

Water in Alabama, 2010

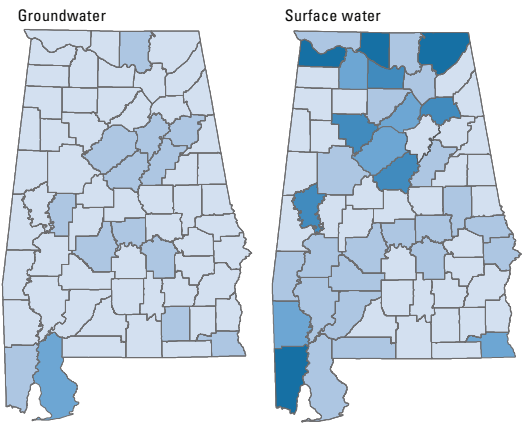
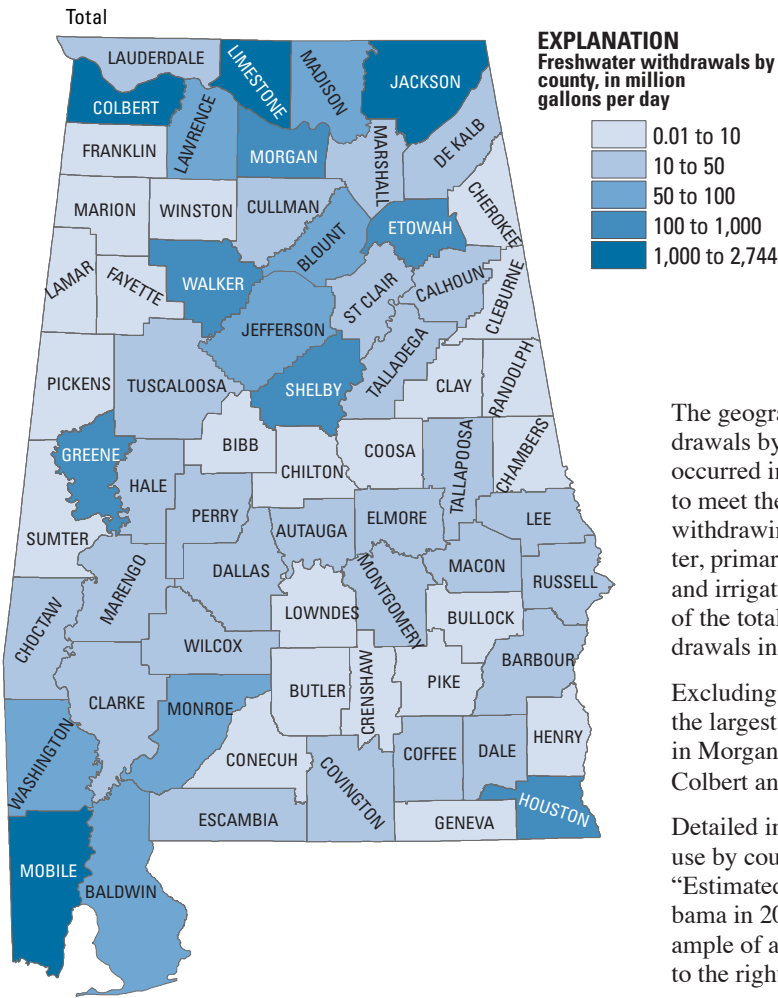


This fact sheet, prepared by the Alabama Office of Water Resources in cooperation with the Troy University Center for Water Resource Economics, provides summaries of data and information contained in the report entitled, "Estimated Use of Water in Alabama in 2010." That report assesses water withdrawals in all 67 counties and 53 eight-digit hydrologic unit code sub-basins covering the entire state. It summarizes water withdrawal information at the state and county level for eight categories that include public supply, self-supplied residential, irrigation, livestock, aquaculture, industrial, mining, and thermoelectric power. It also summarizes withdrawal information at sub-basin level for five categories that include public supply, irrigation, livestock, industrial, and thermoelectric power. The primary source of the information is the Alabama Water Use Reporting Program, which has existed since the passage of the Alabama Water Resources Act in 1993. Additional data used is the result of cooperation with several state and federal agencies and institutions. The fact sheet and report are accessible at <http://water.alabama.gov> and also available on request as a CD-ROM through ADECA-OWR.

KEY FINDINGS:

- Total withdrawals were 9,998 million gallons per day (MGD) for Alabama in 2010. Surface water provided 95% of the total and groundwater provided the remaining 5%.
- Total withdrawals, excluding thermoelectric power, were 1,741 MGD. Surface water provided 78% of the total and groundwater provided the remaining 22%.
- Thermoelectric power accounted for 87% of the total surface water withdrawals.
- Public-supply withdrawals accounted for 8% of the total withdrawals, and 48% of total withdrawals excluding thermoelectric.
- Self-supplied industrial withdrawals accounted for 6% of total withdrawals and 32% of total withdrawals excluding thermoelectric.
- More surface water was withdrawn than groundwater for all categories except aquaculture, mining, and self-supplied residential.
- Total water use in 2010 was slightly less than total water use in 2005. Total water withdrawals decreased 0.4% from 2005 to 2010 (10,033 MGD to 9,998 MGD, respectively).
- Public-supply withdrawals increased 2% from 816 MGD in 2005 to 833 MGD in 2010.
- Self-supplied industrial withdrawals decreased 6% from 600 MGD in 2005 to 562 MGD in 2010.

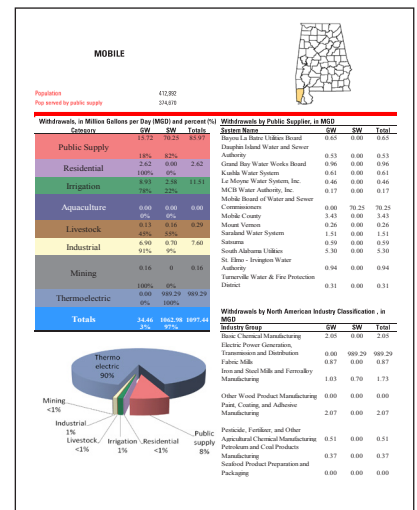
Total 2010 Withdrawals by County



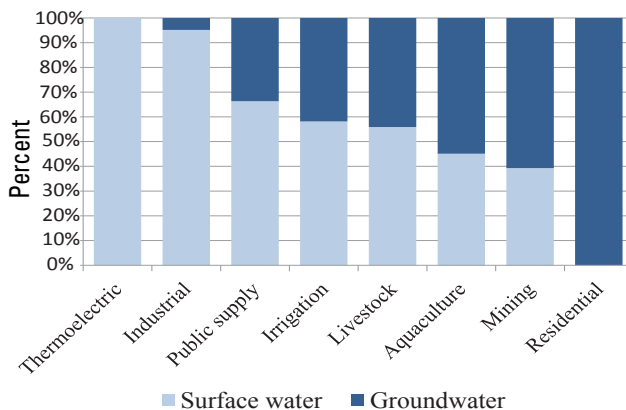
The geographic distribution of total, surface-water and groundwater withdrawals by county indicates the largest total and surface-water withdrawals occurred in Limestone, Jackson, Colbert and Mobile Counties, primarily to meet the cooling needs at thermoelectric-power plants. The 14 counties withdrawing the most groundwater, primarily for public supply and irrigation, accounted for 61% of the total groundwater withdrawals in the State.

Excluding thermoelectric power, the largest withdrawals occurred in Morgan, Mobile, Jefferson, Colbert and Madison Counties.

Detailed information about water use by county is in the report "Estimated Use of Water in Alabama in 2010." A thumbnail example of a county page is shown to the right.

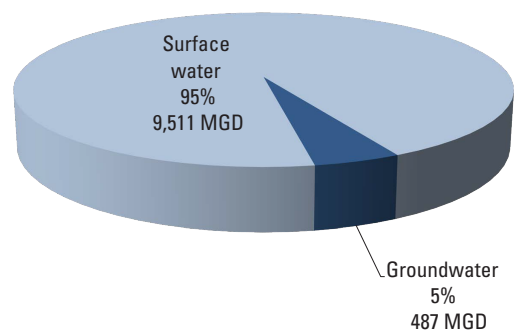


Distribution of Total Withdrawals by Category and Source of Supply

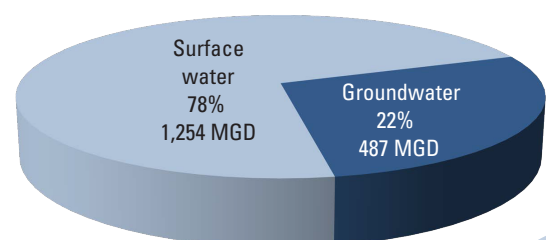


Thermoelectric-power withdrawals were exclusively from surface water and all self-supplied residential withdrawals were exclusively from groundwater. Surface water was the primary source for industry, public supply, irrigation, and livestock; while groundwater was the primary source for aquaculture and mining.

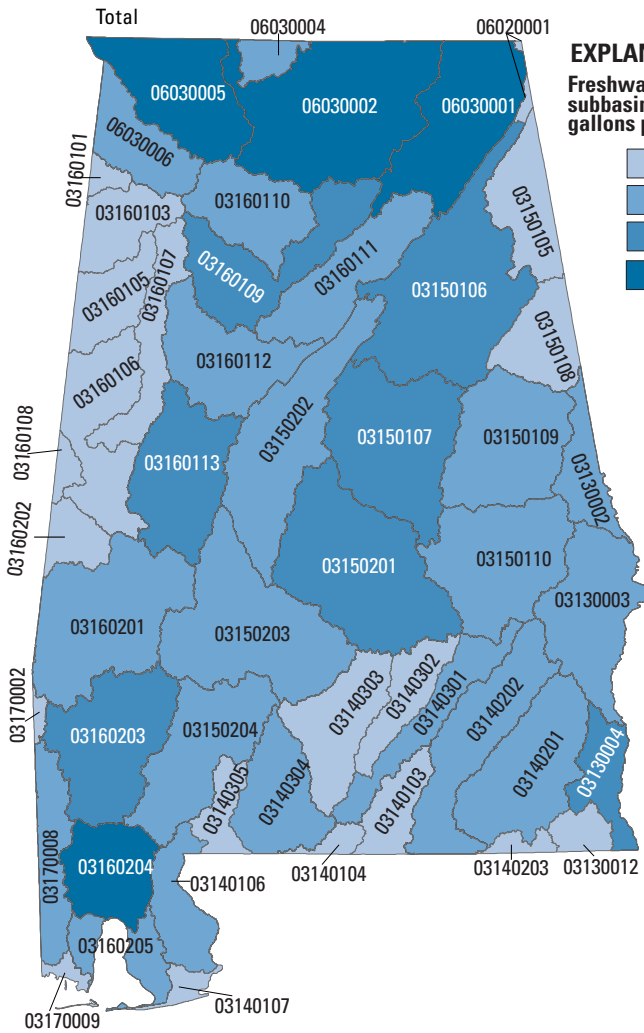
Total Withdrawals by Source



Total Withdrawals by Source w/o Thermoelectric

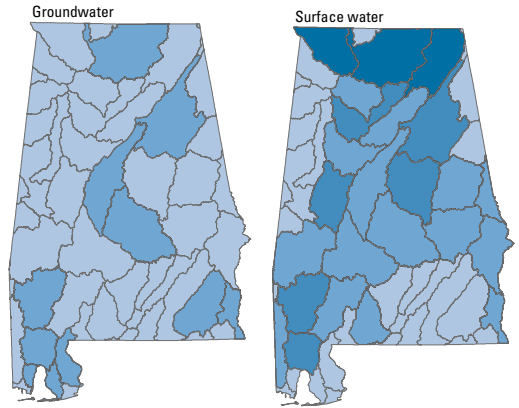


Total 2010 Withdrawals by Subbasin



EXPLANATION
Freshwater withdrawals by subbasin, in million gallons per day

- 0.01 to 10
- 10 to 100
- 100 to 1,000
- 1,000 to 3,000

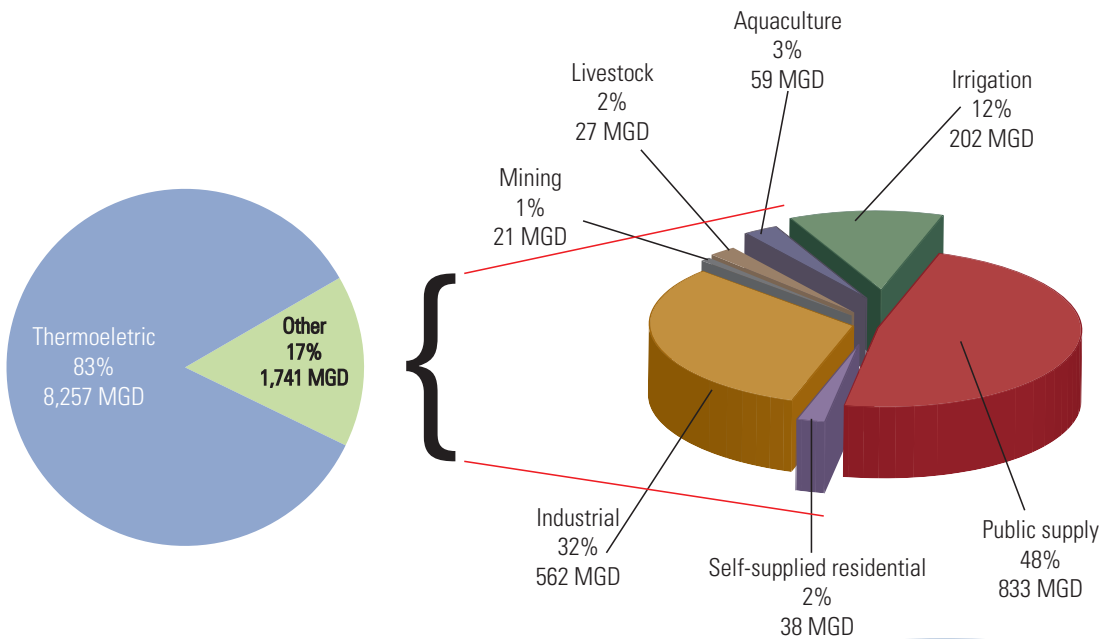


The geographic distribution of total, surface-water and groundwater withdrawals by hydrologic subbasin indicates the largest total and surface-water withdrawals occurred in the 06030001, 06030002, 06030005, and 03160204 subbasins, which accounted for 66% of the total water withdrawals. About 93% of that water was for thermoelectric power, and all of that water was surface water. The 03150106, 03150201, and 06030002 subbasins accounted for 29% of the total groundwater withdrawals. Due to data limitations, no subbasin analysis was done for the self-supplied residential, mining, and aquaculture categories.

Detailed information about water use by hydrologic subbasin is in the report, "Estimated Use of Water in Alabama in 2010." A thumbnail example of a subbasin page is shown to the right.

Subbasin	Basin Name	Estimated Population	Withdrawals in Million Gallons per day (MGD) and percent (%)			Withdrawals by Public Supplier, in MGD		
Category	GW	SW	Totals	System Name	GW	SW	Total	
Public Supply	38.56	30.89	69.45	Board	11.42	0.15	11.57	
	56%	48%		Atchafalaya Water and Sewer	0.22	0.31	0.54	
				Audle Water	1.28	0.00	1.28	
				Big Wolf Water	0.22	0.00	0.22	
				Caldwell County Water Authority	3.45	0.00	3.45	
				Chickasaw Water, Sewer & Gas				
				Board	0.28	0.00	0.28	
Industrial	1.73	38.33	40.06	Department	2.69	0.99	3.68	
	2%	95%		Fort Payne Water Works Board	0.00	6.50	6.50	
Thermoelectric	0.00	114.66	114.66	Gadsden Water Works & Sewer	0.00	13.68	13.68	
	0%	100%		Board	0.73	0.00	0.73	
				Gleason Water and Sewer Works	0.86	0.00	0.86	
				Hokes Bluff Water Board	0.00	1.31	1.31	
				Jacksonville Water Board	2.19	0.00	2.19	
				Marshall Water Authority, Inc.	0.15	0.00	0.15	
				New London Water Authority	0.63	0.00	0.63	
				Northeast Alabama Water, Sewer & P.A.	0.54	0.00	0.54	
				Oxford Water Works and Sewer	3.33	0.00	3.33	
				Board				
				Polk City	2.33	0.00	2.33	
				Regional Water Works Board	0.47	0.00	0.47	
				Southside Water Works & Sewer	0.80	0.00	0.80	
				Board				
				Springville	0.48	0.00	0.48	
				Taladega County Water Dept.	0.00	0.82	0.82	
				Taladega/Sheila Water Treatment	0.00	5.33	5.33	
				Plant	0.39	0.00	0.39	
				Town of Etowah	2.39	0.00	2.39	
				Ozarkville Utility Board	0.00	2.24	2.24	
				Vincennes Water Board	0.04	0.00	0.04	
				Waynesville, Inc.	0.00	0.00	0.00	
				Waverly Water Authority	0.6	0.0	0.6	
				Water	0.04	0.04	0.04	
				West Etowah County Water Authority	0.23	0	0.23	

Comparison of Total Withdrawals by Category of Use



Thermoelectric withdrawals accounted for 83% (8,257 MGD) of total withdrawals. The remaining 17% (1,741 MGD) consisted of public supply (8%), industrial (6%), irrigation (2%), aquaculture (3%), residential (2%), livestock (2%), and mining (<1% each).

Total withdrawals, excluding the thermoelectric category, (1,741 MGD) consisted of public supply (48%), industrial (32%), irrigation (12%), aquaculture (3%), residential (2%), livestock (2%), and mining (1%).

Total Withdrawals by County and Category, Alabama, 2010

[Withdrawals in million gallons per day; largest category rank emboldened; values may not sum to total estimated withdrawals because of rounding.]

County	Population	Population served in percent	Public supply	Self supplied residential ¹	Irrigation	Livestock	Aqua-culture ¹	Industrial	Mining ¹	Thermo-electric	Total
Autauga	54,571	88	5.08	0.37	3.61	0.15	0.00	33.13	0.13	5.83	48.30
Baldwin	182,265	84	22.97	1.71	47.76	0.35	0.16	0.00	0.21	0.00	73.16
Barbour	27,457	93	4.15	0.15	2.66	0.38	2.43	1.57	0.19	0.00	11.53
Bibb	22,915	93	4.90	0.15	0.23	0.07	1.45	0.00	0.36	0.00	7.16
Blount	57,322	78	54.60	0.89	0.87	0.98	0.00	0.00	0.12	0.00	57.46
Bullock	10,914	93	2.31	0.08	3.57	0.14	0.00	0.00	0.06	0.00	6.16
Butler	20,947	84	2.70	0.28	1.37	0.40	0.50	0.30	0.00	0.00	5.55
Calhoun	118,572	95	23.30	0.51	5.01	0.32	0.02	0.96	0.10	0.00	30.22
Chambers	34,215	76	4.31	0.71	0.35	0.18	0.00	0.00	0.00	0.00	5.55
Cherokee	25,989	69	3.50	0.52	2.39	0.28	0.00	0.00	0.01	0.00	6.70
Chilton	43,643	79	4.88	0.74	0.68	0.18	0.00	0.35	0.01	0.00	6.84
Choctaw	13,859	41	1.36	0.62	0.25	0.09	0.03	40.76	0.00	0.00	43.11
Clarke	25,833	73	3.04	0.38	0.16	0.08	0.06	20.22	0.35	0.00	24.29
Clay	13,932	46	1.66	0.48	0.08	0.30	0.01	0.00	0.00	0.00	2.53
Cleburne	14,972	44	0.56	0.77	0.39	0.30	0.00	0.00	0.00	0.00	2.02
Coffee	49,948	82	7.61	0.72	2.55	0.80	0.74	2.22	0.00	0.00	14.64
Colbert	54,428	93	8.79	0.27	2.37	0.29	0.00	69.76	0.73	1,262.30	1,344.51
Conecuh	13,228	57	1.69	0.32	0.19	0.16	0.14	0.00	0.00	0.00	2.50
Coosa	11,539	58	0.30	0.43	0.04	0.05	0.00	0.00	0.12	0.00	0.94
Covington	37,765	64	4.96	0.88	2.49	0.59	0.10	0.05	0.05	1.74	10.86
Crenshaw	13,906	76	2.06	0.19	0.29	0.67	0.00	0.00	0.00	0.00	3.21
Cullman	80,406	97	31.05	0.24	1.31	2.05	0.00	2.27	0.03	0.00	36.95
Dale	50,251	82	6.85	0.69	2.30	0.42	0.05	0.00	0.08	0.00	10.39
Dallas	43,820	79	5.88	0.64	2.95	0.30	7.14	32.33	0.39	0.00	49.63
De Kalb	71,109	73	7.11	1.32	2.15	2.06	0.00	0.77	0.10	0.00	13.51
Elmore	79,303	93	13.37	0.42	2.06	0.17	0.05	0.00	0.47	0.00	16.54
Escambia	38,319	82	5.65	0.63	1.82	0.14	0.03	35.06	0.41	0.00	43.74
Etowah	104,430	96	20.35	0.31	2.26	0.42	0.31	9.21	0.35	114.66	147.87
Fayette	17,241	59	2.04	0.52	0.32	0.16	0.04	0.00	1.10	0.00	4.18
Franklin	31,704	79	5.76	0.51	0.52	0.75	0.00	0.00	0.45	0.00	7.99
Geneva	26,790	58	1.98	0.76	3.05	0.80	0.13	0.00	0.10	0.00	6.82
Greene	9,045	70	1.10	0.35	0.27	0.21	9.84	0.03	0.00	354.71	366.51
Hale	15,760	82	1.71	0.20	0.18	0.29	17.83	0.02	0.11	0.00	20.34
Henry	17,302	77	1.80	0.26	4.18	0.28	0.00	0.54	0.00	0.00	7.06
Houston	101,547	81	16.77	1.37	11.57	0.34	0.00	0.17	0.00	89.30	119.52
Jackson	53,227	74	11.37	0.82	1.10	0.71	0.00	8.91	0.09	1,044.42	1,067.42
Jefferson	658,466	99	75.86	0.46	6.51	0.07	0.46	0.50	1.50	0.00	85.36
Lamar	14,564	64	1.60	0.27	0.18	0.10	0.00	0.11	0.00	0.00	2.26
Lauderdale	92,709	84	12.06	1.19	2.85	0.46	0.02	0.00	0.00	0.00	16.58
Lawrence	34,339	84	7.68	0.38	2.64	0.70	0.05	60.11	0.01	0.00	71.57
Lee	140,247	93	15.97	0.77	2.43	0.10	0.05	0.00	0.23	0.00	19.55
Limestone	82,782	85	10.83	0.68	5.73	0.37	0.33	0.00	1.04	2,724.37	2,743.35
Lowndes	11,299	93	1.13	0.06	4.18	0.57	0.03	0.00	0.46	0.00	6.43
Macon	21,452	87	4.09	0.20	5.01	0.11	0.00	0.00	0.60	0.00	10.01
Madison	334,811	97	68.41	0.78	7.43	0.29	0.00	0.73	0.45	0.00	78.09
Marengo	21,027	60	2.50	0.52	0.30	0.29	2.64	18.72	0.24	0.00	25.21
Marion	30,776	68	5.96	0.76	0.29	0.43	0.00	0.00	0.09	0.00	7.53
Marshall	93,019	94	26.63	0.48	2.20	1.18	0.00	0.38	0.18	0.00	31.05
Mobile	412,992	91	85.97	2.62	11.51	0.29	0.00	7.60	0.16	989.29	1,097.44
Monroe	23,068	74	2.65	0.47	0.62	0.18	0.06	46.55	0.30	0.00	50.83
Montgomery	229,363	98	33.34	0.34	3.46	0.59	0.33	0.05	1.44	0.00	39.55
Morgan	119,490	97	33.38	0.28	1.14	0.67	0.04	78.02	0.38	6.43	120.34
Perry	10,591	60	1.70	0.30	0.08	0.18	8.59	0.00	0.00	0.00	10.85
Pickens	19,746	78	2.70	0.42	0.78	0.63	1.00	0.01	0.00	0.00	5.54
Pike	32,899	88	5.01	0.33	1.47	0.58	0.00	0.00	0.00	0.00	7.39
Randolph	22,913	53	1.51	0.72	0.16	0.43	0.00	0.00	0.09	0.00	2.91
Russell	52,947	92	8.80	0.23	6.49	0.10	0.00	28.55	0.58	0.00	44.75
St Clair	83,593	89	9.93	0.41	2.10	0.10	0.00	0.00	0.61	0.00	13.15
Shelby	195,085	96	15.89	0.59	8.62	0.36	0.04	4.45	2.71	666.25	698.91
Sumter	13,763	91	1.90	0.09	0.34	0.30	3.04	2.03	1.14	0.00	8.84
Talladega	82,291	75	17.54	1.24	4.80	0.23	0.00	24.67	0.62	0.00	49.10
Tallapoosa	41,616	85	10.38	0.44	0.61	0.10	0.80	0.00	0.00	0.00	12.33
Tuscaloosa	194,656	94	29.92	0.82	5.09	0.20	0.04	1.78	1.09	0.00	38.94
Walker	67,023	89	35.75	0.44	0.71	0.28	0.03	0.00	0.49	922.15	959.85
Washington	17,581	57	2.07	0.56	0.11	0.19	0.03	11.03	0.11	75.54	89.64
Wilcox	11,670	62	2.94	0.25	0.30	0.18	0.46	18.31	0.00	0.00	22.44
Winston	24,484	65	0.97	0.66	0.15	0.36	0.00	0.00	0.11	0.00	2.25
Total	4,779,736	89	832.59	37.97	201.67	26.48	59.10	562.23	20.75	8,256.99	9,997.78

¹ Categories excluded from watershed totals.

Water Withdrawal Categories



PUBLIC SUPPLY— Withdrawals were approximately 833 MGD with 66% (552 MGD) from surface water and 34% (280 MGD) from groundwater. Residential deliveries by public supply were approximately 328 MGD. Public suppliers served roughly 4.24 million (90%) of the State’s population. The statewide average public-supplied residential water use per capita was estimated to be 77 gallons per day. (Photo: Alexander City Water Department surface water treatment plant)



RESIDENTIAL— Self-supplied residential withdrawals were approximately 38 MGD and all from groundwater. The estimated population that relied on self-supplied groundwater wells was 540,000. The estimated water use per capita for residential supply was 70 gallons per day.

(Photo: Residential well drilling rig in action)



IRRIGATION— Withdrawals were approximately 202 MGD with 58% (117 MGD) from surface water and 43% (87 MGD) from groundwater. Total irrigated acreage was approximately 169,000 acres. The average application rate for irrigation statewide was estimated to be 1.34 acre-feet per acre per year.

(Photo: Sprinkler irrigation of nursery plants)



LIVESTOCK— Withdrawals were 27 MGD with 44% (12 MGD) from groundwater and 56% (15 MGD) from surface water. According to the USDA, the top four broiler chicken producing Counties were Blount, Cullman, DeKalb, and Marshall; which accounted for 24% of total livestock withdrawals.

(Photo: Breeder chickens)



AQUACULTURE— Withdrawals were approximately 59 MGD with 54% (32 MGD) from groundwater and 46% (27 MGD) from surface water. Greene, Hale and Perry Counties, where a majority of the 268 catfish farms are located, accounted for roughly 36 MGD of the withdrawal.

(Photo: Workers harvesting catfish)



INDUSTRIAL— Self-supplied industrial withdrawals were approximately 562 MGD with 95% (535 MGD) from surface water. Public suppliers provided roughly 393 MGD to commercial/industrial customers for a total statewide industrial use of approximately 955 MGD. The largest withdrawal sectors were pulp, paper, and paperboard mills (NAICS 3221) with 339 MGD and basic chemical manufacturing (NAICS 3251) with 107 MGD. (Photo: Lumber yard wet deck)



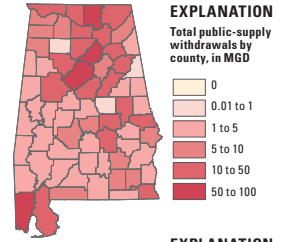
MINING— Withdrawals were approximately 21 MGD with 62% (13 MGD) from groundwater. Shelby, Jefferson, Montgomery, Sumter, Fayette, Tuscaloosa, and Limestone Counties each withdrew at least 1 MGD, and collectively accounted for roughly 48% of total mining usage.

(Photo: Sand screw used to classify manufactured sand)

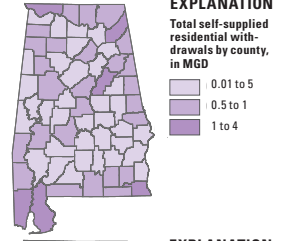


THERMOELECTRIC POWER— Withdrawals were approximately 8,257 MGD. Total energy production was roughly 124,974 net gigawatt-hours of energy. Thermoelectric withdrawals amounted to approximately 83% of total water withdrawals and roughly 87% of total surface-water withdrawals in the State.

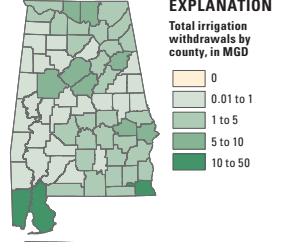
(Photo: Miller Steam Plant)



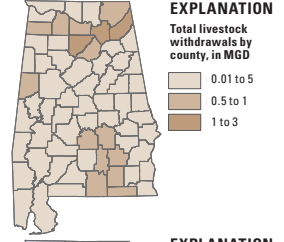
EXPLANATION
Total public-supply withdrawals by county, in MGD



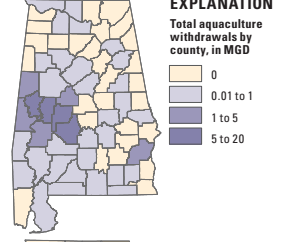
EXPLANATION
Total self-supplied residential withdrawals by county, in MGD



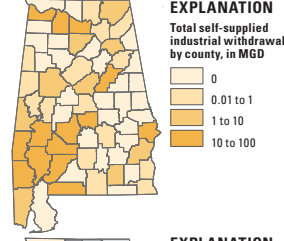
EXPLANATION
Total irrigation withdrawals by county, in MGD



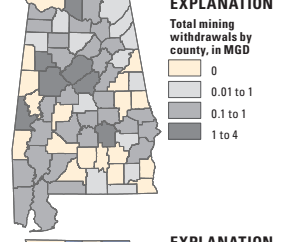
EXPLANATION
Total livestock withdrawals by county, in MGD



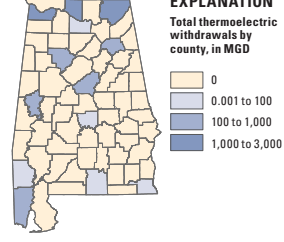
EXPLANATION
Total aquaculture withdrawals by county, in MGD



EXPLANATION
Total self-supplied industrial withdrawals by county, in MGD



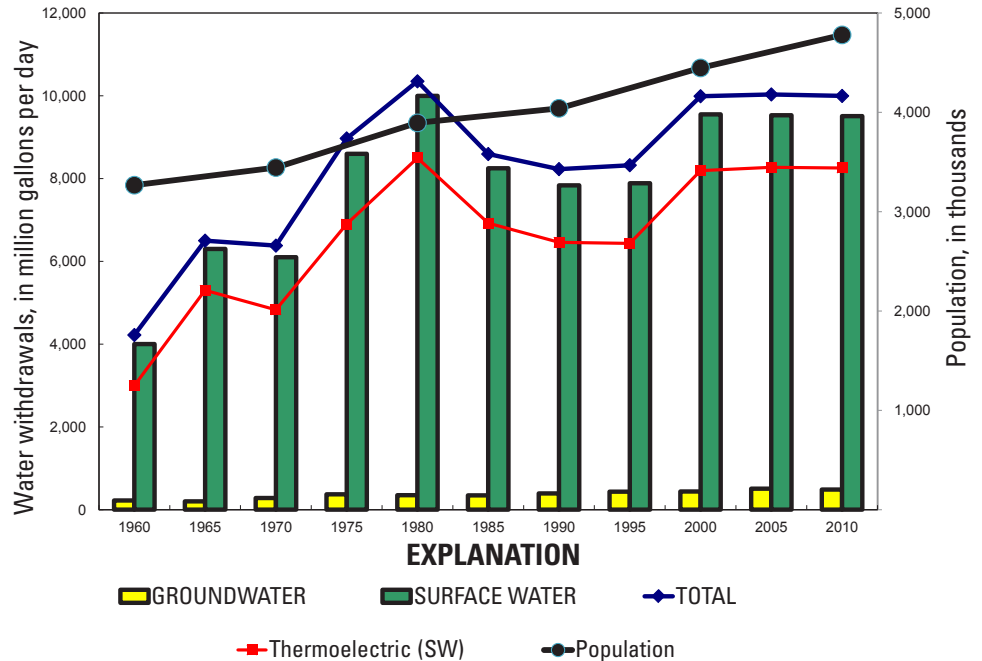
EXPLANATION
Total mining withdrawals by county, in MGD



EXPLANATION
Total thermoelectric withdrawals by county, in MGD

Water Withdrawals in Alabama, 1960 to 2010

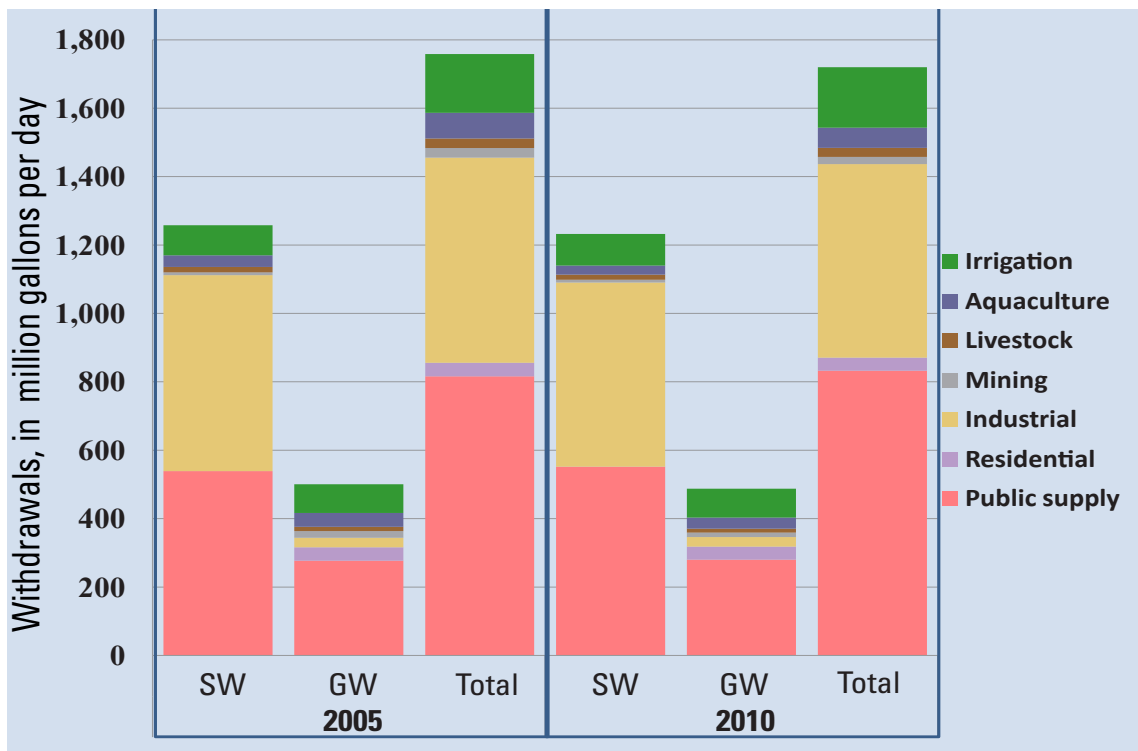
The graph to the right shows trends from 1960 to 2010 in statewide water withdrawal estimates and population. For the 20-year period from 1960 to 1980, total water withdrawals steadily increased from about 4,220 MGD in 1960 to 10,350 MGD in 1980. From 1980 to 2000, changes in thermoelectric-power production processes reduced total water withdrawals. For the most recent 10-year period from 2000 to 2010, withdrawals have been relatively constant with total withdrawals in 2010 at 9,998 MGD. The thermoelectric-power production withdrawals drive the trends for surface water withdrawals in Alabama and have accounted for more than 80% of total withdrawals in recent years. Groundwater withdrawals have steadily increased over the same 50-year period, but only amounts to 5% of the total water withdrawals (mostly for public water supply). These water withdrawal changes have occurred while population has increased from 3.3 million to 4.8 million in a near-linear fashion.



Total Withdrawals Without Thermoelectric, 2005 vs. 2010

The graph below shows a comparison of water sources, water use categories, and withdrawal totals, excluding the thermoelectric category, between 2005 and 2010. The total water withdrawals shown were 1,741 MGD in 2010 as compared to 1,759 MGD in 2005 (0.1% decrease). In the individual categories, public water supply increased from 816 MGD in 2005 to 833 MGD in 2010 (2% increase). Self-supplied industrial water withdrawals decreased from 600 MGD to 566 MGD (5.7% decrease) and irrigation water withdrawals increased

from 172 MGD in 2005 to 202 MGD in 2010 (18% increase). This is reflective of a 25% increase in estimated irrigated acreage from 136,000 acres in 2005 to 169,000 acres in 2010. Aquaculture withdrawals decreased from 75 MGD in 2005 to 59 MGD in 2010 (21% decrease). The combined total of the remaining categories (self-supplied residential, mining and livestock) was 95 MGD in 2005 and 85 MGD in 2010 for an 11% decrease in withdrawals for these categories.



Reference:
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Primary Authors:
Michael J. Harper,
Office of Water Resources (OWR)
Alabama Department of Economic
and Community Affairs

Billy G. Turner,
Troy University Center for Water
Resource Economics

For more information,
please contact:

ADECA
Office of Water Resources
401 Adams Avenue, Suite 434
Montgomery, AL 36104

Phone: 334-242-5499
Fax: 334-242-0776
E-mail: water@adeca.alabama.gov
Web: <http://water.alabama.gov>

