sabine River run-of-river	73,041	72,971
Neches River run-of-river saline	53,294	53,294
Neches-Trinity combined run-of-river irrigation	44,286	44,286
Neches River run-of-river	26,257	24,341
Martin Lake	25,000	25,000
Lake Tyler	23,262	22,923
Lake Palestine	21,152	20,910
Toledo Bend Reservoir	20,048	20,048
Lake Kurth	18,421	18,400
Livestock local supply	12,314	12,314
Lake Striker	12,245	13,460
Neches-Trinity River run-of-river irrigation	10,460	10,460
Lake Murvaul	10,041	11,042
Other surface water	35,898	33,439
Surface water subtotal	**921,683**	**917,947**
Groundwater		
Gulf Coast Aquifer	107,916	107,916
Carrizo-Wilcox Aquifer	97,494	97,064
Other groundwater	17,228	17,228
Groundwater subtotal	**222,638**	**222,208**
Reuse		
Indirect reuse irrigation	13,687	13,687
Other reuse	253	319
Reuse subtotal	**13,940**	**14,006**
Region total	**1,158,261**	**1,154,161**

Note: Water supply sources are listed individually if 10,000 acre-feet per year or greater in 2010.
Only includes supplies that are physically and legally available to users during a drought of record.

Ongoing Issues

The U.S. Fish and Wildlife Service has designated the North Neches National Wildlife Refuge, which is located in the footprint of Lake Fastrill recommended by Region C for Dallas Water Utilities. The reservoir is not recommended in the East Texas Regional Water Plan to meet a need but is included as an alternate strategy. In addition, the region has surplus water available beyond its projected demands. As demand surpasses supply in other areas of the state, there will be increased pressure to transfer surplus water out of the East Texas Region.

Select Policy Recommendations

- Encourage the legislature to allow exemptions to the interbasin transfer junior rights provision for contract water, if sufficient surface water remains in the basin of origin to meet 125 percent of the total 50-year projected demands in that basin
- Use the alternate water management strategy process to maintain flexibility in planning
- Continue funding regional water planning with local entities providing administrative costs
- Encourage all counties in the Region I planning area to join or create a groundwater conservation district

Table I.3. Water needs (acre-feet per year) by county and type of use in years 2010 and 2060

County	Total		Municipal		County-other		Manufacturing		Steam-electric		Mining		Irrigation		Livestock	
	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060
Anderson	18	22,105	–	54	–	79	–	–	–	21,853	18	119	–	–	–	–
Angelina	930	16,569	900	10,833	30	1,143	–	4,504	–	–	–	–	–	–	–	89
Cherokee	54	705	–	425	–	–	20	244	–	–	–	2	34	34	–	–
Hardin	3,892	4,256	–	–	154	431	27	114	–	–	–	–	3,711	3,711	–	–
Henderson	606	2,393	21	321	116	1,000	–	–	–	–	–	–	3	6	466	1,066
Houston	639	3,224	–	–	–	–	–	–	–	–	–	–	567	2,146	72	1,078
Jasper	172	226	63	88	109	138	–	–	–	–	–	–	–	–	–	–
Jefferson	–	25,962	–	2	–	–	–	–	–	25,951	–	9	–	–	–	–
Nacogdoches	4,906	23,281	78	6,998	–	147	–	1,431	4,828	13,358	–	–	–	–	–	1,347
Newton	149	667	–	–	–	–	149	667	–	–	–	–	–	–	–	–
Orange	4,889	34,335	–	202	132	6	4,757	34,127	–	–	–	–	–	–	–	–
Panola	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Polk	208	1,277	–	–	208	828	–	449	–	–	–	–	–	–	–	–
Rusk	–	28,239	–	–	–	–	–	–	–	28,074	–	165	–	–	–	–
Sabine	190	517	–	–	153	193	–	–	–	–	–	–	–	–	37	324
San Augustine	193	741	–	–	–	13	2	7	–	–	–	–	100	100	91	621
Shelby	1,207	9,590	105	568	272	540	53	521	–	–	–	–	–	–	777	7,961
Smith	89	1,406	37	956	–	–	–	–	–	–	47	288	5	162	–	–
Trinity	–	57	–	–	–	57	–	–	–	–	–	–	–	–	–	–
Tyler	–	232	–	–	–	232	–	–	–	–	–	–	–	–	–	–
Region	18,142	175,782	1,204	20,447	1,174	4,807	5,008	42,064	4,828	89,236	65	583	4,420	6,159	1,443	12,486

SELECT MAJOR WATER MANAGEMENT STRATEGIES

(Dollar amounts are rounded.
See Appendix 2.1 for all recommended strategies and actual costs.)

- *Lake Columbia in Cherokee County would produce 75,700 acre-feet per year for Angelina and Neches River Authority*—Implementation by: 2010; Capital Cost: $387 million.
- *Contracts for existing supplies would provide 143,285 acre-feet per year throughout region*—Implementation by: 2010; Capital Cost: $89 million.
- *Expansion of local groundwater use throughout region would provide 21,589 acre-feet per year*—Implementation by: 2010; Capital Cost: $32 million.
- *Municipal conservation throughout region, composed of education programs, would provide additional 1,916 acre-feet per year*—Implementation by: 2010; Capital Cost: $0.

East Texas Planning Group Members and Interests Represented

Voting members during adoption of 2006 Regional Water Plan:

David Alders (Chair), agriculture; David Brock, municipalities; George P. Campbell, other; Jerry Clark, river authorities; Josh Wilson David, other; C.R. Griffith, Jr., counties; C. Michael Harbordt, industries; William Heugal, public; Kelley Holcomb, water utilities; Glenda Kindle, public; Duke Lyons, municipalities; Edward McCoy, Jr., small business; Ernest Mosby, small business; Dale Peddy, electric generating utilities; Hermon E. Reed, Jr., agriculture; Monty Shank, river authorities; Robert Stroder, river authorities; Melvin Swoboda, industries; Worth Whitehead, water districts; J. Leon Young, environmental

Former voting members during 2001-2006 planning cycle:

Bart Bauer, other; Nick Carter, water districts; Bill Kimbrough, other; C.G. Maclin, municipalities; Tom Mallory, river authorities; Francis Monk, municipalities; John Robinson, river authorities; H.E. Striedel, electric generating utilities; Chris von Doenhoff, counties