
## Background

The Western States Water Council (WSWC) has long-supported water data programs at federal and state levels, advocated for increased funding for essential water science and monitoring data programs, and encouraged greater data-sharing and transparency among its members. The Water Data Exchange (WaDE) Program began in 2011 under a subcontract with the Western Governors Association (WGA), as a cooperative effort between WSWC and the Sandia National Labs, with funding from the Department of Energy made available under the American Recovery and Reinvestment Act (ARRA) of 2008. It was subsequently sustained with WSWC funds and in-kind support through participation from our member States that committed staff and resources, as well as sharing their water data, without which WaDE would not be possible. Other early funding came from the Environmental Protection Agency's Exchange Network (EN), as well as funding from the Cynthia and George Mitchell Foundation, the Water Funders Coalition, and the Gordon and Betty Moore Foundation, through the Internet of Water and Duke University.

*The WaDE Program is committed to assisting WSWC member states in publicly sharing water rights, allocation, supply, and use data through a common streamlined and standardized service that enables regional analyses to inform water resources planning and policies.*

## Why WaDE?

States allocate and administer rights to the use of water in the West and are therefore in the best position to provide data on water rights and water use. However, water rights, uses, and associated data are managed separately and distinctly by each state which makes regional analysis cumbersome. Analyses across regions and multi-state basins are becoming increasingly relevant, especially given the unprecedented drought and population growth that the West is experiencing. With changing and ever-greater demands on limited water resources, complicated by an increasingly complex overlay of federal laws and regulations, the importance of cooperative efforts and exchanges by and among states has likewise been magnified.

To address this challenge, the WaDE program created a database platform to streamline water rights and water use data into standardized and machine-readable formats. Making this data accessible enables users to answer regional and national questions about water availability, scarcity, and resilience in a cost-effective, sustainable, and consistent way.

The WaDE Program's initial concept and creation phase (2011-2018) established working relationships with states agencies and created data sharing protocols while building and populating a collaborative data management system. In its second phase (2019-2021), WaDE created a template for transforming disparate state water-related data systems into a functional

regional and cloud-based data system with standards and metadata. Under this phase, WaDE has become one of the major data hubs within the Internet of Water project https://internetofwater.org/resources/hubs/. In addition, the WaDE metadata dictionary with its controlled vocabularies is considered the standard method for sharing state agency water use data between WaDE and the U.S. Geological Survey (USGS) Water Use Data Research (WUDR) Program (https://www.usgs.gov/mission-areas/water-resources/science/water-use-data-and-research-wudr-program).

The current WaDE 2.0 Data System focuses on sharing the following four major categories of water data, further divided into nine subcategories: (1) Water Rights data: (a) Points of Diversions (POD) and (b) Places of Use (POU); (2) Regulatory Data; (3) Site-Specific Time Series Data: (c) Reservoirs and (d) Gages and Water Use; and (4) Aggregated Water Budget: (e) Consumptive Use, (f) Delivered Water Use, (g) Demand, (h) Supply, and (i) Withdrawal. The goal is to share these datasets for as many of the states as possible, as some states do not produce one or many of these data types or they do not have such data publicly available yet. All WSWC member states are participating in the WaDE program as of December 2021, a major achievement since the program was launched in late 2011.

## Next Steps

With this continuous support of the Western States' Governors, natural resource agency directors, state engineers, and their staff, the WaDE Program is celebrating its 10th anniversary and entering an exciting third phase (**Figure 1**). In this third phase, we will develop a user-friendly dashboard called the Western States Water Data Access and Analysis Tool (WestDAAT), an operational decision support and planning tool that will streamline the sharing of water data for western states. WestDAAT is expected to be complete by the end of 2022.

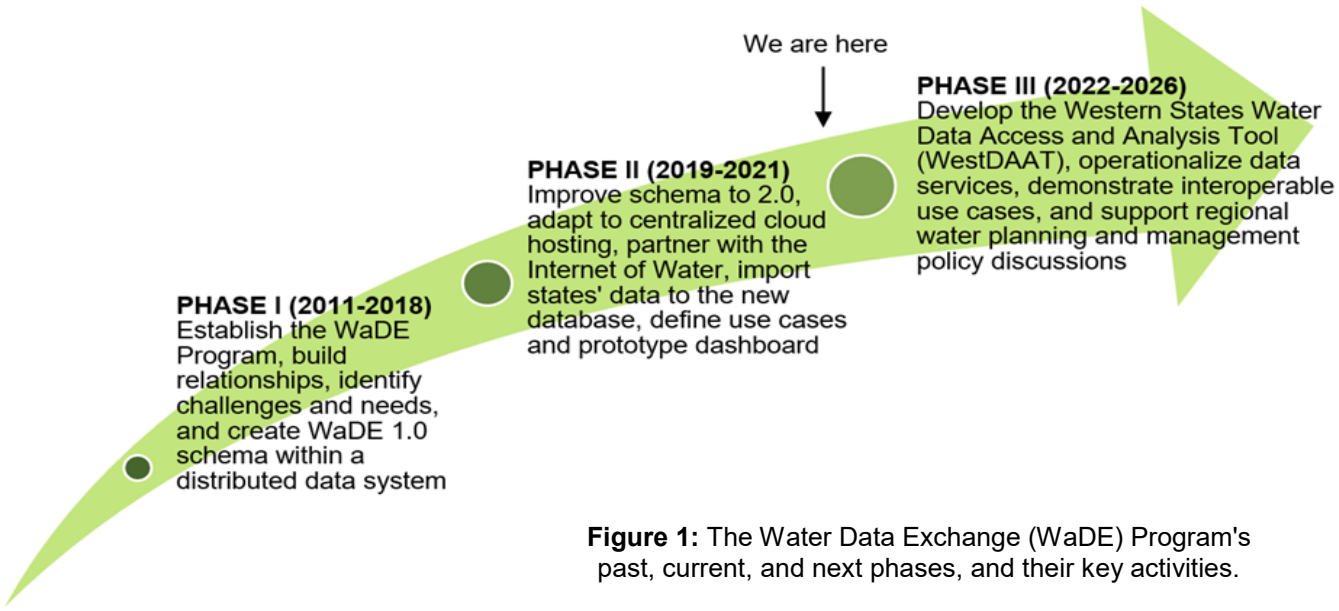


**Figure 1:** The Water Data Exchange (WaDE) Program's past, current, and next phases, and their key activities.

For more information about WaDE, please visit http://westernstateswater.org/wade and reach out to the WaDE Program Manager, Adel Abdallah adelabdallah@wswc.utah.gov.