![USGS logo — science for a changing world]

U.S. Geological Survey (USGS) Water-Use Data and Research (WUDR) Program Overview and Status as of March 31, 2022

What is the WUDR Program?

The USGS Water-Use Data and Research Program (WUDR) is an appropriated program and is authorized under the SECURE Water Act (Sec. 9508 (c)). WUDR provides financial assistance through cooperative agreements to State water resource agencies.

The WUDR Program has two main goals:

- To improve the availability, quality, compatibility, and delivery of water-use data that are collected and/or estimated by States to support national water-use assessments; and
- To integrate the water-use data into USGS databases in electronic or machine-readable formats.

At a glance:

- Each State can apply for up to $250,000.
- States apply for awards through *grants.gov*.
- Competitive awards are for 1 to 2 years.
- States can have more than one project at a time.
- Final technical report is due 120 days after the project completion date.

Non-competitive WUDR awards for workplans

During Federal fiscal year 2015 (FY15), the first-year funding was awarded, States were awarded non-competitive awards to develop workplans to better understand the water-use data collection in each State, identify water-use data gaps, and prioritize work to reduce water-use data gaps. Between 2015–2021, 50 States and territories completed final workplans, with more than 1.2 million dollars awarded for workplans.
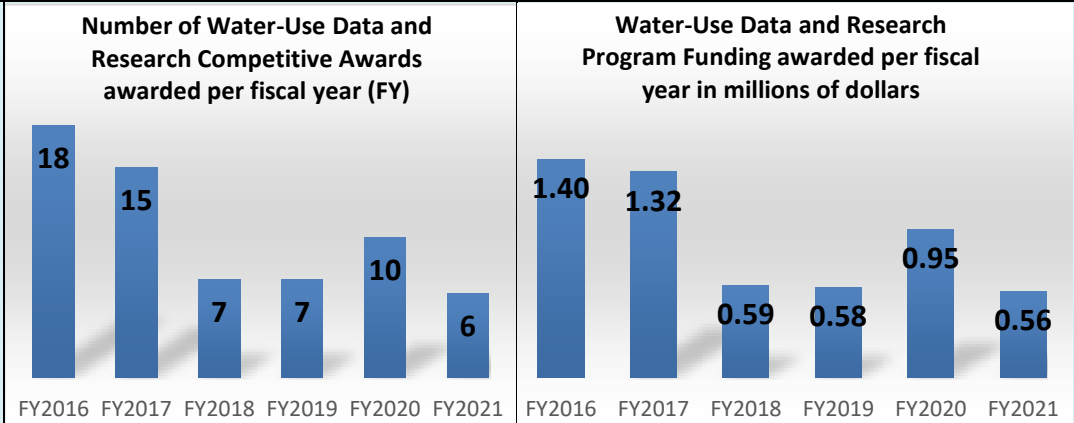
States must have an approved workplan prior to a competitive award application but can opt to write their workplans without non-competitive award funds (for example, Georgia completed their workplan in 2021 without WUDR funds). In these cases, the workplan funding amount is instead available for competitive awards. Completed workplans and the baseline standards table are available on the WUDR home page at *https://water.usgs.gov/wausp/wudr.*
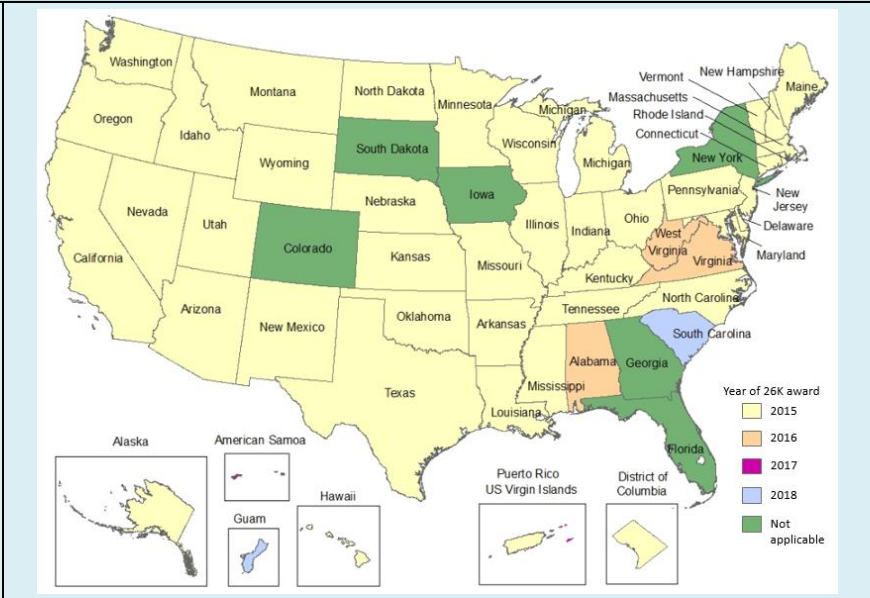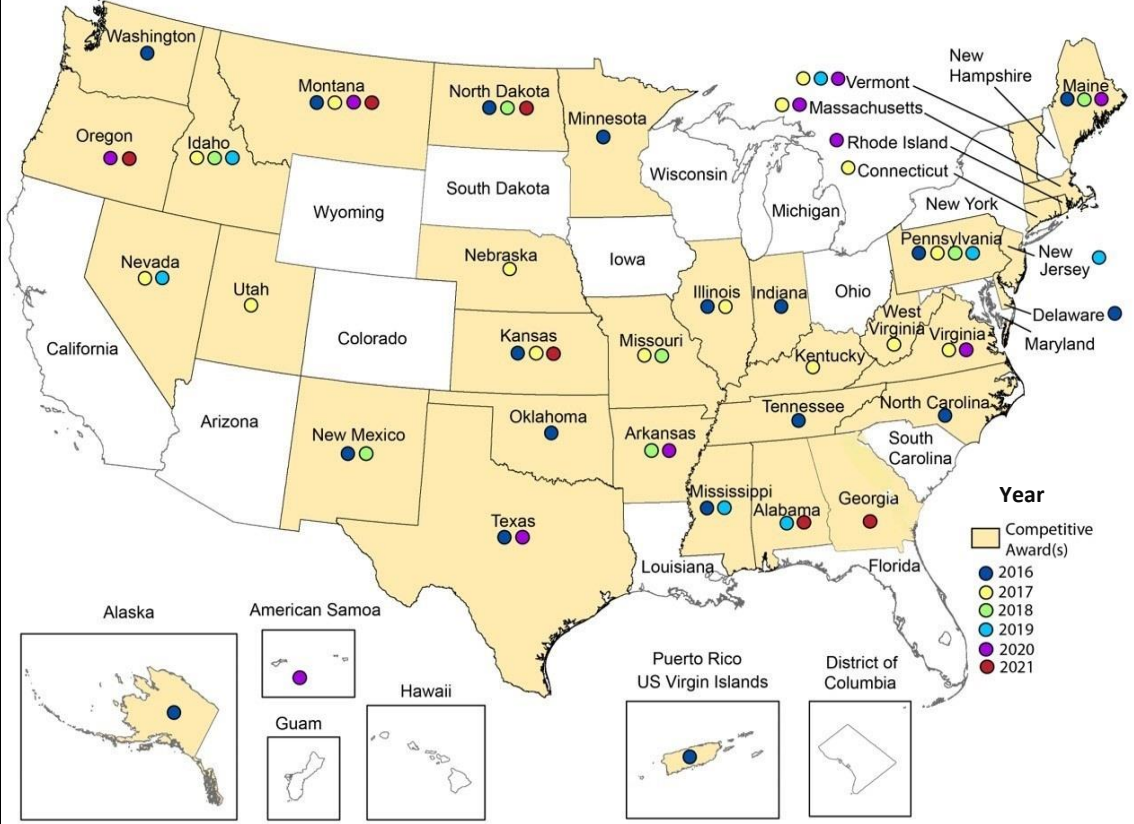

Competitive WUDR projects

The USGS WUDR started providing competitive awards in fiscal year 2016 and has awarded 63 projects to 35 states between fiscal years 2016 and 2021 for a total of about 5.4 million dollars.

Projects can range from one to two years. In recent years most States have opted for 2-year projects.

Number of Water-Use Data and Research Competitive Awards awarded per fiscal year (FY)

FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
18	15	7	7	10	6

Water-Use Data and Research Program Funding awarded per fiscal year in millions of dollars

FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
1.40	1.32	0.59	0.58	0.95	0.56

## States awarded competitive WUDR projects, 2016-2021

Alabama: 2019, 2021
Alaska: 2016
American Samoa: 2020
Arkansas: 2018, 2020
Connecticut: 2017
Delaware: 2016
Georgia: 2021
Idaho: 2017, 2018, 2019
Illinois: 2016, 2017
Indiana: 2016
Kansas: 2016, 2017, 2021
Kentucky: 2017
Maine: 2016, 2018, 2020
Massachusetts: 2017, 2020
Minnesota: 2016
Mississippi: 2016, 2019
Missouri: 2017, 2018
Montana: 2016, 2017, 2020, 2021
Nebraska: 2017
Nevada: 2017, 2019
New Mexico: 2016, 2018
New Jersey: 2019
North Carolina: 2016
North Dakota: 2016, 2018, 2021
Oklahoma: 2016
Oregon: 2020, 2021
Pennsylvania: 2016, 2017, 2018, 2019
Puerto Rico: 2016
Rhode Island: 2020
Tennessee: 2016
Texas: 2016, 2020
Utah: 2017
Vermont: 2017, 2019, 2020
Virginia: 2017, 2020
Washington: 2016
West Virginia: 2017

Priority topics for competitive projects include:

- Improve the collection process or quality assurance of water-use data or improve the transfer of water-use data to the USGS.
- Improve water-use data for irrigation, public supply, or industrial water-use categories.
- Conduct studies to develop methods and/or coefficients to improve water-use estimates for categories of use where measured or reported data are not available.

[In chart: QA/QC short for quality assurance / quality control]

Topics for Water-Use Data and Research Program Project Topics by year
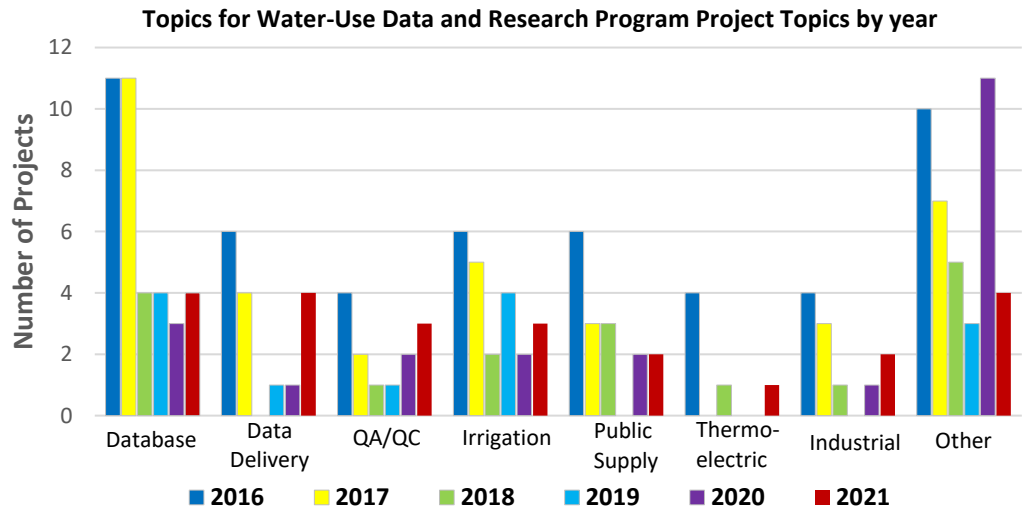
States with WUDR project topics for irrigation, public supply, and thermoelectric water-use categories

Irrigation, public supply, and thermoelectric power account for 90 percent of water withdrawals in the United States.

Irrigation:		**Public Supply:**		**Thermoelectric:**
Alaska	New Jersey	Alaska	North Dakota	Alaska
Georgia	New Mexico	American Samoa	Rhode Island	Georgia
Idaho	Oregon	Georgia	Tennessee	Illinois
Illinois	Pennsylvania	Idaho	Texas	Minnesota
Maine	Puerto Rico	Kentucky	Utah	Missouri
Massachusetts	Tennessee	Maine		Tennessee
Missouri	Vermont	Mississippi		
Montana	Virginia	Montana		
Nevada		New Mexico		

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WUDR 2016 awards		
State	**Status**	**Project activities**
Alaska Alaska Department of Natural Resources	**Completed**	• Improving data collection by estimating statewide monthly water use, 2011–15. • Implementing and documenting quality assurance procedures. • Improving data delivery for easier online access.
Delaware Delaware Department of Natural Resources and Environmental Control	**Extended to December 2021** Final technical report due April 2022	• Developing a new application to provide a means to collect, store, and deliver water-use data to the USGS. • Implementing quality-assurance checks of water-use data. • Providing data grouped by public water-supply customer, quantifying consumptive use, and reporting withdrawal data by hydrologic unit code (HUC-8) and county levels.
Illinois Illinois State Water Survey	**Completed**	• Reviewing annual records back to 2010 for missing data and contacting operators to improve completeness. • Expanding to new categories of data collection. • Providing a more accurate estimate of self-supplied domestic use. • Providing a more complete picture of irrigation across the State.
Indiana Indiana Department of Natural Resources	**Completed**	• Performing a quality assurance review of existing registered well and intake locations and identifying new unregistered large water withdrawal facilities to ensure that the State is providing the USGS with accurate water-use data.
Kansas Kansas Department of Agriculture, Division of Water Resources	**Completed**	• Building a new database. • Migrating data to a new database. • Building a user interface for the new database (data entry, queries, enhancements).
Maine Maine Department of Agriculture Conservation and Forestry	**Completed**	• Improving data collection and estimation of crop and golf course irrigation and livestock water use. • Surveying water users in 10 county-level Soil and Water Conservation Districts. • Estimating irrigation use per acre for major crop types by using a soil water balance and crop demand model.
Minnesota Minnesota Department of Natural Resources	**Completed**	• Improving data in the industrial, thermoelectric, and mining categories by checking older permits for categorization and correct information. • Expanding permit types to agree with USGS definitions.
Mississippi Mississippi Department of Environmental Quality	**Completed**	• Expanding online reporting tool to include additional water-use categories. • Updating database design with new screens and user interface. • Migrating data to new computer system.
Montana Montana Department of Natural Resources and Conservation	**Completed**	• Increasing the knowledge of water use by public water systems throughout the State. • Measuring and estimating public supply water use with public water system surveys.
New Mexico New Mexico Office of the State Engineer, Interstate Stream Commission	**Completed**	• Creating statewide agricultural crop/water-use spatial polygons to be used in a geographic information system. • Creating polygons of golf course areas.
North Carolina North Carolina Department of Environmental Quality, Division of Water Resources	**Completed**	• Expanding and improving data collection efforts to align with USGS guidelines. • Creating a web service that will establish a single, unified location for users to access the Division of Water Resources' water-use data. • Compiling data from multiple databases into one web service.

WUDR 2016 awards

State	Status	Project activities
North Dakota North Dakota State Water Commission	**Completed**	• Surveying selected municipalities. • Analyzing data to determine water use across the State and how it changes based on municipality size. • Determining who is responsible for water-use data, how data are recorded and stored, if data are public, and if conservation measures are used.
Oklahoma Oklahoma Water Resources Board	**Completed**	• Modernizing the water-use information system used by the State. • Improving the return rate of Water Use Report forms. • Identifying opportunities for the collection of additional data. • Developing tools to improve efficient, compatible, and timely data delivery.
Pennsylvania Pennsylvania Department of Environmental Protection	**Completed**	• Building online report services for the public to readily retrieve up-to-date water-use datasets.
Puerto Rico Puerto Rico Department of Natural and Environmental Resources	**Completed**	• Developing a web-based application to enable users to submit water-use. information electronically which will be entered directly into a water-use database.
Tennessee Department of Environment and Conservation	**Completed**	• Improving water-withdrawal data collection and delivery. • Evaluating and improving data quality assurance/quality control.
Texas Texas Water Development Board	**Completed**	• Developing an online application that displays the service areas for community public water systems and allows water system contacts to update the service area boundaries through a web browser. • Allowing service areas to be downloaded as shapefiles that can be used by other agencies and organizations. • Linking the boundary map to historical water-use data reports.
Washington Department of Ecology State of Washington	**Completed**	• Upgrading the metering database. • Improving the metering program.

WUDR 2017 awards

State	Status	Project activities
Connecticut Connecticut Department of Energy and Environmental Protection	**Completed**	• Building upon recent efforts to organize, centralize and report past water-use data. • Developing a methodology for future data organization, collection, and reporting.
Idaho Idaho Department of Water Resources	**Completed**	• Identifying points of diversion and place of use records for sites that are missing a geographic component. • Improving metadata standardization, data discoverability, and data delivery. • Investigating potential database improvements.
Illinois Illinois State Water Survey	**Completed**	• Cataloging older records. • Tracking down new high-capacity wells and intakes across the State. • Supporting archival and digitization of records.
Kansas Kansas Department of Agriculture	**Completed**	• Building new reports and interfaces with other programs to improve transferability and accessibility to interested parties. • Developing quality control/assurance queries to check for common issues and establishing routine data checks to improve data quality.
Kentucky Kentucky Division of Water	**Completed**	• Synthesizing existing well-construction, geological, and hydrogeological data needed to identify and designate aquifers being used by industry and public water suppliers.
Massachusetts Massachusetts Department of Environmental Protection	**Completed**	• Converting from paper to electronic collection in several water-use categories. • Developing a better methodology for estimation of self-supplied domestic use and for cranberry bog consumptive use estimation. • Collecting additional data types including source aquifer types and irrigated acreages of farms and golf courses.

WUDR 2017 awards		
State	**Status**	**Project activities**
Missouri Missouri Department of Natural Resources, Missouri Geological Survey	**Completed**	• Identifying self-supplied golf courses statewide and contacting these golf courses to determine the amount of water used for irrigation. • Increasing awareness of water-use reporting through education, publications, and presentations. • Identifying HUC-8 for surface-water sources and aquifers for groundwater sources for all major water users. • Determining water type (fresh or saline) for groundwater sources.
Montana Montana Department of Natural Resources and Conservation	**Completed**	• Improving estimates of surface-water withdrawals for irrigated agriculture where measured data are not available.
Nebraska Nebraska Department of Natural Resources	**Completed**	• Researching existing State data acquisition programs. • Developing a data acquisition process for target uses. • Developing a prototype database.
Nevada Nevada Division of Water Resources	**Completed**	• Improving and expanding collection of water-use data, improving quality assurance, and increasing the transferability of data collected and maintained by Nevada Division of Water Resources (NDWR). • Expanding the NDWR-maintained water-use database to include customers across the State who are not represented and entering missing historical groundwater withdrawal data into the database. • Conducting field work to verify site and totalizer meter information for newly added sites and conducting quality assurance checks on all existing and newly added data. • Making technical enhancements to a NDWR-maintained water-use database to improve its accuracy, reliability, usability, and ensure long-term data accessibility.
Pennsylvania Pennsylvania Department of Environmental Protection	**Completed**	• Providing quality-assurance enhancements to Pennsylvania's electronic reporting application. • Linking sub-facility and primary facility reports to improve quality assurance of reported water-use data.
Utah Utah Department of Natural Resources, Division of Water Rights	**Completed**	• Improving online water-use reporting tool for industrial/commercial users. • Improving database storage of water-use data for public supply, industrial, and commercial data. • Creating a program to electronically transmit data to outside entities.
Vermont Vermont Department of Environmental Conservation	**Completed**	• Improving location data for drilled wells. • Assigning hydrologic unit (HUC-12) and aquifer codes. • Moving snowmaking data from PDF-format records to a spreadsheet. • Determining intake locations and assigning HUC-12 to community water systems, non-transient non-community water systems, and transient non-community water systems.
Virginia Virginia Department of Environmental Quality	**Completed**	• Developing data retrieval and export tools to supply updated National Pollutant Discharge Elimination System (NPDES) Discharge Monitoring Report (DMR) data to the VAHydro data system and export withdrawal, discharge, and consumptive use data from VAHydro in a format consistent with USGS Site-Specific Water-Use Data System requirements. • Leveraging DMR data to estimate consumptive use across different user categories, assess trends in consumptive use through time, and develop statistical models for estimating non-reported consumptive use.
West Virginia West Virginia Department of Environmental Quality	**Completed**	• Improving data collection, quality assurance, and water-use data delivery. • Improving the Water Resources Management Plan Mapping Tool to have the capability of displaying on both desktop and mobile devices, therefore enhancing data accessibility in the field. • Streamlining data accessibility using GIS Web Applications. • Connecting Water Withdrawal Guidance Tool to the National Water Model. • Creating a West Virginia Spring and Well Reporting Tool to crowdsource voluntary information on privately owned wells and springs.

WUDR 2018 Awards

State	Status	Project activities
Arkansas Arkansas Department of Agriculture, Natural Resource Division	**Completed**	• Building the hardware, software, and workflow system to enable migration of the Arkansas Water-Use Database from the USGS Arkansas Water Science Center to the Arkansas Natural Resources Commission and improve the collection process and quality assurance of water data, retrieval, and transfer of data to USGS. • Receiving data electronically directly into the database with data reported on paper being scanned into the system.
Idaho Idaho Department of Water Resources	**Completed**	• Creating a methodology for using Sentinel Imagery Normalized Difference Vegetation Index (NDVI) to determine irrigation status using a three-class classification (irrigated, non-irrigated, semi-irrigated).
Maine Maine Geological Survey	**Completed**	• Developing an improved, semi-automated process for compiling and quality controlling data reported by public water utilities to the Maine Public Utilities Commission. • Studying per capita coefficients for domestic water users using detailed customer meter data donated by selected public water utilities and develop improved estimates of populations that are served by public water systems versus those that are self-supplied.
Missouri Missouri Department of Natural Resources	**Completed**	• Improving water-use data for golf course irrigated acres. • Developing quality checks in the online reporting system to catch any water use reporting that is greater than the pump capacity. • Developing tools associated with the online reporting system to assist major users of irrigation in estimating water use. • Contacting livestock facilities to determine if they are a major water use, what their water source is, and what their annual water use is. • Contacting thermoelectric facilities to verify amount of water consumed versus returned to the water system as well as verifying the quantity used and source of the water. • Developing a long-term vision to manage water resources now and in the future.
New Mexico New Mexico Office of the State Engineer, Water Use and Conservation Bureau	**Completed**	• Creating geospatial data for the Public Water Supply use category. • Refining the methodology used in the development of livestock water-use data.
North Dakota North Dakota State Water Commission	**Completed**	• Distinguishing water use and similarities and differences in industrial vs. municipal permits to determine which industry would be included under municipal, which is not, and how the determination is made. • Assessing water use pre-oil boom, during boom, and post-oil boom.
Pennsylvania Pennsylvania Department of Environmental Protection	**Completed**	• Improving the quality of registration by converting existing paper forms to online forms for electronic submission.

WUDR 2019 awards (Project end date September 2021 and Final Technical Report due January 2022 unless noted)

State	Status	Project activities
Alabama Alabama Department of Economic and Community Affairs	**Completed**	• Updating the data management application used to collect, house, and manage information in support of the Alabama Water Use Reporting Program. The project will use a combination of custom code development and the purchase of a commercial off-the-shelf product to allow for online access and data reporting.

State	Status	Project activities
WUDR 2019 awards (Project end date September 2021 and Final Technical Report due January 2022 unless noted)		
State	Status	Project activities
Idaho Idaho Department of Water Resources	**Completed**	• Consolidating the display and transferability of water-use measurement data locations by creating a one-stop web mapping application with tools to relate water measurement data to points of diversion. • Displaying water-measurement data from three separate systems that record measurement data into one mapping application and georeferencing surface water measurements as events on the National Hydrography Dataset (NHD) using linear referencing and make those events available through the NHD Linked Data Registry. • Improving irrigation water-use data by performing geographical locations checks.
Mississippi Mississippi Department of Environmental Quality	**Completed**	• Installing and maintaining real-time flow meters and telemetry to improve water-use estimates for the Mississippi Delta and better understand water availability.
Nevada Nevada Division of Water Resources	**Completed**	• Conducting field efforts to improve the quality of data that are collected from the annual crop and pumpage inventory work. • Adding enhancements to the Meters database to make the reports more user-friendly and make queries that will allow the user to obtain water-use data easier. • Constructing an interactive web map that will allow users to view groundwater pumpage by basin and county.

New Jersey
New Jersey Department of Environmental Protection
	Extended to September 2022	• Comparing agricultural metered data with traditional estimates.
		  o Analyzing the data.
		  o Producing a report that compares the new metered data to traditional estimates based on pump capacity and pumping hours.

Pennsylvania Pennsylvania Department of Environmental Protection	**Extended to March 2022** Final technical report due June 2022	• Establishing a data-sharing protocol to readily share water-use data between the three agencies in Pennsylvania that routinely collect water-use reports from users and the regulated community (Pennsylvania Department of Environmental Protection, Susquehanna River Basin Commission, and Delaware River Basin).
Vermont Vermont Department of Environmental Conservation	**Completed**	• Locating a high percentage of the remaining approximately 30,000 wells in 3 counties (Addison, Orleans, and Rutland). • Compiling reported wastewater data, improving data for aquaculture (fish hatcheries) and irrigation (golf courses), assigning HUC 8 codes for hydroelectric power facilities.
WUDR 2020 Awards (Project end date September 2022 and Final Technical Report due January 2023 unless noted)		
State	Status	Project activities
American Samoa American Samoa Power Authority	**Extended to August 2023**	• Creating a data system to extract public supply production and use data from existing systems to feed data to USGS and to a public interface intended to promote water conservation. • Developing an initial database of "village water systems" which supply domestic use in an unknown number of small communities. • Installing pressure meters and flow meters at selected sites to improve information about non-revenue water aimed at reducing system losses.
Arkansas Arkansas Department of Agriculture, Natural Resource Division	**In progress**	• Selecting, purchasing, and implementing software to allow digital signatures so that legal applications and permits can be completely processed electronically • Purchasing and implementing a reporting module to enhance reporting capabilities.

WUDR 2020 Awards (Project end date September 2022 and Final Technical Report due January 2023 unless noted)		
State	**Status**	**Project activities**
Maine Maine Geological Survey	**In progress**	• Compiling data reported by industrial wastewater permittees to the Maine Department of Environmental Protection (DEP), and then surveying these industrial water users to determine their sources of water, consumptive use ratios, and water used for thermoelectric power generation. • Surveying ski areas about water sources and volumes used for snowmaking.
Massachusetts Massachusetts Department of Environmental Protection	**In progress**	• Matching as many of the unlocated wells to statewide parcel data as possible and tying this information to a Well Completion Report (WCR, depth, lithology, static water levels, yield, etc.). • Creating a map viewer to the Well Driller Database to associate well data points with WCRs through point and click technology. • Developing an online application to flag improperly located wells submitted by well drillers to improve the quality of WCR submissions. • Providing training for well drillers on proper WCR data submittal and geologic formation identification for each well drilled.
Montana Montana Department of Natural Resources and Conservation	**In progress**	• Syncing the Water Rights Information System (WRIS), which is managed by the Montana Department of Natural Resources and Conservation to the Groundwater Information Center (GWIC), which is managed by the Montana Bureau of Mines and Geology (MBMG) and contains information on groundwater resources. By syncing the two databases, users will be able to estimate annual groundwater withdrawals from source aquifers using the appropriated volumes from WRIS and source aquifer names from GWIC. The source aquifers will be listed as the MBMG aquifer codes developed for Montana-specific aquifers, which can be easily converted to principal aquifer names used by USGS.
Oregon Oregon Water Resources Department	**In progress** Project ends March 2022	• Developing datasets for field-level evapotranspiration (ET) and consumptive use (using ET minus effective precipitation). • Developing GIS polygons of agricultural fields with field attributes (irrigation status, irrigation source type, crop type, and irrigation method). • Increasing irrigation data resolution (these datasets are accurate to the field-level being based on Landsat imagery which has a resolution of 30 meters). • Improving the collection, processing, and quality assurance of irrigation water-use data.
Rhode Island Rhode Island Water Resources Board	**In progress**	• Creating an inventory of all public water systems (PWS) and owners, verifying geographic information, and assigning HUC-8, -10, and -12 basins, for all wells and intakes. • Compiling monthly withdrawals for 18 PWS that report withdrawals by specific wells/intakes for at least the years 2015-2020. • Collecting metered data (if available) or estimated withdrawals for the non-reporting PWS using USGS methods and populations served. • Designing a relational database and populating it with all PWS data including geographic information for all wells/intakes, HUC basins, and historical monthly metered and estimated withdrawal data. The project will accomplish the public supply goals to develop site-specific annual and monthly withdrawals by well/intake, water source, and water type.
Texas Texas Water Development Board	**In progress**	• Quantifying current (2022) and historical water use for hydraulic fracturing, including produced water volumes. • Identifying the sources of water for hydraulic fracturing. • Developing projections of future water demand for oil and gas (2030–2080). • Identifying locations of operations and quantifying current and projected future water use for aggregates and coal and lignite mining. • Developing an interactive data dashboard to display mining water-use estimates and demand projections.

WUDR 2020 Awards (Project end date September 2022 and Final Technical Report due January 2023 unless noted)		
State	**Status**	**Project activities**
Vermont Vermont Department of Environmental Conservation	**In progress**	• Developing interactive data dashboards for public supply, domestic, irrigation, aquaculture, hydroelectric power, wastewater-treatment releases, and snowmaking. • Delivering data updates and a final report on the State's water use.
Virginia Virginia Department of Environmental Quality	**In progress**	• Developing coefficients to estimate unreported agricultural water withdrawals at the county level based on irrigation data from the U.S. Department of Agriculture (USDA) Agricultural Census, the USDA Irrigation and Water Management Survey, and literature-based estimates of crop water requirements. • Combining the coefficients with reported irrigation withdrawals to generate a time series of monthly total irrigation withdrawals (reported plus nonreported) for major agricultural counties in Virginia. • Using the coefficients and reported irrigation withdrawals to estimate a range of total irrigation withdrawals under different weather scenarios (for example, average years, moderate droughts, and extreme droughts).
WUDR 2021 Awards (Project end date September 2023 and Final Technical Report due January 2024 unless noted)		
State	**Status**	**Project activities**
Alabama Alabama Department of Economic and Community Affairs	**In progress**	• Further enhancing the data management system (known as eWater) for the Alabama Water Use Reporting Program. • Adding a GIS map service for users to locate sites, improving the database and administrative functions, adding two "guided user processes" for submitting applications and water-use reports, providing training videos and user feedback forms, and establishing a data reporting platform.
Georgia Georgia Department of Natural Resources	**In progress**	• Consolidating non-farm water use (municipal, industrial, and recreational turf irrigation) permit documents and files in an Access database. • Integrating water withdrawal permit data with related data collected by other Environmental Protection Division programs for easier accessibility and analysis. • Enhancing analysis capabilities to determine the scope of a system's impact on water resources. • Creating a data entry system to automate the entry of data on forms into the Access database, thus improving agency efficiency, reducing potential errors, and improving the quality of the data.
Kansas Kansas Department of Agriculture	**In progress** Project ends September 2022	• Changing the architecture of the Kansas Water Rights Information System (WRIS), facilitating the centralized storage of field data that is currently (2022) in different formats within four field offices. • Migrating the existing field work records to WRIS, in addition to adding data entry functions for new field records and retrieval options for the added data.
Montana Montana Department of Natural Resources and Conservation	**In progress**	• Updating, completing, and inspecting/verifying the Montana irrigated lands coverage, such that there are no overlapping field boundaries or incomplete boundaries. The completed Montana irrigated lands coverage will also include irrigation type attributes. • Compiling additional data associated with field boundaries, including sources of withdrawals, volumes withdrawn, and consumptive use by crops. • Updating areas that have undergone changes in irrigation type for field geometries, irrigation type, and source water, where possible.
North Dakota North Dakota State Water Commission	**In progress**	• Enhancing the understanding of water supply and distribution in North Dakota by gathering new data on rural water suppliers. • Performing data analysis to determine water buying and selling connections between different groups. • Determining the amount and types of water used by customer groups (for example, domestic, industrial), comparing permitted water use to assess conceptual accuracy of how water is used and how it has changed over time, and determining per capita coefficients.

WUDR 2021 Awards (Project end date September 2023 and Final Technical Report due January 2024 unless noted)		
State	**Status**	**Project activities**
Oregon Oregon Water Resources Department	**In progress** Project ends March 2023	• Improving estimates of water use from Oregon irrigated lands by developing necessary datasets for estimating irrigation withdrawals at the HUC-12 level. • Developing GIS field boundaries for agricultural lands in Oregon, field boundary attributes of crop type, soil properties, and irrigation status, and monthly datasets. Phase 2 will refine many attributes developed during Phase 1, creating new attributes such as irrigation efficiency, effective precipitation, and estimated irrigation application rates. Phase 2 will also collect measured water at select locations, updating the Phase 1 GIS geodatabase with attributes.

Additional Information

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WUDR Program information

Water Use in the United States

The WUDR Program regularly hosts a Water-Use Open Forum (WUOF) where USGS, State, university, and other agency personnel share water-use data experiences. The WUOF is typically held on the last Wednesday of the month at 2 pm ET and has 50-80 participants. Please contact wudr-coordinator@usgs.gov to receive notifications about upcoming presentations.