

Estimated Use of Water in the United States in 2015

By Cheryl A. Dieter, Molly A. Maupin, Rodney R. Caldwell, Melissa A. Harris, Tamara I. Ivahnenko, John K. Lovelace, Nancy L. Barber, and Kristin S. Linsey

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Conversion Factors

U.S. customary units to International System of Units

Multiply	By	To obtain
Length		
inch (in.)	2.54	centimeter (cm)
inch (in.)	25.4	millimeter (mm)
Area		
acre	4,047	square meter (m ²)
acre	0.4047	hectare (ha)
acre	0.001562	square mile (mi ²)
Volume		
acre-foot (acre-ft)	1,233	cubic meter (m ³)
acre-foot (acre-ft)	325,851	gallon (gal)
acre-foot (acre-ft)	43,560	cubic foot (ft ³)
cubic foot (ft ³)	7.48	gallon (gal)
gallon (gal)	3.785	liter (L)
gallon (gal)	3.785	cubic decimeter (dm ³)
million gallons (Mgal)	3,785	cubic meter (m ³)
million gallons (Mgal)	3.07	acre-foot (acre-ft)
Flow rate		
acre-foot per year (acre-ft/yr)	1,233	cubic meter per year (m ³ /yr)
billion gallons per day (Bgal/d)	1.3815	billion cubic meters per year
gallon per day (gal/d)	3.785	liter per day (L/d)
million gallons per day (Mgal/d)	0.04381	cubic meter per second (m ³ /s)
million gallons per day (Mgal/d)	1.547	cubic foot per second (ft ³ /s)
million gallons per day (Mgal/d)	1.121	thousand acre-foot per year (acre-ft/yr)
million gallons per day (Mgal/d)	1.3815	million cubic meters per year
thousand acre-feet per year (acre-ft/yr)	0.8921	million gallons per day (Mgal/d)
Energy		
gigawatt-hour (gWh)	3,600,000	Megajoule (MJ)
kilowatt-hour (kWh)	3,600,000	joule (J)

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) / 1.8.$$

Abbreviations

CONUS	Contiguous United States
EPA	U.S. Environmental Protection Agency
ET	Evapotranspiration
GPCD	gallons per capita per day
MODIS	Moderate Resolution Imaging Spectroradiometer
NWC	National Water Census
NWIS	National Water Information System
NWUSP	National Water Use Science Project
SDWIS	Safe Drinking Water Information System
SECURE	Science and Engineering to Comprehensively Understand and Responsibly Enhance
SSEBop	Operational Simplified Surface Energy Balance
USDA	U.S. Department of Agriculture
USDA NASS	U.S. Department of Agriculture, National Agricultural Statistics Service
USDOE EIA	U.S. Department of Energy, Energy Information Administration
USGS	U.S. Geological Survey
WAUSP	Water Availability and Use Science Program
WUDR	U.S. Geological Survey Water Use Data and Research Financial Assistance Program

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Abstract

Water use in the United States in 2015 was estimated to be about 322 billion gallons per day (Bgal/d), which was 9 percent less than in 2010. The 2015 estimates put total withdrawals at the lowest level since before 1970, following the same overall trend of decreasing total withdrawals observed from 2005 to 2010. Freshwater withdrawals were 281 Bgal/d, or 87 percent of total withdrawals, and saline-water withdrawals were 41.0 Bgal/d, or 13 percent of total withdrawals. Fresh surface-water withdrawals (198 Bgal/d) were 14 percent less than in 2010, and fresh groundwater withdrawals (82.3 Bgal/day) were about 8 percent greater than in 2010. Saline surface-water withdrawals were 38.6 Bgal/d, or 14 percent less than in 2010. Total saline groundwater withdrawals in 2015 were 2.34 Bgal/d, mostly for mining use.

Thermoelectric power and irrigation remained the two largest uses of water in 2015, and total withdrawals decreased for thermoelectric power but increased for irrigation. Withdrawals in 2015 for thermoelectric power were 18 percent less and withdrawals for irrigation were 2 percent greater than in 2010. Similarly, other uses showed reductions compared to 2010, specifically public supply (–7 percent), self-supplied domestic (–8 percent), self-supplied industrial (–9 percent), and aquaculture (–16 percent). In addition to irrigation (2 percent), mining (1 percent) reported larger withdrawals in 2015 than in 2010. Livestock withdrawals remained essentially the same in 2015 compared to 2010 (0 percent change). Thermoelectric power, irrigation, and public-supply withdrawals accounted for 90 percent of total withdrawals in 2015.

Withdrawals for thermoelectric power were 133 Bgal/d in 2015 and represented the lowest levels since before 1970. Surface-water withdrawals accounted for more than 99 percent of total thermoelectric-power withdrawals, and 72 percent of those surface-water withdrawals were from freshwater sources. Saline surface-water withdrawals for thermoelectric power accounted for 97 percent of total saline surface-water withdrawals for all uses. Thermoelectric-power withdrawals accounted for 41 percent of total withdrawals for all uses, and freshwater withdrawals for thermoelectric power accounted for 34 percent of the total freshwater withdrawals

for all uses. Total consumptive use for thermoelectric power was 4.31 Bgal/d in 2015 or 3 percent of the total thermoelectric-power withdrawals.

Irrigation withdrawals were 118 Bgal/d in 2015, an increase of 2 percent from 2010 (116 Bgal/d), but were approximately equal to withdrawals estimated in the 1960s. Irrigation withdrawals, all freshwater, accounted for 42 percent of total freshwater withdrawals for all uses and 64 percent of total freshwater withdrawals for all uses excluding thermoelectric power. Surface-water withdrawals (60.9 Bgal/d) accounted for 52 percent of the total irrigation withdrawals, or about 8 percent less than in 2010. Groundwater withdrawals for irrigation were 57.2 Bgal/d in 2015, about 16 percent more than in 2010. About 63,500 thousand acres (or 63.5 million acres) were irrigated in 2015, an increase from 2010 of about 1,130 thousand acres (2 percent). The number of acres irrigated using sprinkler and microirrigation systems accounted for 63 percent of the total irrigated lands in 2015. Total consumptive use for irrigation was 73.2 Bgal/d in 2015 or 62 percent of the total use (withdrawals and reclaimed wastewater).

Public-supply withdrawals in 2015 were 39.0 Bgal/d, or 7 percent less than in 2010, continuing the declines observed from 2005 to 2010. Total population in the United States increased from 312.6 million people in 2010 to 325.0 million people in 2015, an increase of 4 percent. Public-supply withdrawals accounted for 14 percent of the total freshwater withdrawals for all uses and 21 percent of freshwater withdrawals for all uses, excluding thermoelectric power. The number of people that received potable water from public-supply facilities in 2015 was 283 million, or about 87 percent of the total United States population. This percentage is 1 percent greater than in 2010. Self-supplied domestic withdrawals were 3.26 Bgal/d, or 8 percent less than in 2010. More than 98 percent of the self-supplied domestic withdrawals were from groundwater sources.

Self-supplied industrial withdrawals were 14.8 Bgal/d in 2015, a 9 percent decline from 2010, continuing the downward trend since the peak of 47 Bgal/d in 1970. Total self-supplied industrial withdrawals were 5 percent of total withdrawals for all uses and 8 percent of total withdrawals for all uses,

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excluding thermoelectric power. Most of the total self-supplied industrial withdrawals were from surface-water sources (82 percent), and nearly all (94 percent) of those surface-water withdrawals were from freshwater sources. Nearly all of the groundwater withdrawals for self-supplied industrial use (98 percent) were from freshwater sources.

Total aquaculture withdrawals were 7.55 Bgal/d in 2015, or 16 percent less than in 2010, and surface water was the primary source (79 percent). Most of the surface-water withdrawals occurred at facilities that operated flow-through raceways, which returned the water to the source directly after use. Aquaculture withdrawals accounted for 2 percent of the total withdrawals for all uses and 4 percent of the total withdrawals for all uses, excluding thermoelectric.

Total mining withdrawals in 2015 were 4.00 Bgal/d, or about 1 percent of total withdrawals from all uses and 2 percent of total withdrawals from all uses, excluding thermoelectric. Mining withdrawals increased 1 percent from 2010 to 2015. Groundwater withdrawals accounted for 72 percent of the total mining withdrawals, and most of the groundwater was saline (65 percent). Most (77 percent) of the surface-water withdrawals for mining was freshwater.

Livestock withdrawals in 2015 were 2.00 Bgal/d, the same as in 2010. All livestock withdrawals were from freshwater sources, mostly from groundwater (62 percent). Livestock withdrawals accounted for about 1 percent of total freshwater withdrawals for all uses, excluding thermoelectric power.

In 2015, more than 50 percent of the total withdrawals in the United States were accounted for by 12 States (California, Texas, Idaho, Florida, Arkansas, New York, Illinois, Colorado,

North Carolina, Michigan, Montana, and Nebraska). California accounted for almost 9 percent of the total withdrawals and 9 percent of freshwater withdrawals in the United States, predominantly for irrigation. Texas accounted for almost 7 percent of total withdrawals, predominantly for thermoelectric power, irrigation, and public supply. Florida accounted for 23 percent of the total saline-water withdrawals in the United States, mostly from surface-water sources for thermoelectric power. Texas and California accounted for 59 percent of the total saline groundwater withdrawals in the United States, mostly for mining.

Introduction

This report, “Estimated use of water in the United States in 2015,” is the 14th in a series of U.S. Geological Survey (USGS) Circular reports that have been published every 5 years since 1950. The 65-year span of national reports represents the longest compilation record of water-use data by a Federal agency in the United States. Estimates of withdrawals enable the depiction of trends in total water use for the Nation among different geographic areas, categories of use, and sources over time. The USGS is dedicated to providing reliable scientific information that accurately describes current and historical conditions and enables a better understanding of the Earth’s water resources. Water-use information is a critical component of water budgets, which are essential to surface-water and groundwater availability studies. This



Public supply water tank, winner of the “2015 Tank of the Year” presented by Thnec Company, Inc. Photograph provided by the City of Cocoa, Florida, used with permission.



State Seal Spring is used for domestic drinking water in Saratoga County, New York. Photograph by Tamara Ivahnenko, USGS.

information is also essential to accurately understand how future water demands will be met while maintaining adequate water quality and quantities for human and ecosystem needs in the United States.

The USGS National Water Use Science Project (NWUSP), a component of the Water Availability and Use Science Program (WAUSP), facilitates the 5-year compilation of water use estimates for the United States as part of the National Water Census (NWC). The NWC, implemented as part of the SECURE (Science and Engineering to Comprehensively Understand and Responsibly Enhance) Water Act (Subtitle F of Public Law 111-11, the Omnibus Public Land Management Act), provides data and tools designed to support water managers in the accurate assessment of water availability at regional and national scales (<https://water.usgs.gov/watercensus/>). Over time, the NWUSP has met various challenges in estimating water use in the United States (<https://water.usgs.gov/watuse/>) and as a result has reduced some data collections over time to address limitations of available resources for analysis and limitations of capabilities for accurate interpolations.

USGS NWC-supported projects with direct relevance to water use and the NWUSP 2015 compilation efforts are focused on several categories of water use, including thermoelectric power and public supply. For thermoelectric power, thermoelectric withdrawals in the United States for 2010 acquired from three Federal datasets were evaluated and compared (Harris and Diehl, 2017). For public supply, work continues to construct a site-specific database of public-supply withdrawal, distribution, use, and return data for each State. The NWUSP is in the process of developing methods and tools to estimate groundwater withdrawals from major aquifer systems for every county in the United States.

The SECURE Water Act authorized a program to support water-use and availability activities related to data collection and methods research and development at the State level. The USGS Water-Use Data and Research program (WUDR) began to provide financial assistance through cooperative agreements with State water-resource agencies in 2015 (<https://water.usgs.gov/waustp/wudr/index.html>). The goal of the USGS WUDR is to improve water-use data for the United States at the State level, which will allow better, more accurate estimates of water use in the United States and provide information needed to manage water resources, and (or) forecast future water-use needs. The WUDR Program promotes cooperative work with the State agencies. Data from funded projects will be incorporated into USGS databases.

Data dissemination capabilities and data-collection efforts have improved over the course of each 5-year compilation. The online resource, “USGS Water Use Data for the Nation,” (<https://waterdata.usgs.gov/nwis/wu>) provides the best available county water-use data (1985–2015). These county-level estimates are the foundation for the statewide totals presented in each 5-year compilation report and are stored, updated, and disseminated using the USGS National Water Information System (NWIS) database. Data are retrievable as county,



Alligators in a holding pool, St. Tammany Parish, Louisiana, is an example of aquaculture water use. Photograph by Pierre Sargent, USGS.

State, and national totals for each category of use as reported in the 5-year compilation reports. Because data are updated periodically and revised during interim years, the website can enable quick and easy access to the most current water-use data. A companion data release of 2015 county-level data is available through the USGS ScienceBase catalog at <https://doi.org/10.5066/F7TB15V5> (Dieter and others, 2018).

Factors such as demographics, new manufacturing and cooling-system technologies, economic trends, legal decisions, and climatic fluctuations have varying effects on water use. Between 2010 and 2015, population in the United States increased 4 percent, or approximately 12 million people, from 313 million people in 2010 to 325 million people in 2015. The Southern and Western States had the largest estimated increases in population from 2010 to 2015 as a result of large estimated increases in population in Texas, California, and Florida (U.S. Census Bureau, 2017). A few Eastern States had estimated decreases in population (Puerto Rico, West Virginia, and Vermont) (U.S. Census Bureau, 2017). Population growth puts additional pressure on existing public utilities and increases demand on sometimes already limited water supplies. In parts of the United States, communities have sought additional water sources or instituted water-conservation measures to meet increasing demands. New cooling-system technologies and wastewater-management practices at thermoelectric powerplants and industrial facilities are examples of water-saving practices that are being implemented. Powerplants have reduced the demand for cooling water by implementing more efficient cooling systems, such as changing to recirculating systems (also referred to as recirculation systems) or building new plants with dry-cooling systems. Industrial facilities are using more efficient water-conserving manufacturing technologies, driven by the need to reduce costs associated with water/energy production needs. Increases in industrial reuse and recycling of wastewater help to reduce withdrawals from the available resources and treated discharges to surface waters over time.

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Climate fluctuations affect water use, particularly for irrigation, power generation, and public supply. According to the National Oceanic and Atmospheric Administration's Annual Climate Report for 2015, the contiguous United States (CONUS) experienced average annual air temperatures 2.4 degrees Fahrenheit above the 20th century average in every State, and precipitation was 4.53 inches greater than the 20th century average (National Oceanic and Atmospheric Administration, 2016a). The winter temperature was greater than the average for the CONUS. The winter was abnormally cold in the Northeast and Midwest and warm in the West. Boston, Massachusetts, received a record 110.6 inches of snow. Fourteen States in central and southeastern CONUS experienced wetter than normal conditions, including Texas and Oklahoma, both of which had record wet years, relieving them of drought conditions that began in 2010. Florida experienced record warm temperatures 3.3 degrees Fahrenheit greater than the long-term average. California's near-record warm temperatures and low precipitation in the winter caused drought conditions, including low reservoir levels in the State (National Oceanic and Atmospheric Administration National Centers for Environmental Information, 2016a).

Purpose and Scope

This report presents average daily withdrawals (in millions of gallons per day, Mgal/d) for calendar year 2015, by source (groundwater and surface water) and quality (fresh and saline) for the 50 States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands (hereafter referred to as "States" for brevity). Withdrawals are reported by category of use: public supply, domestic (including self-supplied domestic and deliveries from public supply), irrigation, livestock, aquaculture, self-supplied industrial (referred to as "industrial" for brevity), mining, and self-supplied thermoelectric power (referred to as "thermoelectric power" for brevity). Saline water is defined as water containing dissolved solids of 1,000 milligrams per liter or more. All withdrawals for the public supply, domestic, irrigation, and livestock categories are reported as totals, although in some areas water is treated to reduce salinity for these uses. Aquaculture totals include a small amount of saline surface-water withdrawals for four States. Both freshwater and saline-water withdrawals are reported for industrial, mining, and thermoelectric-power uses. In addition to withdrawals, average daily consumptive-use estimates (in Mgal/d) for irrigation and thermoelectric power for 2015 are presented in this report.



Irrigation in Montana. Photograph by Rodney Caldwell, USGS.

The series of 5-year national water-use estimates compiled by the USGS serves as one of the few sources of information about regional and national trends in water withdrawals. These historical reports (MacKichan, 1951, 1957; MacKichan and Kammerer, 1961; Murray, 1968; Murray and Reeves, 1972, 1977; Solley and others, 1983, 1988, 1993, 1998; Hutson and others, 2004; Kenny and others, 2009; Maupin and others, 2014) are available online at <https://water.usgs.gov/watuse/50years.html>. Statewide data between 1950 and 2015 produced for the 5-year national water-use estimates are available online at <https://waterdata.usgs.gov/nwis/wu>. County-level data are available only for 1985–2015 from the same website.

Terminology Used in This Report

A glossary of the terms and units used in this report is located at the end of the report and is available online at <https://water.usgs.gov/watuse/wuglossary.html>. Terms and units depicting withdrawals and ancillary data for the 5-year compilations have not changed since 2000. Withdrawal for each category of use represents the total amount of water removed from the water source for a particular use. Additional water may be used for the category from public-supply deliveries or from reclaimed wastewater. In most cases, some fraction of the total withdrawal will be returned to a water source after use and will be available for other subsequent uses. Estimates of reclaimed wastewater use were compiled by some States for the industrial, thermoelectric-power, and irrigation categories. Available reclaimed wastewater use data are included in the tables and graphics for the thermoelectric-power and irrigation categories, but not for industrial because of the small volumes of water compared to the totals and the incomplete reporting across the Nation.

The amount of water that is not readily available for another use because it is evaporated, transpired, incorporated into products or crops, consumed by livestock or humans, or otherwise removed from the immediate water environment is termed consumptive use. Estimates of return flows and consumptive use were discontinued after 1995, primarily because of resource and data constraints. This report reinstates the consumptive-use estimates for the thermoelectric-power and irrigation categories.

Rates of water use (withdrawals, deliveries from public supply, consumptive use) are expressed in terms of Mgal/d and thousands of acre-feet per year (acre-ft/yr). The term billion of gallons per day (Bgal/d) is used in the “Abstract” and “Trends in Water Use” sections of this report to more simply express large numbers for total uses. Units of million or billion of gallons per day do not represent actual daily rates, but rather are used to express total amounts as an average daily rate over a single year (annually). Water demands fluctuate seasonally and may be very different between hot summer months and cold winter months. Therefore, withdrawal estimates in this report represent the total annual withdrawals averaged over 365 days.

Water-use values and population data are rounded to three significant figures, except for population values in the “Trends in Water Use” section, which are rounded to four significant figures. All values are rounded independently, so the sums of individual rounded numbers may not equal the totals. The percentage of changes discussed in the text are calculated from the unrounded data and are expressed as integers. In discussions of States that compose the majority of withdrawals for a given category, the State names are listed in order of decreasing magnitude of withdrawals.

Changes for the 2015 Report

A matrix showing the different categories of use and how the terminology has changed over time is available online at <https://water.usgs.gov/watuse/WU-Category-Changes.html>. Links to definitions of water-use categories are included in the matrix. This report includes the same categories of use that were reported in 2005 and 2010, and every category of use includes data from every State. Deliveries from public supply for domestic use were again compiled in 2015, but public-supply deliveries for commercial, industrial, and thermoelectric-power uses were not compiled for all States. This report reinstates consumptive-use estimates for the thermoelectric power and irrigation categories, which were discontinued after 1995, primarily because of resource and data constraints.

Data were not compiled for hydrologic units (watersheds). Data were not compiled for commercial water use, hydroelectric-power generation, wastewater treatment (returns), consumptive use (except for the categories of thermoelectric power and irrigation), or irrigation conveyance losses. Some of these additional data may have been collected for individual States but are not compiled as a national dataset or included in this report.

The “Trends in Water Use” section of this report includes national totals for withdrawals by category of use and source of water from 1950 to 2015. Totals have changed for some categories and years because of revisions to individual State data during interim years. Because of these revisions, some of the percentage changes in this report will be slightly different from data published previously by Maupin and others (2014).

Sources of Data and Methods of Analysis

Data presented in this report were compiled from various sources, depending on the category of use and the information available for each State. USGS personnel in each State determined the best sources of information available, then compiled or estimated the data and prepared documentation of the sources and methods used to determine the water-use totals. Data in this report may have been derived from reported, estimated, or calculated means using different



Mining in Chaffee County, Colorado. Photograph by Robert Stogner, used with permission.

sources and methods and, therefore, will have varying levels of accuracy. Because the largest users and the most prominent categories of use within each State have the greatest effect on the totals, obtaining reliable information for these large users and categories was the primary focus of the compilation effort.

Sources of information used in the compilation include national datasets, State agency data, and local contacts. National datasets available to each State include U.S. Census Bureau population estimates (U.S. Census Bureau, 2016), U.S. Department of Agriculture (USDA) Farm and Ranch Irrigation Survey, USDA Census of Agriculture, USDA National Agricultural Statistics Service (NASS) crop and livestock estimates, USDA Cropland Data Layer, and U.S. Department of Energy, Energy Information Administration (USDOE EIA) facility reports.

In addition to the nationally available datasets listed above, category-specific data were compiled and (or) estimated by the NWUSP and provided to USGS personnel to help refine estimates for thermoelectric power, irrigation, livestock, mining, and aquaculture. For thermoelectric power, cooling-system classifications for powerplants, modeled withdrawals, and consumptive use were provided from internal USGS sources (Diehl and others, 2013; Diehl and Harris, 2014) using USDOE EIA and project ancillary data. To estimate irrigation consumptive use, estimates of evapotranspiration derived from 1-kilometer scale Moderate Resolution Imaging Spectroradiometer (MODIS) satellite data using the Operational Simplified Surface Energy Balance (SSEBop) model (Senay and others, 2013) were provided for each State.

Datasets and sources of information used to produce the national estimates for the livestock, aquaculture, and mining categories include the USDA NASS, USDOE EIA, FracFocus Chemical Disclosure Registry, USGS National Minerals Information Center, and various State agencies responsible for oil and gas development or underground-injection control programs. Sources of information are discussed in greater detail in the individual category sections of this report.

Many of these supporting data, such as those from USDA NASS and USDOE EIA, are collected annually. Other data are provided for years other than 2015 but were used to develop the 2015 estimates in some States because they were the most complete data available. For example, the USDA Census of Agriculture is produced in years ending in 2 and 7, and the USDA Farm and Ranch Irrigation Survey is produced in years ending in 3 and 8. Correlation of water-use data in this report with specific climatic conditions for 2015 is not recommended because data for years other than 2015 may have been used to develop some water-use estimates.

Guidelines for preparing the 2015 water-use estimates were distributed to USGS contact personnel through workshops, web-based seminars, and written documents. These guidelines have been published as USGS Open-File Report 2017–1029, “Guidelines for preparation of State water-use estimates for 2015” (Bradley, 2017), available at <https://doi.org/10.3133/ofr20171029>. Reports published for individual States by USGS offices as part of the NWUSP, as well as a list of contact personnel, also are available online at <https://water.usgs.gov/watuse/>.

Total Water Use

322,000 million gallons per day

Total water withdrawals in the United States for 2015 were estimated for eight categories of use: public supply, self-supplied domestic, irrigation, livestock, aquaculture, industrial, mining, and thermoelectric power (fig. 1). The three largest categories were thermoelectric power, irrigation, and public supply, accounting for 90 percent of the national total. The remaining categories of self-supplied domestic, industrial, aquaculture, mining, and livestock together were 10 percent of total water withdrawals estimated in this report.

Total estimates of State populations and withdrawals by source for 2015 are listed in table 1. The total estimated population in the United States in 2015 was 325 million, and total freshwater and saline-water withdrawals were estimated to be 322,000 Mgal/d, or 361,000 thousand acre-ft/yr. Freshwater withdrawals of 281,000 Mgal/d made up 87 percent of the total, and saline-water withdrawals made up the remaining 13 percent (41,000 Mgal/d). Most freshwater withdrawals were used for irrigation, and most saline-water withdrawals were seawater and brackish coastal water used for thermoelectric power. Total surface-water withdrawals were estimated to be 237,000 Mgal/d, or 74 percent of total withdrawals. About 84 percent (198,000 Mgal/d) of total surface-water withdrawals were freshwater. Total groundwater withdrawals were 84,700 Mgal/d, of which 97 percent (82,300 Mgal/d) was freshwater.

Total withdrawals by category and State are listed in table 2A, in million gallons per day, and in table 2B, in thousand acre-feet per year. A geographic representation of total withdrawals in the United States is shown in figure 2 with a stacked bar chart that illustrates a west to east representation of withdrawals by category and State. Total surface-water and groundwater, and total freshwater and saline-water, withdrawals by State are shown in figure 3.

Withdrawals for thermoelectric power were the largest nationwide (tables 2A and 2B) and are predominant in the east, whereas irrigation withdrawals are greatest in the west (fig. 2). Total withdrawals for thermoelectric power (133,000 Mgal/d) are mostly derived from freshwater sources (72 percent), and total freshwater withdrawals for thermoelectric power accounted for 34 percent of the total freshwater withdrawals for all categories nationwide. Total saline-water withdrawals for thermoelectric power accounted for about 92 percent of total saline-water withdrawals for all categories nationwide. Irrigation withdrawals (all freshwater) totaled 118,000 Mgal/d and accounted for 42 percent of total freshwater withdrawals for all categories nationwide. Total withdrawals for public supply (39,000 Mgal/d, and 99 percent freshwater) represented nearly 14 percent of the total freshwater withdrawals for all categories nationwide (table 2).

In 2015, more than 50 percent of the total withdrawals in the United States were accounted for by 12 States: California, Texas, Idaho, Florida, Arkansas, New York, Illinois, Colorado, North Carolina, Michigan, Montana, and Nebraska. Total

withdrawals in California accounted for about 9 percent of the total withdrawals for all categories nationwide. California's freshwater withdrawals were 9 percent of total freshwater withdrawals for all categories nationwide, predominantly for irrigation. Total withdrawals in Texas accounted for about 7 percent of total withdrawals for all categories nationwide, and its freshwater withdrawals accounted for about 7 percent of total freshwater withdrawals for all categories nationwide, predominantly for thermoelectric. Idaho's freshwater withdrawals for irrigation were the second largest nationwide, and aquaculture withdrawals (all freshwater) were the largest nationwide. Combined, these two categories of use in Idaho accounted for 6 percent of total freshwater withdrawals nationwide. Florida had the largest saline withdrawals and accounted for 23 percent of total saline withdrawals for all categories nationwide; Florida's saline surface-water withdrawals were used mostly for thermoelectric power. Florida, New York, and Maryland accounted for more than 50 percent of total saline surface-water withdrawals nationwide, predominantly for thermoelectric power. Texas and California accounted for about 60 percent of the total saline groundwater withdrawals nationwide, mostly for mining.

Water withdrawals by use and State are listed for surface water in tables 3A and 3B and for groundwater in tables 4A and 4B. In 2015, more surface water than groundwater was withdrawn for all categories of use except domestic, livestock, and mining; however, irrigation is nearly evenly split between surface water and groundwater. Thermoelectric power accounted for about 48 percent of the total fresh surface-water withdrawals and irrigation accounted for about 31 percent. The largest surface-water withdrawals were in Texas, Idaho, Florida, California, New York, and North Carolina, cumulatively accounting for about 29 percent of total surface-water withdrawals for all categories nationwide. Large quantities of fresh surface water were withdrawn for thermoelectric power in Texas, Illinois, Michigan, and Alabama. Large saline surface-water withdrawals for thermoelectric power occurred in Florida, New York, Maryland, and New Jersey, which cumulatively accounted for 61 percent of the national total saline surface-water withdrawals.

Of the total fresh groundwater withdrawals nationwide (82,300 Mgal/d), irrigation accounted for 70 percent, primarily in California, Arkansas, Nebraska, Idaho, and Texas. Fresh groundwater irrigation withdrawals in these five States cumulatively accounted for 46 percent of the total fresh groundwater withdrawals for all categories nationwide. Nearly all groundwater withdrawals (97 percent) were from freshwater, predominantly used for irrigation. Saline groundwater withdrawals were predominantly used for mining (80 percent) and occurred in Texas, California, and Oklahoma. Irrigation used greater than three times more fresh groundwater than public supply, which was the next largest use of fresh groundwater in the Nation.



Figure 1. Total water withdrawals by category, 2015.

Table 1. Total water withdrawals by source and State, 2015.

[Values may not sum to totals because of independent rounding]

State	Population (thousands)	Withdrawals (million gallons per day)									Withdrawals (thousand acre-feet per year)		
		By source and type									Total		
		Groundwater			Surface water			Total			Total		
		Fresh	Saline	Total	Fresh	Saline	Total	Fresh	Saline	Total	Fresh	Saline	Total
Alabama.....	4,860	501	0	501	7,750	0	7,750	8,250	0	8,250	9,250	0	9,250
Alaska.....	738	226	89.2	315	408	43.2	451	633	132	766	710	148	858
Arizona.....	6,830	2,760	0	2,760	3,220	0	3,220	5,980	0	5,980	6,700	0	6,700
Arkansas.....	2,980	9,590	0	9,590	4,250	0	4,250	13,800	0	13,800	15,500	0	15,500
California.....	39,100	17,100	359	17,400	8,540	2,800	11,300	25,600	3,160	28,800	28,700	3,550	32,200
Colorado.....	5,460	1,500	24.2	1,530	8,800	0	8,800	10,300	24.2	10,300	11,500	27.1	11,600
Connecticut.....	3,590	128	0	128	489	2,510	3,000	617	2,510	3,130	691	2,820	3,510
Delaware.....	946	170	0	170	364	256	620	534	256	790	598	287	886
District of Columbia ...	672	0	0	0	0.05	0	0.05	0.05	0	0.05	0.06	0	0.06
Florida.....	20,300	3,580	198	3,770	2,110	9,400	11,500	5,690	9,600	15,300	6,370	10,800	17,100
Georgia.....	10,200	1,150	0	1,150	2,130	102	2,230	3,280	102	3,380	3,680	114	3,790
Hawaii.....	1,430	338	20.2	359	344	357	702	683	377	1,060	766	423	1,190
Idaho.....	1,650	5,350	0	5,350	12,400	0	12,400	17,700	0	17,700	19,900	0	19,900
Illinois.....	12,900	870	21.0	891	9,600	0	9,600	10,500	21.0	10,500	11,700	23.5	11,800
Indiana.....	6,620	699	0	699	6,480	0	6,480	7,180	0	7,180	8,050	0	8,050
Iowa.....	3,120	630	0	630	2,060	0	2,060	2,690	0	2,690	3,010	0	3,010
Kansas.....	2,910	2,840	6.18	2,840	1,180	0	1,180	4,010	6.18	4,020	4,500	6.93	4,510
Kentucky.....	4,430	207	0	207	2,630	0	2,630	2,830	0	2,830	3,180	0	3,180
Louisiana.....	4,670	1,740	0	1,740	6,740	261	7,000	8,480	261	8,750	9,510	293	9,800
Maine.....	1,330	84.8	0	84.8	300	124	424	385	124	509	431	139	570
Maryland.....	6,010	295	0	295	935	5,300	6,230	1,230	5,300	6,530	1,380	5,940	7,320
Massachusetts.....	6,790	380	0	380	540	488	1,030	920	488	1,410	1,030	547	1,580
Michigan.....	9,920	766	0.58	767	9,290	0	9,290	10,100	0.58	10,100	11,300	0.65	11,300
Minnesota.....	5,490	776	0	776	2,450	0	2,450	3,230	0	3,230	3,620	0	3,620
Mississippi.....	2,990	2,240	12.9	2,260	427	2.07	429	2,670	15.0	2,690	2,990	16.8	3,010
Missouri.....	6,080	1,740	0	1,740	6,690	0	6,690	8,430	0	8,430	9,450	0	9,450
Montana.....	1,030	188	16.3	205	9,610	0	9,610	9,800	16.3	9,810	11,000	18.3	11,000
Nebraska.....	1,900	5,810	6.41	5,820	3,680	0	3,680	9,490	6.41	9,500	10,600	7.19	10,600
Nevada.....	2,890	1,360	82.2	1,440	1,520	0	1,520	2,880	82.2	2,960	3,230	92.2	3,320
New Hampshire.....	1,330	80.4	0	80.4	162	693	855	242	693	935	271	777	1,050
New Jersey.....	8,960	569	0	569	1,310	3,430	4,740	1,880	3,430	5,310	2,110	3,840	5,950
New Mexico.....	2,090	1,350	89.4	1,440	1,460	0	1,460	2,810	89.4	2,900	3,150	100	3,250
New York.....	19,800	890	0.95	890	4,420	5,480	9,910	5,310	5,480	10,800	5,960	6,150	12,100
North Carolina.....	10,000	520	0	520	8,400	1,360	9,750	8,920	1,360	10,300	10,000	1,520	11,500
North Dakota.....	757	187	15.1	202	1,190	0	1,190	1,380	15.1	1,400	1,550	16.9	1,560
Ohio.....	11,600	866	0	866	5,660	0	5,660	6,520	0	6,520	7,310	0	7,310
Oklahoma.....	3,910	960	155	1,110	848	0	848	1,810	155	1,960	2,030	173	2,200
Oregon.....	4,030	1,480	0	1,480	5,100	0	5,100	6,580	0	6,580	7,370	0	7,370
Pennsylvania.....	12,800	622	5.60	628	5,410	0	5,410	6,030	5.60	6,040	6,760	6.28	6,770
Rhode Island.....	1,060	32.7	0	32.7	88.8	222	311	122	222	343	136	249	385
South Carolina.....	4,900	365	0	365	5,810	0	5,810	6,170	0	6,170	6,920	0	6,920
South Dakota.....	881	238	0	238	162	0	162	400	0	400	448	0	448
Tennessee.....	6,600	430	0	430	5,990	0	5,990	6,420	0	6,420	7,200	0	7,200
Texas.....	27,500	6,170	1,030	7,200	12,700	1,360	14,100	18,900	2,390	21,300	21,200	2,670	23,800
Utah.....	3,000	1,050	93.2	1,150	2,820	257	3,080	3,880	350	4,230	4,340	392	4,740
Vermont.....	626	36.7	0	36.7	54.2	0	54.2	90.9	0	90.9	102	0	102
Virginia.....	8,380	284	14.3	298	4,030	2,400	6,430	4,310	2,420	6,730	4,830	2,710	7,540
Washington.....	7,170	1,530	0	1,530	2,730	0	2,730	4,260	0	4,260	4,770	0	4,770
West Virginia.....	1,840	130	4.57	134	2,190	0	2,190	2,320	4.57	2,320	2,600	5.12	2,600
Wisconsin.....	5,770	772	0	772	4,980	0	4,980	5,760	0	5,760	6,450	0	6,450
Wyoming.....	586	652	96.8	748	7,400	0	7,400	8,050	96.8	8,140	9,020	108	9,130
Puerto Rico.....	3,470	120	0	120	549	1,700	2,250	669	1,700	2,370	750	1,910	2,660
U.S. Virgin Islands.....	104	2.67	0	2.67	2.70	99.9	103	5.37	99.9	105	6.02	112	118
TOTAL	325,000	82,300	2,340	84,700	198,000	38,600	237,000	281,000	41,000	322,000	315,000	45,900	361,000

10 Estimated Use of Water in the United States in 2015

Table 2A. Total water withdrawals by water-use category, 2015, in million gallons per day.

[Values may not sum to totals because of independent rounding. Values for public supply and aquaculture include fresh and saline-water withdrawals]

State	Public supply	Domes- tic	Irriga- tion	Live- stock	Aqua- culture	Industrial		Mining		Thermoelectric power		Total		
	Total	Fresh	Fresh	Fresh	Total	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Total
Alabama	762	36.7	223	26.2	49.4	494	0	30.2	0	6,630	0	8,250	0	8,250
Alaska	99.2	11.4	1.52	0.13	410	8.35	1.83	36.4	131	66.7	0	633	132	766
Arizona	1,200	24.0	4,530	38.9	34.5	6.12	0	68.3	0	83.5	0	5,980	0	5,980
Arkansas.....	363	12.8	11,600	34.1	251	157	0	3.07	0	1,440	0	13,800	0	13,800
California	5,150	127	19,000	183	727	399	0	45.8	272	36.4	2,840	25,600	3,160	28,800
Colorado.....	844	35.4	9,000	33.3	260	84.1	0	7.70	24.2	37.2	0	10,300	24.2	10,300
Connecticut	240	30.8	11.3	1.15	25.2	181	41.6	4.25	0	126	2,470	617	2,510	3,130
Delaware	86.4	14.5	113	1.34	1.98	302	0	0.65	0	14.4	256	534	256	790
District of Columbia	0	0	0.05	0	0	0	0	0	0	0	0	0.05	0	0.05
Florida.....	2,380	177	2,450	26.1	15.0	245	1.08	130	0	434	9,420	5,690	9,600	15,300
Georgia.....	1,070	104	738	44.9	85.1	475	0	19.8	0	741	102	3,280	102	3,380
Hawaii.....	267	8.10	385	1.61	18.6	0.24	0	0.92	0	1.48	377	683	377	1,060
Idaho.....	276	70.2	15,300	50.8	1,960	57.6	0	23.1	0	1.79	0	17,700	0	17,700
Illinois.....	1,480	92.1	234	36.2	10.7	431	0	55.0	21.0	8,140	0	10,500	21.0	10,500
Indiana.....	628	127	133	39.2	14.5	2,290	0	126	0	3,820	0	7,180	0	7,180
Iowa.....	390	32.0	35.0	165	19.7	288	0	75.5	0	1,680	0	2,690	0	2,690
Kansas.....	351	17.7	2,680	104	6.39	38.1	0	5.99	0	817	0	4,010	6.18	4,020
Kentucky.....	553	22.1	39.6	40.8	48.4	225	0	40.6	0	1,860	0	2,830	0	2,830
Louisiana.....	709	39.3	1,050	6.35	493	2,140	0	6.24	0	4,040	261	8,480	261	8,750
Maine.....	85.0	31.6	18.9	2.05	54.0	182	42.9	6.33	0	5.30	80.7	385	124	509
Maryland.....	750	114	64.1	8.00	7.98	49.4	1.37	16.8	0	220	5,300	1,230	5,300	6,530
Massachusetts	648	35.1	139	1.03	9.93	27.9	0	9.60	0	50.1	487	920	488	1,410
Michigan.....	1,030	187	332	23.7	73.8	518	0	85.7	0.58	7,800	0	10,100	0.58	10,100
Minnesota.....	515	82.2	276	58.9	16.5	259	0	9.20	0	2,010	0	3,230	0	3,230
Mississippi.....	400	48.1	1,770	17.1	127	182	0	9.45	6.58	118	8.42	2,670	15.0	2,690
Missouri.....	797	57.5	1,370	63.7	164	85.2	0	29.6	0	5,860	0	8,430	0	8,430
Montana.....	153	23.7	9,450	42.2	17.1	9.67	0	21.6	16.3	75.7	0	9,800	16.3	9,810
Nebraska.....	275	19.0	6,090	110	26.5	44.3	0	9.60	6.41	2,920	0	9,490	6.41	9,500
Nevada.....	531	35.8	2,070	4.94	34.0	5.71	0	195	11.3	8.73	70.9	2,880	82.2	2,960
New Hampshire.....	95.5	29.7	5.20	0.84	17.2	12.6	0	6.13	0	74.8	693	242	693	935
New Jersey.....	1,180	90.7	93.9	0.88	9.78	94.1	0	58.3	0	361	3,430	1,880	3,430	5,310
New Mexico.....	262	24.6	2,370	32.0	24.1	3.40	0	56.8	89.4	33.5	0	2,810	89.4	2,900
New York.....	2,420	187	53.5	25.7	60.4	312	8.43	40.2	0.95	2,210	5,470	5,310	5,480	10,800
North Carolina.....	938	169	325	66.5	1,000	193	0	38.3	0	6,180	1,360	8,920	1,360	10,300
North Dakota.....	84.2	3.69	233	20.8	5.32	19.6	0	30.7	15.1	983	0	1,380	15.1	1,400
Ohio.....	1,310	139	55.0	24.6	39.3	348	0	129	0	4,480	0	6,520	0	6,520
Oklahoma.....	611	30.3	931	70.6	3.29	52.0	0	37.4	155	71.7	0	1,810	155	1,960
Oregon.....	567	73.9	5,160	16.3	634	105	0	11.3	0	11.4	0	6,580	0	6,580
Pennsylvania.....	1,390	208	34.3	39.5	96.0	645	0	38.1	5.60	3,580	0	6,030	5.60	6,040
Rhode Island.....	97.5	6.57	4.25	0.12	6.81	2.05	0.03	2.92	0	1.33	222	122	222	343
South Carolina.....	633	118	126	9.87	6.69	286	0	10.1	0	4,980	0	6,170	0	6,170
South Dakota.....	72.0	5.56	211	47.9	28.5	24.4	0	8.65	0	2.39	0	400	0	400
Tennessee.....	850	42.8	63.8	23.4	56.9	734	0	31.4	0	4,620	0	6,420	0	6,420
Texas.....	2,890	137	5,490	276	23.2	323	601	131	1,000	9,640	757	18,900	2,390	21,300
Utah.....	627	10.4	3,030	15.9	83.1	54.2	79.0	3.47	258	61.0	8.46	3,880	350	4,230
Vermont.....	42.7	11.0	3.11	5.87	12.0	11.0	0	4.56	0	0.80	0	90.9	0	90.9
Virginia.....	697	125	51.7	27.0	113	370	5.15	24.9	0	2,910	2,400	4,310	2,420	6,730
Washington.....	867	110	2,520	29.7	245	412	0	17.0	0	52.2	0	4,260	0	4,260
West Virginia.....	185	31.3	4.15	5.08	39.3	424	3.05	53.3	1.52	1,570	0	2,320	4.57	2,320
Wisconsin.....	479	76.4	460	74.5	48.2	382	0	29.3	0	4,210	0	5,760	0	5,760
Wyoming.....	101	8.93	7,790	16.2	28.8	8.04	0	44.5	96.8	51.8	0	8,050	96.8	8,140
Puerto Rico.....	576	0.52	75.7	5.83	0.63	3.67	0	2.02	0	4.65	1,700	669	1,700	2,370
U.S. Virgin Islands.....	4.27	3.78	0	0.02	0	0.52	0	0	0.02	0.14	96.5	5.37	99.9	105
TOTAL	39,000	3,260	118,000	2,000	7,550	14,000	786	1,880	2,120	95,100	37,800	281,000	41,000	322,000

Table 2B. Total water withdrawals by water-use category, 2015, in thousand acre-feet per year.

[Values may not sum to totals because of independent rounding. Values for public supply and aquaculture include fresh and saline-water withdrawals]

State	Public supply	Domes- tic	Irriga- tion	Live- stock	Aqua- culture	Industrial		Mining		Thermoelectric power		Total		
	Total	Fresh	Fresh	Fresh	Total	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Total
Alabama.....	854	41.1	250	29.4	55.4	554	0	33.9	0	7,430	0	9,250	0	9,250
Alaska.....	111	12.8	1.70	0.15	459	9.36	2.05	40.8	146	74.8	0	710	148	858
Arizona.....	1,340	26.9	5,080	43.6	38.7	6.86	0	76.6	0	93.6	0	6,700	0	6,700
Arkansas.....	407	14.4	13,000	38.2	282	176	0	3.44	0	1,620	0	15,500	0	15,500
California.....	5,770	142	21,300	205	815	447	0	51.3	305	40.8	3,180	28,700	3,550	32,200
Colorado.....	946	39.6	10,100	37.3	292	94.2	0	8.63	27.1	41.7	0	11,500	27.1	11,600
Connecticut.....	269	34.6	12.7	1.29	28.2	203	46.7	4.76	0	142	2,770	691	2,820	3,510
Delaware.....	96.8	16.3	127	1.50	2.22	338	0	0.73	0	16.1	287	598	287	886
District of Columbia ...	0	0	0.06	0	0	0	0	0	0	0	0	0.06	0	0.06
Florida.....	2,670	198	2,740	29.2	16.8	275	1.21	146	0	487	10,600	6,370	10,800	17,100
Georgia.....	1,200	117	827	50.3	95.4	533	0	22.2	0	831	114	3,680	114	3,790
Hawaii.....	299	9.08	432	1.80	20.9	0.27	0	1.03	0	1.66	423	766	423	1,190
Idaho.....	309	78.6	17,100	56.9	2,200	64.6	0	25.9	0	2.01	0	19,900	0	19,900
Illinois.....	1,650	103	262	40.6	12.0	483	0	61.7	23.5	9,120	0	11,700	23.5	11,800
Indiana.....	704	143	149	43.9	16.2	2,560	0	141	0	4,280	0	8,050	0	8,050
Iowa.....	438	35.8	39.2	185	22.1	322	0	84.7	0	1,890	0	3,010	0	3,010
Kansas.....	394	19.8	3,000	117	7.16	42.7	0	6.71	0	916	0	4,500	6.93	4,510
Kentucky.....	620	24.8	44.3	45.7	54.3	252	0	45.5	0	2,090	0	3,180	0	3,180
Louisiana.....	795	44.1	1,180	7.12	553	2,400	0	7.00	0	4,520	293	9,510	293	9,800
Maine.....	95.2	35.5	21.2	2.30	60.5	204	48.1	7.10	0	5.94	90.4	431	139	570
Maryland.....	840	128	71.8	8.97	8.95	55.4	1.54	18.8	0	247	5,940	1,380	5,940	7,320
Massachusetts.....	726	39.4	155	1.15	11.1	31.2	0	10.8	0	56.2	546	1,030	547	1,580
Michigan.....	1,160	210	372	26.6	82.8	581	0	96.0	0.65	8,750	0	11,300	0.65	11,300
Minnesota.....	578	92.2	310	66.0	18.5	290	0	10.3	0	2,260	0	3,620	0	3,620
Mississippi.....	449	54.0	1,980	19.2	142	204	0	10.6	7.38	132	9.44	2,990	16.8	3,010
Missouri.....	894	64.4	1,540	71.4	184	95.5	0	33.1	0	6,560	0	9,450	0	9,450
Montana.....	172	26.6	10,600	47.3	19.2	10.8	0	24.2	18.3	84.8	0	11,000	18.3	11,000
Nebraska.....	308	21.3	6,830	123	29.7	49.6	0	10.8	7.19	3,270	0	10,600	7.19	10,600
Nevada.....	596	40.1	2,320	5.54	38.2	6.40	0	219	12.6	9.79	79.5	3,230	92.2	3,320
New Hampshire.....	107	33.3	5.83	0.94	19.2	14.2	0	6.87	0	83.9	777	271	777	1,050
New Jersey.....	1,320	102	105	0.99	11.0	106	0	65.3	0	404	3,840	2,110	3,840	5,950
New Mexico.....	293	27.6	2,660	35.9	27.0	3.81	0	63.7	100	37.5	0	3,150	100	3,250
New York.....	2,720	210	60.0	28.8	67.7	350	9.45	45.1	1.06	2,480	6,140	5,960	6,150	12,100
North Carolina.....	1,050	189	364	74.6	1,120	217	0	42.9	0	6,930	1,520	10,000	1,520	11,500
North Dakota.....	94.4	4.14	261	23.3	5.96	22.0	0	34.4	16.9	1,100	0	1,550	16.9	1,560
Ohio.....	1,460	156	61.6	27.6	44.1	390	0	145	0	5,030	0	7,310	0	7,310
Oklahoma.....	685	34.0	1,040	79.2	3.69	58.3	0	42.0	173	80.4	0	2,030	173	2,200
Oregon.....	636	82.8	5,780	18.2	710	117	0	12.7	0	12.7	0	7,370	0	7,370
Pennsylvania.....	1,560	233	38.5	44.3	108	723	0	42.7	6.28	4,010	0	6,760	6.28	6,770
Rhode Island.....	109	7.36	4.76	0.13	7.63	2.30	0.03	3.27	0	1.49	249	136	249	385
South Carolina.....	710	133	141	11.1	7.50	321	0	11.3	0	5,580	0	6,920	0	6,920
South Dakota.....	80.7	6.23	236	53.6	31.9	27.4	0	9.70	0	2.68	0	448	0	448
Tennessee.....	952	48.0	71.6	26.3	63.8	822	0	35.2	0	5,180	0	7,200	0	7,200
Texas.....	3,230	153	6,150	309	26.0	362	674	147	1,130	10,800	849	21,200	2,670	23,800
Utah.....	702	11.6	3,390	17.8	93.1	60.7	88.5	3.89	289	68.4	9.48	4,340	392	4,740
Vermont.....	47.8	12.3	3.49	6.58	13.5	12.3	0	5.11	0	0.90	0	102	0	102
Virginia.....	782	140	57.9	30.3	127	415	5.77	27.9	0	3,270	2,690	4,830	2,710	7,540
Washington.....	971	123	2,830	33.3	275	462	0	19.1	0	58.5	0	4,770	0	4,770
West Virginia.....	207	35.1	4.65	5.69	44.1	476	3.42	59.8	1.70	1,760	0	2,600	5.12	2,600
Wisconsin.....	537	85.7	515	83.5	54.0	429	0	32.8	0	4,710	0	6,450	0	6,450
Wyoming.....	114	10.0	8,730	18.1	32.3	9.01	0	49.8	108	58.1	0	9,020	108	9,130
Puerto Rico.....	646	0.58	84.8	6.54	0.71	4.11	0	2.26	0	5.21	1,910	750	1,910	2,660
U.S. Virgin Islands.....	4.79	4.24	0	0.02	0	0.58	0	0	0.02	0.16	108	6.02	112	118
TOTAL	43,700	3,650	132,000	2,240	8,460	15,700	881	2,110	2,370	107,000	42,400	315,000	45,900	361,000

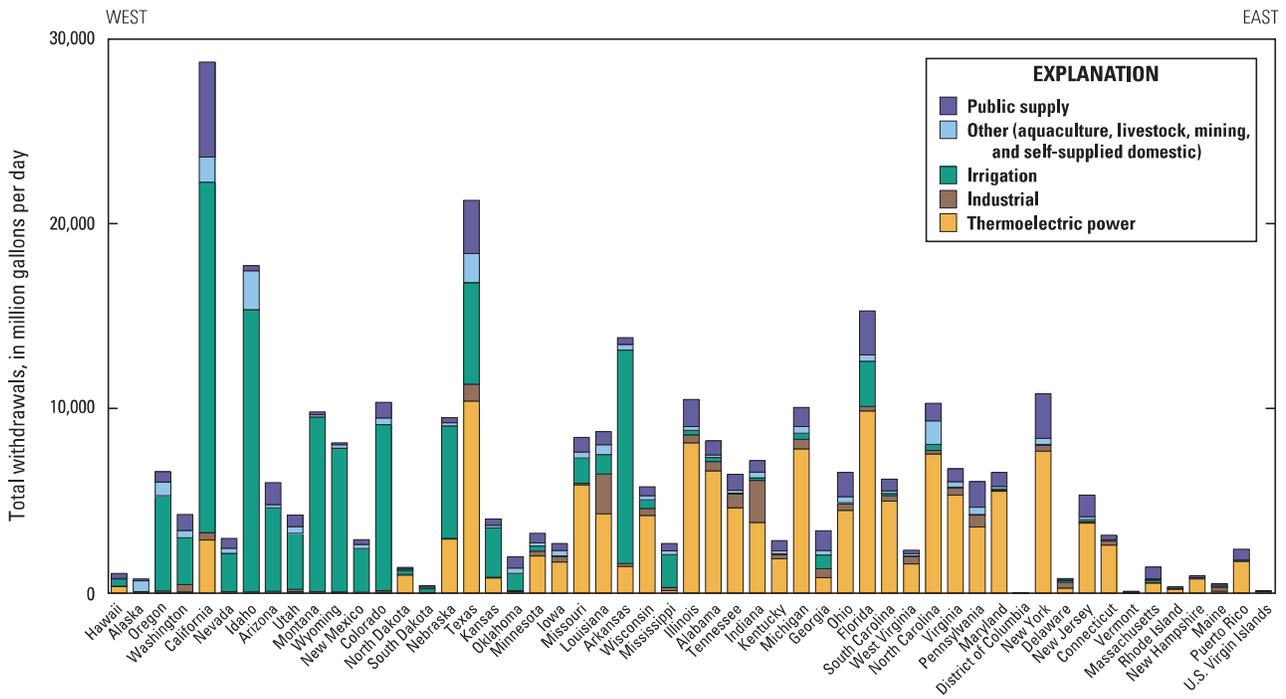
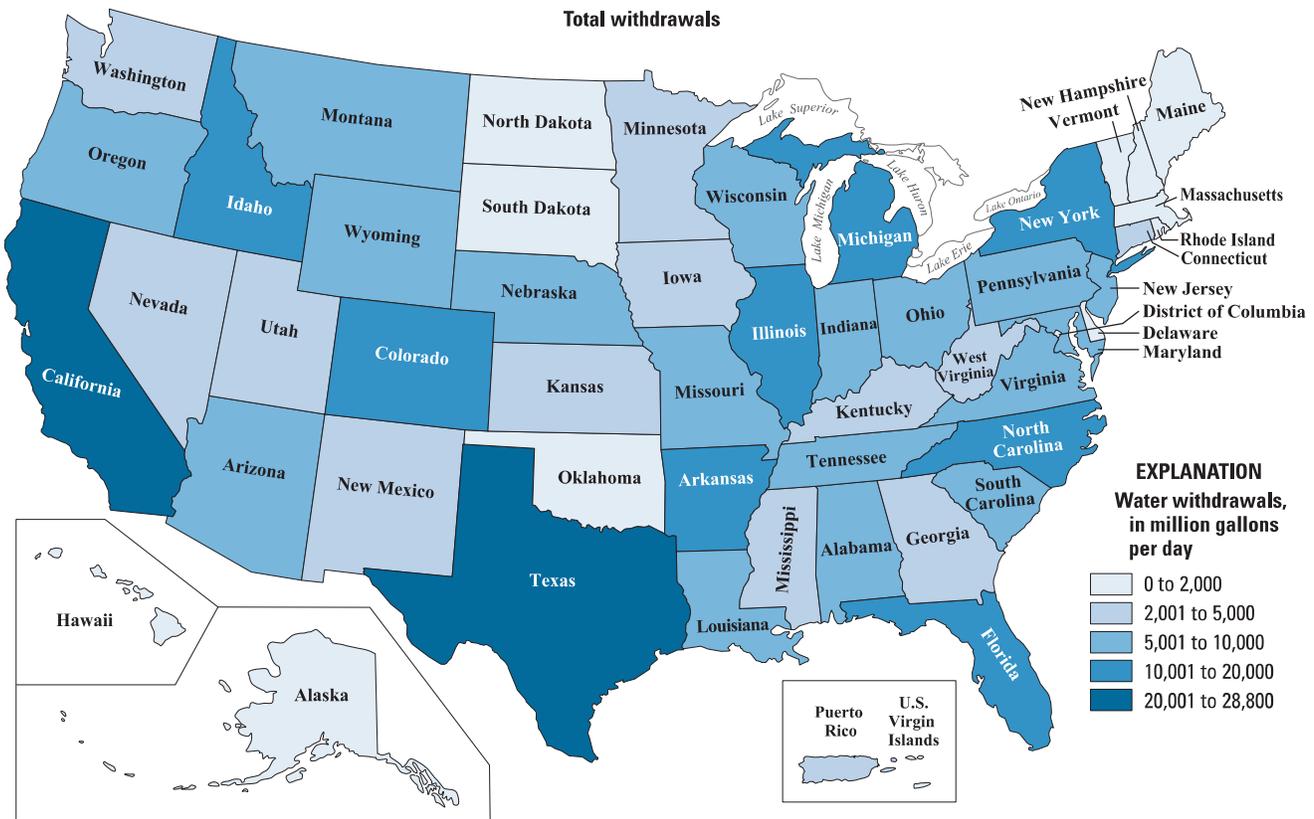


Figure 2. Total water withdrawals by State, and bar chart showing categories by State from west to east, 2015.

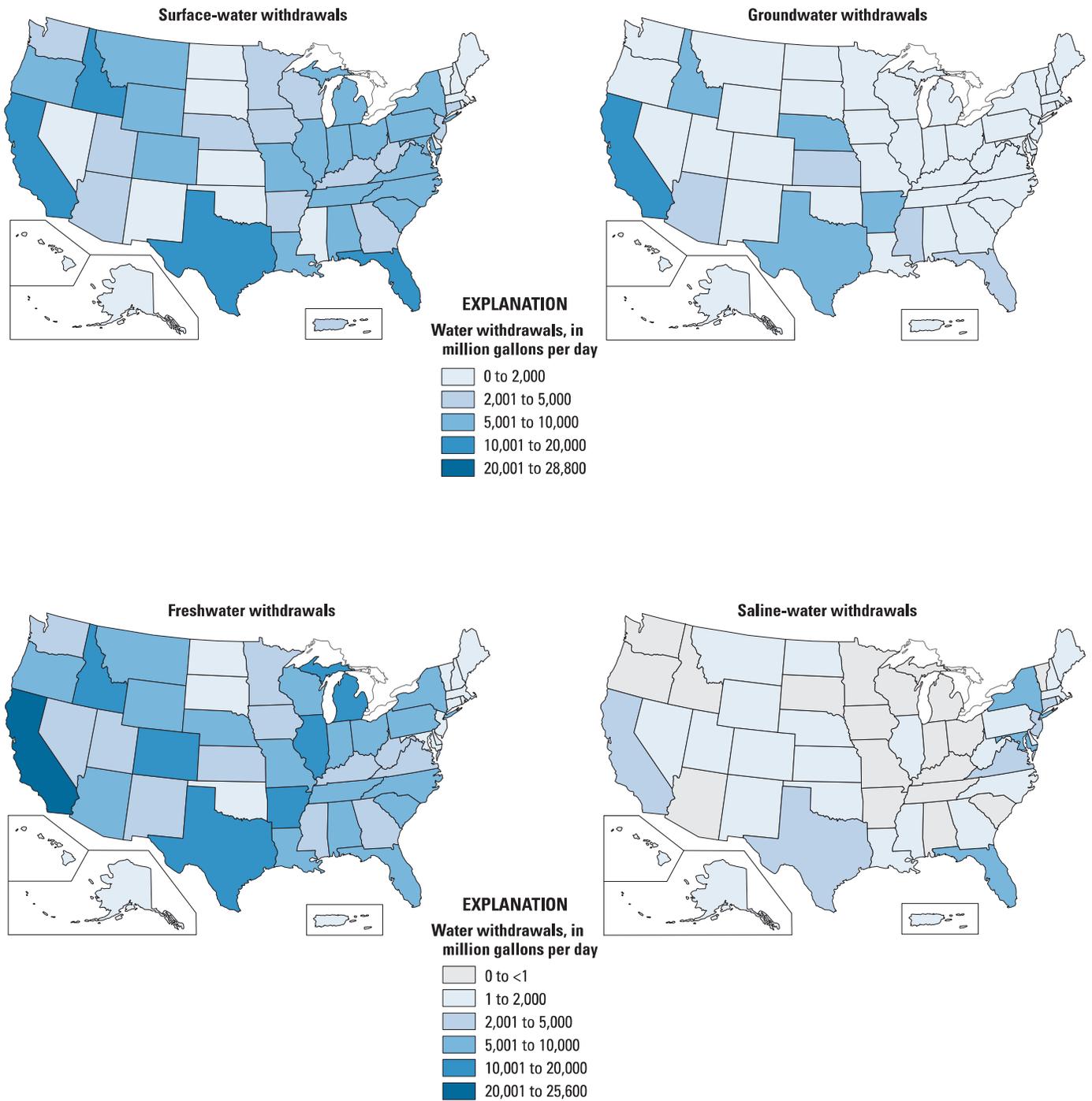


Figure 3. Surface-water and groundwater withdrawals, and freshwater and saline-water withdrawals, 2015.

14 Estimated Use of Water in the United States in 2015

Table 3A. Surface-water withdrawals by water-use category, 2015, in million gallons per day.

[Values may not sum to totals because of independent rounding. Values for public supply and aquaculture include fresh and saline-water withdrawals]

State	Public supply	Domes- tic	Irriga- tion	Live- stock	Aqua- culture	Industrial		Mining		Thermoelectric power		Total		
	Total	Fresh	Fresh	Fresh	Total	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Total
Alabama.....	490	0	124	14.7	22.2	461	0	8.45	0	6,630	0	7,750	0	7,750
Alaska.....	61.4	1.59	0.02	0.09	240	1.65	1.83	36.4	41.4	66.1	0	408	43.2	451
Arizona.....	626	0	2,560	0	10.7	0	0	0	0	25.8	0	3,220	0	3,220
Arkansas.....	269	0	2,290	20.5	98.9	127	0	2.93	0	1,440	0	4,250	0	4,250
California.....	2,780	18.5	5,130	101	480	1.13	0	15.6	0.01	16.7	2,800	8,540	2,800	11,300
Colorado.....	735	0	7,690	10.6	244	79.9	0	2.46	0	34.1	0	8,800	0	8,800
Connecticut.....	197	0	8.29	0	16.0	141	41.6	3.43	0	126	2,470	489	2,510	3,000
Delaware.....	40.6	0	17.5	0	0	291	0	0.31	0	14.3	256	364	256	620
District of Columbia ...	0	0	0.05	0	0	0	0	0	0	0	0	0.05	0	0.05
Florida.....	307	0	1,290	0.35	2.10	63.6	1.08	40.7	0	406	9,400	2,110	9,400	11,500
Georgia.....	839	0	175	17.4	70.6	283	0	3.89	0	738	102	2,130	102	2,230
Hawaii.....	14.6	7.44	311	1.10	10.0	0	0	0.03	0	0	357	344	357	702
Idaho.....	29.2	0	10,400	9.57	1,920	12.7	0	21.8	0	0	0	12,400	0	12,400
Illinois.....	1,110	0	14.6	0	5.47	299	0	40.4	0	8,130	0	9,600	0	9,600
Indiana.....	288	0	40.0	13.0	8.00	2,210	0	121	0	3,800	0	6,480	0	6,480
Iowa.....	76.8	0	2.84	41.0	12.2	195	0	74.4	0	1,660	0	2,060	0	2,060
Kansas.....	214	0	122	20.4	3.23	7.63	0	0.55	0	809	0	1,180	0	1,180
Kentucky.....	465	7.63	36.7	38.7	47.8	148	0	22.9	0	1,860	0	2,630	0	2,630
Louisiana.....	355	0	333	3.19	156	1,890	0	4.59	0	4,000	261	6,740	261	7,000
Maine.....	57.5	0	13.8	0.51	43.1	176	42.9	4.88	0	4.38	80.7	300	124	424
Maryland.....	656	0	15.8	2.15	2.07	38.6	1.37	3.09	0	218	5,300	935	5,300	6,230
Massachusetts.....	449	0	24.1	0.39	1.80	12.7	0	4.09	0	49.0	487	540	488	1,030
Michigan.....	821	0	70.6	2.33	72.8	453	0	69.7	0	7,800	0	9,290	0	9,290
Minnesota.....	179	0	33.9	0	14.8	210	0	5.57	0	2,010	0	2,450	0	2,450
Mississippi.....	53.4	0	130	10.3	39.3	109	0	1.24	0	84.0	2.07	427	2.07	429
Missouri.....	516	0	75.3	47.6	157	42.8	0	8.47	0	5,840	0	6,690	0	6,690
Montana.....	69.9	1.12	9,390	29.9	13.6	4.45	0	20.5	0	74.9	0	9,610	0	9,610
Nebraska.....	57.2	0	674	20.4	16.0	2.32	0	9.54	0	2,900	0	3,680	0	3,680
Nevada.....	390	0	1,090	0	22.4	4.69	0	8.13	0	1.69	0	1,520	0	1,520
New Hampshire.....	60.1	0	4.11	0.21	10.7	8.41	0	4.37	0	73.7	693	162	693	855
New Jersey.....	797	0	38.8	0	0	64.1	0	56.8	0	358	3,430	1,310	3,430	4,740
New Mexico.....	78.3	0	1,320	2.25	5.45	0	0	17.4	0	27.3	0	1,460	0	1,460
New York.....	1,810	0	35.7	8.89	49.5	283	8.43	34.6	0	2,200	5,470	4,420	5,480	9,910
North Carolina.....	780	0	241	14.6	990	178	0	8.26	0	6,180	1,360	8,400	1,360	9,750
North Dakota.....	48.8	0	130	8.30	5.32	13.5	0	4.50	0	983	0	1,190	0	1,190
Ohio.....	857	2.72	37.1	16.8	26.0	210	0	37.6	0	4,470	0	5,660	0	5,660
Oklahoma.....	509	0	144	43.3	3.23	44.7	0	33.2	0	70.2	0	848	0	848
Oregon.....	420	7.54	3,940	13.2	601	101	0	2.85	0	9.79	0	5,100	0	5,100
Pennsylvania.....	1,160	0	16.8	3.17	47.2	599	0	5.21	0	3,570	0	5,410	0	5,410
Rhode Island.....	83.7	0	0.47	0.01	0.09	1.51	0.03	1.74	0	1.33	222	88.8	222	311
South Carolina.....	518	0	38.3	5.51	6.08	260	0	1.79	0	4,980	0	5,810	0	5,810
South Dakota.....	24.0	0	71.2	28.6	24.9	6.04	0	5.06	0	2.39	0	162	0	162
Tennessee.....	594	0	27.4	11.5	45.2	682	0	14.2	0	4,620	0	5,990	0	5,990
Texas.....	1,710	0	1,010	137	11.6	223	598	15.9	0.01	9,600	757	12,700	1,360	14,100
Utah.....	267	0	2,490	8.44	0	16.8	42.4	1.80	214	38.3	0	2,820	257	3,080
Vermont.....	28.8	0	2.09	1.46	7.84	9.46	0	4.33	0	0.26	0	54.2	0	54.2
Virginia.....	614	0	43.8	20.5	113	304	5.15	18.7	0	2,910	2,400	4,030	2,400	6,430
Washington.....	345	0	1,800	8.82	194	329	0	3.61	0	44.4	0	2,730	0	2,730
West Virginia.....	147	0	3.75	3.38	31.2	399	0	29.5	0	1,570	0	2,190	0	2,190
Wisconsin.....	214	0	173	7.44	22.6	336	0	28.8	0	4,200	0	4,980	0	4,980
Wyoming.....	46.8	0	7,250	10.0	23.9	2.21	0	11.4	0	50.5	0	7,400	0	7,400
Puerto Rico.....	510	0	34.1	1.60	0.63	0	0	0.18	0	2.83	1,700	549	1,700	2,250
U.S. Virgin Islands.....	3.36	2.55	0	0.01	0	0	0	0	0.02	0.14	96.5	2.70	99.9	103
TOTAL	23,800	49.1	60,900	760	5,950	11,300	743	877	256	94,700	37,600	198,000	38,600	237,000

Table 3B. Surface-water withdrawals by water-use category, 2015, in thousand acre-feet per year.

[Values may not sum to totals because of independent rounding. Values for public supply and aquaculture include fresh and saline-water withdrawals]

State	Public supply	Domes- tic	Irriga- tion	Live- stock	Aqua- culture	Industrial		Mining		Thermoelectric power		Total		
	Total	Fresh	Fresh	Fresh	Total	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Total
Alabama.....	549	0	139	16.4	24.8	517	0	9.47	0	7,430	0	8,680	0	8,680
Alaska.....	68.8	1.78	0.02	0.10	269	1.85	2.05	40.8	46.4	74.1	0	457	48.4	505
Arizona.....	702	0	2,870	0	12.0	0	0	0	0	28.9	0	3,610	0	3,610
Arkansas.....	301	0	2,560	23.0	111	143	0	3.28	0	1,620	0	4,760	0	4,760
California.....	3,120	20.8	5,750	113	538	1.27	0	17.4	0.01	18.8	3,140	9,580	3,140	12,700
Colorado.....	824	0	8,620	11.8	274	89.5	0	2.76	0	38.3	0	9,860	0	9,860
Connecticut.....	221	0	9.29	0	18.0	158	46.7	3.85	0	142	2,770	548	2,820	3,360
Delaware.....	45.5	0	19.6	0	0	326	0	0.35	0	16.0	287	408	287	695
District of Columbia ...	0	0	0.06	0	0	0	0	0	0	0	0	0.06	0	0.06
Florida.....	344	0	1,450	0.39	2.35	71.3	1.21	45.7	0	455	10,500	2,370	10,500	12,900
Georgia.....	941	0	196	19.5	79.1	317	0	4.36	0	827	114	2,380	114	2,500
Hawaii.....	16.4	8.34	349	1.23	11.2	0	0	0.03	0	0	400	386	400	787
Idaho.....	32.7	0	11,600	10.7	2,150	14.2	0	24.4	0	0	0	13,900	0	13,900
Illinois.....	1,240	0	16.3	0	6.13	335	0	45.3	0	9,120	0	10,800	0	10,800
Indiana.....	323	0	44.8	14.5	8.97	2,470	0	135	0	4,260	0	7,260	0	7,260
Iowa.....	86.1	0	3.18	46.0	13.7	218	0	83.4	0	1,860	0	2,310	0	2,310
Kansas.....	240	0	136	22.9	3.62	8.55	0	0.62	0	907	0	1,320	0	1,320
Kentucky.....	522	8.55	41.2	43.4	53.6	166	0	25.7	0	2,080	0	2,940	0	2,940
Louisiana.....	398	0	373	3.58	175	2,120	0	5.15	0	4,480	293	7,560	293	7,850
Maine.....	64.5	0	15.5	0.57	48.3	198	48.1	5.47	0	4.91	90.4	336	139	475
Maryland.....	735	0	17.7	2.41	2.32	43.3	1.54	3.46	0	244	5,940	1,050	5,940	6,990
Massachusetts.....	503	0	27.0	0.44	2.02	14.2	0	4.58	0	55.0	546	605	547	1,150
Michigan.....	920	0	79.2	2.61	81.6	508	0	78.1	0	8,740	0	10,400	0	10,400
Minnesota.....	201	0	38.0	0	16.6	235	0	6.24	0	2,250	0	2,750	0	2,750
Mississippi.....	59.8	0	145	11.5	44.1	122	0	1.39	0	94.2	2.32	479	2.32	481
Missouri.....	578	0	84.4	53.3	176	48.0	0	9.49	0	6,550	0	7,500	0	7,500
Montana.....	78.3	1.26	10,500	33.5	15.3	4.99	0	23.0	0	84.0	0	10,800	0	10,800
Nebraska.....	64.2	0	755	22.9	17.9	2.60	0	10.7	0	3,250	0	4,130	0	4,130
Nevada.....	437	0	1,230	0	25.1	5.26	0	9.11	0	1.89	0	1,700	0	1,700
New Hampshire.....	67.4	0	4.61	0.24	12.0	9.43	0	4.90	0	82.6	777	181	777	958
New Jersey.....	893	0	43.5	0	0	71.8	0	63.6	0	402	3,840	1,470	3,840	5,310
New Mexico.....	87.8	0	1,490	2.52	6.11	0	0	19.6	0	30.6	0	1,630	0	1,630
New York.....	2,030	0	40.0	9.97	55.4	317	9.45	38.8	0	2,470	6,140	4,960	6,150	11,100
North Carolina.....	875	0	270	16.3	1,110	200	0	9.26	0	6,930	1,520	9,410	1,520	10,900
North Dakota.....	54.7	0	146	9.30	5.96	15.1	0	5.04	0	1,100	0	1,340	0	1,340
Ohio.....	960	3.05	41.6	18.8	29.2	235	0	42.2	0	5,010	0	6,340	0	6,340
Oklahoma.....	571	0	161	48.5	3.62	50.1	0	37.2	0	78.6	0	950	0	950
Oregon.....	471	8.45	4,420	14.8	674	114	0	3.19	0	11.0	0	5,710	0	5,710
Pennsylvania.....	1,310	0	18.9	3.55	52.9	671	0	5.84	0	4,000	0	6,060	0	6,060
Rhode Island.....	93.8	0	0.53	0.01	0.10	1.69	0.03	1.95	0	1.49	249	99.6	249	348
South Carolina.....	581	0	43.0	6.18	6.82	292	0	2.01	0	5,580	0	6,510	0	6,510
South Dakota.....	26.9	0	79.8	32.0	27.9	6.77	0	5.67	0	2.68	0	182	0	182
Tennessee.....	666	0	30.7	12.9	50.7	765	0	16.0	0	5,180	0	6,720	0	6,720
Texas.....	1,920	0	1,140	154	13.0	250	670	17.8	0.01	10,800	849	14,300	1,520	15,800
Utah.....	300	0	2,790	9.46	0	18.8	47.5	2.02	240	42.9	0	3,160	288	3,450
Vermont.....	32.2	0	2.34	1.64	8.79	10.6	0	4.85	0	0.29	0	60.8	0	60.8
Virginia.....	689	0	49.0	23.0	127	341	5.77	20.9	0	3,270	2,690	4,520	2,690	7,210
Washington.....	387	0	2,020	9.89	218	369	0	4.05	0	49.8	0	3,060	0	3,060
West Virginia.....	165	0	4.20	3.79	35.0	447	0	33.1	0	1,760	0	2,450	0	2,450
Wisconsin.....	240	0	194	8.34	25.4	376	0	32.3	0	4,710	0	5,590	0	5,590
Wyoming.....	52.5	0	8,130	11.2	26.8	2.48	0	12.7	0	56.6	0	8,290	0	8,290
Puerto Rico.....	571	0	38.2	1.79	0.71	0	0	0.20	0	3.17	1,910	616	1,910	2,520
U.S. Virgin Islands.....	3.77	2.86	0	0.01	0	0	0	0	0.02	0.16	108	3.03	112	115
TOTAL	26,700	55.0	68,300	852	6,670	12,700	833	983	287	106,000	42,200	222,000	43,300	266,000

16 Estimated Use of Water in the United States in 2015

Table 4A. Groundwater withdrawals by water-use category, 2015, in million gallons per day.

[Values may not sum to totals because of independent rounding. Values for public supply and aquaculture include fresh and saline-water withdrawals]

State	Public supply	Domes- tic	Irriga- tion	Live- stock	Aqua- culture	Industrial		Mining		Thermoelectric power		Total		
	Total	Fresh	Fresh	Fresh	Total	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Total
Alabama.....	272	36.7	98.8	11.5	27.2	32.7	0	21.8	0	0	0	501	0	501
Alaska.....	37.8	9.83	1.50	0.04	169	6.70	0	0	89.2	0.63	0	226	89.2	315
Arizona.....	569	24.0	1,970	38.9	23.8	6.12	0	68.3	0	57.7	0	2,760	0	2,760
Arkansas.....	94.2	12.8	9,280	13.6	152	29.5	0	0.14	0	3.13	0	9,590	0	9,590
California.....	2,370	108	13,900	82.0	247	397	0	30.2	272	19.6	35.1	17,100	359	17,400
Colorado.....	109	35.4	1,310	22.7	16.0	4.22	0	5.24	24.2	3.03	0	1,500	24.2	1,530
Connecticut.....	43.0	30.8	3.02	1.15	9.15	40.1	0	0.82	0	0	0	128	0	128
Delaware.....	45.8	14.5	95.4	1.34	1.98	10.7	0	0.34	0	0.13	0	170	0	170
District of Columbia ...	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Florida.....	2,080	177	1,150	25.7	12.8	181	0	89.1	0	27.8	28.5	3,580	198	3,770
Georgia.....	231	104	564	27.5	14.5	193	0	15.9	0	3.43	0	1,150	0	1,150
Hawaii.....	252	0.66	73.8	0.51	8.58	0.24	0	0.89	0	1.48	20.2	338	20.2	359
Idaho.....	247	70.2	4,900	41.2	46.2	45.0	0	1.35	0	1.79	0	5,350	0	5,350
Illinois.....	367	92.1	219	36.2	5.23	132	0	14.6	21.0	4.21	0	870	21.0	891
Indiana.....	339	127	93.1	26.2	6.46	79.9	0	5.52	0	20.8	0	699	0	699
Iowa.....	314	32.0	32.2	124	7.46	92.8	0	1.08	0	27.0	0	630	0	630
Kansas.....	137	17.7	2,560	83.5	3.16	30.5	0	5.44	0	7.81	0	2,840	6.18	2,840
Kentucky.....	87.4	14.5	2.84	2.07	0.58	77.3	0	17.6	0	4.96	0	207	0	207
Louisiana.....	354	39.3	720	3.16	337	250	0	1.65	0	37.0	0	1,740	0	1,740
Maine.....	27.5	31.6	5.06	1.54	10.9	5.83	0	1.45	0	0.92	0	84.8	0	84.8
Maryland.....	93.9	114	48.3	5.85	5.91	10.8	0	13.7	0	2.30	0	295	0	295
Massachusetts.....	199	35.1	114	0.64	8.13	15.2	0	5.51	0	1.10	0	380	0	380
Michigan.....	209	187	261	21.4	1.06	64.6	0	16.0	0.58	5.61	0	766	0.58	767
Minnesota.....	336	82.2	242	58.9	1.72	49.0	0	3.63	0	1.77	0	776	0	776
Mississippi.....	347	48.1	1,640	6.85	87.5	72.8	0	8.21	6.58	33.7	6.35	2,240	12.9	2,260
Missouri.....	282	57.5	1,300	16.1	6.77	42.4	0	21.1	0	13.8	0	1,740	0	1,740
Montana.....	83.3	22.6	59.6	12.3	3.49	5.22	0	1.06	16.3	0.80	0	188	16.3	205
Nebraska.....	218	19.0	5,420	89.7	10.5	42.0	0	0.06	6.41	16.8	0	5,810	6.41	5,820
Nevada.....	142	35.8	972	4.94	11.6	1.02	0	187	11.3	7.04	70.9	1,360	82.2	1,440
New Hampshire.....	35.4	29.7	1.09	0.63	6.46	4.21	0	1.76	0	1.10	0	80.4	0	80.4
New Jersey.....	379	90.7	55.1	0.88	9.78	30.0	0	1.48	0	2.08	0	569	0	569
New Mexico.....	184	24.6	1,050	29.8	18.7	3.40	0	39.4	89.4	6.13	0	1,350	89.4	1,440
New York.....	614	187	17.8	16.8	11.0	29.4	0	5.64	0.95	7.30	0	890	0.95	890
North Carolina.....	158	169	83.8	51.9	13.3	15.0	0	30.0	0	0.18	0	520	0	520
North Dakota.....	35.4	3.69	102	12.5	0	6.18	0	26.2	15.1	0.42	0	187	15.1	202
Ohio.....	450	137	17.9	7.83	13.3	138	0	91.3	0	11.0	0	866	0	866
Oklahoma.....	102	30.3	787	27.4	0.06	7.27	0	4.22	155	1.59	0	960	155	1,110
Oregon.....	147	66.4	1,220	3.02	32.8	3.45	0	8.45	0	1.57	0	1,480	0	1,480
Pennsylvania.....	227	208	17.5	36.3	48.8	45.9	0	32.9	5.60	5.38	0	622	5.60	628
Rhode Island.....	13.8	6.57	3.78	0.11	6.72	0.54	0	1.18	0	0	0	32.7	0	32.7
South Carolina.....	115	118	87.9	4.36	0.61	26.3	0	8.28	0	4.52	0	365	0	365
South Dakota.....	48.0	5.56	139	19.3	3.57	18.4	0	3.59	0	0	0	238	0	238
Tennessee.....	256	42.8	36.4	12.0	11.7	51.6	0	17.1	0	2.18	0	430	0	430
Texas.....	1,170	137	4,480	138	11.6	99.8	3.28	116	1,000	37.7	0	6,170	1,030	7,200
Utah.....	359	10.4	537	7.46	83.1	37.4	36.6	1.67	43.7	22.7	8.46	1,050	93.2	1,150
Vermont.....	13.9	11.0	1.02	4.41	4.17	1.51	0	0.23	0	0.54	0	36.7	0	36.7
Virginia.....	82.8	125	7.93	6.52	0.15	66.0	0	6.20	0	1.08	2.72	284	14.3	298
Washington.....	521	110	720	20.8	50.6	83.5	0	13.4	0	7.77	0	1,530	0	1,530
West Virginia.....	37.7	31.3	0.40	1.70	8.10	25.7	3.05	23.8	1.52	1.19	0	130	4.57	134
Wisconsin.....	265	76.4	287	67.0	25.5	46.8	0	0.42	0	3.21	0	772	0	772
Wyoming.....	54.5	8.93	537	6.17	4.92	5.83	0	33.1	96.8	1.31	0	652	96.8	748
Puerto Rico.....	66.6	0.52	41.6	4.23	0	3.67	0	1.84	0	1.82	0	120	0	120
U.S. Virgin Islands.....	0.91	1.23	0	0.01	0	0.52	0	0	0	0	0	2.67	0	2.67
TOTAL	15,200	3,210	57,200	1,240	1,600	2,670	42.9	1,010	1,860	425	172	82,300	2,340	84,700

Table 4B. Groundwater withdrawals by water-use category, 2015, in thousand acre-feet per year.

[Values may not sum to totals because of independent rounding. Values for public supply and aquaculture include fresh and saline-water withdrawals]

State	Public supply	Domes- tic	Irriga- tion	Live- stock	Aqua- culture	Industrial		Mining		Thermoelectric power		Total		
	Total	Fresh	Fresh	Fresh	Total	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Total
Alabama.....	305	41.1	111	12.9	30.6	36.6	0	24.4	0	0	0	561	0	561
Alaska.....	42.4	11.0	1.68	0.04	190	7.51	0	0	100	0.71	0	253	100	353
Arizona.....	638	26.9	2,210	43.6	26.7	6.86	0	76.6	0	64.7	0	3,090	0	3,090
Arkansas.....	106	14.4	10,400	15.2	171	33.1	0	0.16	0	3.51	0	10,700	0	10,700
California.....	2,650	121	15,500	92.0	276	446	0	33.9	305	22.0	39.4	19,100	403	19,500
Colorado.....	122	39.6	1,460	25.4	17.9	4.73	0	5.87	27.1	3.40	0	1,680	27.1	1,710
Connecticut.....	48.2	34.6	3.39	1.29	10.3	44.9	0	0.92	0	0	0	144	0	144
Delaware.....	51.3	16.3	107	1.50	2.22	12.0	0	0.38	0	0.15	0	191	0	191
District of Columbia ...	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Florida.....	2,330	198	1,290	28.8	14.4	203	0	99.9	0	31.2	32.0	4,010	222	4,230
Georgia.....	259	117	632	30.9	16.3	216	0	17.9	0	3.85	0	1,290	0	1,290
Hawaii.....	283	0.74	82.7	0.57	9.62	0.27	0	1.00	0	1.66	22.7	379	22.7	402
Idaho.....	276	78.6	5,490	46.2	51.8	50.4	0	1.51	0	2.01	0	6,000	0	6,000
Illinois.....	411	103	245	40.6	5.86	148	0	16.4	23.5	4.72	0	976	23.5	999
Indiana.....	380	143	104	29.4	7.24	89.6	0	6.19	0	23.3	0	783	0	783
Iowa.....	352	35.8	36.1	139	8.36	104	0	1.21	0	30.2	0	706	0	706
Kansas.....	153	19.8	2,870	93.6	3.54	34.2	0	6.10	0	8.76	0	3,180	6.93	3,190
Kentucky.....	98.0	16.2	3.18	2.32	0.65	86.6	0	19.8	0	5.56	0	232	0	232
Louisiana.....	397	44.1	807	3.54	378	280	0	1.85	0	41.4	0	1,950	0	1,950
Maine.....	30.8	35.5	5.67	1.73	12.2	6.54	0	1.63	0	1.03	0	95.0	0	95.0
Maryland.....	105	128	54.1	6.56	6.63	12.2	0	15.3	0	2.58	0	330	0	330
Massachusetts.....	224	39.4	128	0.72	9.11	17.0	0	6.18	0	1.23	0	426	0	426
Michigan.....	235	210	293	24.0	1.19	72.4	0	18.0	0.65	6.29	0	859	0.65	860
Minnesota.....	377	92.2	272	66.0	1.93	54.9	0	4.07	0	1.98	0	870	0	870
Mississippi.....	389	54.0	1,840	7.68	98.1	81.6	0	9.20	7.38	37.8	7.12	2,520	14.5	2,530
Missouri.....	316	64.4	1,460	18.1	7.59	47.5	0	23.6	0	15.4	0	1,950	0	1,950
Montana.....	93.4	25.3	66.8	13.8	3.91	5.85	0	1.19	18.3	0.90	0	211	18.3	229
Nebraska.....	244	21.3	6,070	101	11.8	47.0	0	0.07	7.19	18.9	0	6,520	7.19	6,520
Nevada.....	159	40.1	1,090	5.54	13.0	1.14	0	210	12.6	7.89	79.5	1,530	92.2	1,620
New Hampshire.....	39.7	33.3	1.22	0.71	7.24	4.72	0	1.97	0	1.23	0	90.1	0	90.1
New Jersey.....	424	102	61.8	0.99	11.0	33.7	0	1.66	0	2.33	0	637	0	637
New Mexico.....	206	27.6	1,180	33.4	20.9	3.81	0	44.1	100	6.87	0	1,520	100	1,620
New York.....	688	210	20.0	18.8	12.3	32.9	0	6.32	1.06	8.18	0	997	1.06	998
North Carolina.....	177	189	93.9	58.2	14.9	16.8	0	33.7	0	0.20	0	583	0	583
North Dakota.....	39.6	4.14	115	14.0	0	6.93	0	29.3	16.9	0.47	0	209	16.9	226
Ohio.....	504	153	20.0	8.78	14.9	155	0	102	0	12.3	0	970	0	970
Oklahoma.....	114	34.0	882	30.7	0.07	8.15	0	4.73	173	1.78	0	1,080	173	1,250
Oregon.....	165	74.4	1,360	3.39	36.8	3.87	0	9.47	0	1.76	0	1,660	0	1,660
Pennsylvania.....	255	233	19.6	40.7	54.7	51.5	0	36.9	6.28	6.03	0	698	6.28	704
Rhode Island.....	15.4	7.36	4.24	0.12	7.53	0.61	0	1.32	0	0	0	36.6	0	36.6
South Carolina.....	129	133	98.5	4.89	0.68	29.5	0	9.28	0	5.07	0	410	0	410
South Dakota.....	53.8	6.23	156	21.6	4.00	20.6	0	4.02	0	0	0	267	0	267
Tennessee.....	287	48.0	40.8	13.4	13.1	57.8	0	19.2	0	2.44	0	482	0	482
Texas.....	1,320	153	5,020	155	13.0	112	3.68	130	1,130	42.2	0	6,920	1,150	8,070
Utah.....	403	11.6	602	8.36	93.1	41.9	41.0	1.87	49.0	25.5	9.48	1,180	105	1,290
Vermont.....	15.6	12.3	1.14	4.94	4.67	1.69	0	0.26	0	0.61	0	41.2	0	41.2
Virginia.....	92.9	140	8.89	7.31	0.17	74.0	0	6.95	0	1.21	3.05	318	16.0	334
Washington.....	584	123	807	23.4	56.8	93.6	0	15.1	0	8.71	0	1,710	0	1,710
West Virginia.....	42.2	35.1	0.45	1.91	9.08	28.8	3.42	26.7	1.70	1.33	0	146	5.12	151
Wisconsin.....	297	85.7	322	75.2	28.6	52.4	0	0.47	0	3.60	0	865	0	865
Wyoming.....	61.1	10.0	602	6.92	5.52	6.54	0	37.1	108	1.47	0	731	108	839
Puerto Rico.....	74.7	0.58	46.6	4.74	0	4.11	0	2.06	0	2.04	0	135	0	135
U.S. Virgin Islands.....	1.02	1.38	0	0.01	0	0.58	0	0	0	0	0	2.99	0	2.99
TOTAL	17,100	3,600	64,100	1,390	1,800	2,990	48.1	1,130	2,090	477	193	92,300	2,620	94,900

Public Supply

39,000 million gallons per day

12 percent

Public supply refers to water withdrawn by public and private water suppliers that provide water to at least 25 people or have a minimum of 15 connections. Public-supply water is delivered to users for domestic, commercial, thermoelectric, irrigation, and industrial purposes; it also is used for public services and system losses.

Data on population, public supply and self-served domestic populations, public-supply withdrawals with deliveries to domestic users, and self-supplied domestic withdrawals for 2015 were published by the USGS in Dieter and Maupin (2017) and Dieter and others (2017). Data and interpretations of the data presented in Dieter and Maupin (2017) and Dieter and others (2017) are superseded by this report and the concurrent data release (Dieter and others, 2018). Specifically, some county-level data have been revised for public-supply and self-supplied domestic populations (Florida and Georgia), public-supply withdrawals (Georgia, Nevada, Tennessee, and Utah), and self-supplied domestic withdrawals (Utah and U.S. Virgin Islands). Changes to public-supply deliveries for domestic uses also were made (Utah). Changes to public-supply population served, withdrawals (public supply and self-supplied domestic), and deliveries have caused changes to calculated values of county per capita rates (Florida, Utah, U.S. Virgin Islands).

In some States, public-supply water sources include desalinated seawater or brackish groundwater that has been treated to reduce dissolved solids. A combined total of 7.21 Mgal/d saline surface-water withdrawals for public-supply use were reported for the U.S. Virgin Islands, Texas, Florida, and Massachusetts. A combined total of 263 Mgal/d saline groundwater withdrawals for public-supply use were identified for Florida, California, Texas, Virginia, Kansas, and Utah. Saline withdrawals for public supply were identified for only eight States and represent less than 1 percent of total public-supply withdrawals; therefore, they are not listed separately in table 5 but are included in the estimated withdrawals.



Public-supply water tower in Baltimore County, Maryland.

Discussions of public supply withdrawals below include these saline withdrawals.

A total of 39,000 Mgal/d (table 5), or 43,700 thousand acre-ft/yr (table 2B), of water were withdrawn for public supply in 2015. This amount is 7 percent less than the estimated amount of water withdrawn for public supply in 2010, continuing the decline in public-supply withdrawals observed from 2005 to 2010 (Maupin and others, 2014). Total public-supply withdrawals in 2015 were at the lowest levels since 1995 (approximately 40,200 Mgal/d) (Maupin and others, 2014). Public supply represents about 14 percent of total freshwater withdrawals and 21 percent of all withdrawals, excluding thermoelectric power.

An estimated 283 million people relied on public-supply water for household use in 2015. This number represents about 87 percent of the total United States population. About 33 percent of all public-supply withdrawals were made in the four States with the largest populations: California, Texas, New York, and Florida (fig. 4). Populations in the District of Columbia and Puerto Rico are supplied almost completely by public-supply systems, whereas only one-half of the populations in the U.S. Virgin Islands and Maine are supplied

by public-supply systems. Sixty-one percent of water withdrawn for public supply in 2015 was from surface sources, such as lakes and streams; the other 39 percent was from groundwater.

Some States in the Nation, because of population, withdraw more than 1,000 Mgal/d of water for distribution or rely primarily on either surface water or groundwater as a source for public-supply potable water. Five States—California, New York, Texas, Pennsylvania, and Illinois—each withdrew more than 1,000 Mgal/d of surface water for public supply in 2015 and together accounted for 36 percent of the total surface-water withdrawals for public supply. In 36 States, including Puerto Rico and the U.S. Virgin Islands, surface-water sources provided more than one-half of