



USGS Water Data for Washington

News: New Mapper and Experimental Real-Time Web Service - updated August 2009

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Data Category

- Real-time data** **Current-conditions** data transmitted from selected surface-water, ground-water, and water-quality sites.
- Site information** Descriptive site information for all sites with links to all available water data for individual sites.
- Surface water** Water flow and levels in streams, lakes, and springs.
- Ground water** Water levels in wells.
- Water quality** Chemical and physical data for streams, lakes, springs, and wells.
- Mapper** Map of all sites with links to all available water data for individual sites.

Introduction

These pages provide access to water resources data collected in the State of Washington which are part of the continuing work to assess the water resources of the State with the support of many [cooperators](#). This data are provided for the use of the many federal, state and local agencies, Tribal Nations, organizations, water and power utilities, companies and the public with interests in the water resources in Washington.

These pages include ground water and surface water data - and the associated water-quality data with those sites, meteorological data, and site information. These data are normally published in Annual Data Reports, but can be published in Investigative reports. Additional information is available from the Web pages of the [Washington Water Science Center](#).

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Figure 1. Screen capture of NWISWeb home page for Washington.

The U.S. Geological Survey (USGS) has been investigating the water resources of Washington State since the latter part of the 19th century. During this time, demand for water has evolved from primarily domestic and stock needs to the current complex requirements for public-water supplies, irrigation, power generation, navigation, ecological needs, and numerous other uses. Water-resource data collected by the USGS in Washington have been, or soon will be, published by the USGS Washington Water Science Center (WAWSC) in numerous data and interpretive reports. Most of these reports are available online at the WAWSC web page <http://wa.water.usgs.gov/pubs/>.

Water Resource Data

Water-resource data collected by the USGS are stored for internal use in the USGS National Water Information System (NWIS). To disseminate these data to the public, the USGS maintains a publicly accessible version of NWIS known as NWISWeb that can be accessed at

<http://waterdata.usgs.gov/wa/nwis/>.

NWISWeb provides public access to several million items of historical and real-time water-resource data, which can be viewed and downloaded in various formats. As shown in figure 1, NWISWeb allows access to five categories of water resource data:

- ◆ *Real-time data*
- ◆ *Site information*
- ◆ *Surface water*
- ◆ *Groundwater*
- ◆ *Water quality*

In addition to water-resource data collected by the USGS, NWIS and NWISWeb include data collected by many other agencies, tribal nations, and organizations. However, neither database includes all the water-resource data collected in Washington State.



Real-Time Data

Real-time data are time-series data recorded at fixed intervals by automated equipment, are transmitted by satellite telemetry, and represent the most current hydrologic conditions. Real-time data for Washington are available at

<http://waterdata.usgs.gov/wa/nwis/rt>,

and the web pages listed in the Surface water, Groundwater, and Water quality sections. The real-time web-page contains streamflow, reservoir, water-quality, meteorological, and groundwater data from about 300 sites, including about 240 sites that have satellite telemetry for real-time data and another 20 sites that use other communications methods to transmit near real-time data.



Site Information

Descriptive site information for Washington is available at <http://waterdata.usgs.gov/wa/nwis/si>.

The site-information web page contains descriptive-information for more than 91,000 data sites in Washington. About 86,000 of these sites are wells or other groundwater sites, 850 are springs or seeps, 4,600 are surface-water sites, and 530 are miscellaneous sites such as subsurface drains and soil test sites. Descriptive information for each site includes:

- ◆ *Site identification number*
- ◆ *Site name*
- ◆ *Latitude, longitude, and horizontal datum*
- ◆ *County and State where site is located*
- ◆ *Hydrologic Unit Code (HUC)*
- ◆ *Land surface altitude and vertical datum*
- ◆ *National and local aquifer in which well is completed (groundwater sites only)*
- ◆ *Drainage area (surface-water sites only)*

Surface Water

Surface-water data for Washington are available at <http://waterdata.usgs.gov/wa/nwis/sw>.

The surface-water web page contains data for about 1,800 sites in Washington, including:

- ◆ *Real-time data for 253 automated sites*
- ◆ *Daily data for more than 1,057 sites*
- ◆ *Daily, monthly, and annual statistics for 1,035 sites*

- ◆ *Peak-flow data for 975 sites*
- ◆ *Field measurements of streamflow discharge and gage height at 1,798 sites*

Groundwater

Groundwater data for Washington are available at <http://waterdata.usgs.gov/wa/nwis/gw>.

The groundwater web page contains data for about 73,000 groundwater sites in Washington including:

- ◆ *Real-time water-level data for one site*
- ◆ *Daily water-level for two sites*
- ◆ *Daily, monthly, and annual statistics for two sites*
- ◆ *Field water level measurements for more than 73,000 sites*



Water Quality

Water-quality data for Washington are available at <http://waterdata.usgs.gov/wa/nwis/qw>.

The water-quality web page contains data for nearly 15,000 sites in Washington, including 12,000 groundwater sites, 2,700 surface-water sites, and 500 miscellaneous sites such as subsurface drains and soil-test holes. These data include:

- *Real-time water-quality data from 28 automated sites*
- *Daily water-quality data for 55 sites*
- *Daily, monthly, and annual statistics of water-quality data for 39 sites*
- *Field and laboratory analyses of chemical, physical, biological, and other environmental properties for about 15,000 sites*



Water Use

Since 1950, the USGS has, at 5-year intervals, compiled and published data on the amount of water used in homes, businesses, industries, and on farms throughout the United States. The water-use data for Washington State can be accessed at the WAWSC web page at

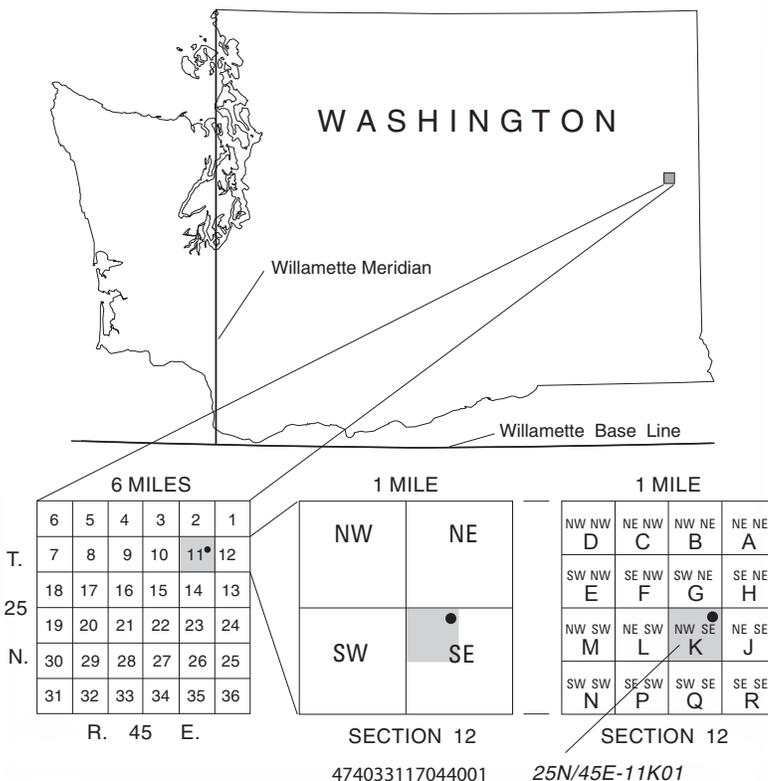
<http://wa.water.usgs.gov/data/wuse/>.

Site Identification

Every site in NWIS and NWISWeb is assigned a unique site identification number (site ID) and a unique site or station name. For groundwater, springs, and most non-surface-water sites the site ID is a 15-digit number formed from the initial latitude and longitude of the site in degrees, minutes, and seconds, and a 2-digit sequence number. The first 6 digits of the site number are the latitude, the 7th through 13th digits are the longitude, and the 14th and 15th digits are sequence numbers used to distinguish between sites at the same location. Leading zeros are used as needed so the site number will not contain blank spaces. Although the site number is based on the initial latitude and longitude of the site, once assigned, the number is used only as an identification number; it has no location significance and cannot be changed.

The site name for a ground-water site in Washington is based on the site location in terms of the Public Land Survey rectangular grid system (fig. 2). For example, in site name 25N/45E-11K01, 25N indicates the township north of the Willamette base line; 45E indicates the range east of the Willamette meridian; 11 indicates the section; and K indicates the 40-acre tract (quarter-quarter) within the section. The number following the section (01) is a sequence number that indicates the order in which wells in the same quarter-quarter were identified for entry into the database. A suffix after the sequence number indicates that a well has been deepened (D1) or reconditioned (R1) after its initial construction. The suffix S identifies a site as a spring rather than a well.

Figure 2. Well numbering system in Washington.



Although many agencies and organizations in Washington use similar numbering and naming systems, consistency of assigned site numbers and names between agencies should not be assumed.

For surface-water and other sites where water is exposed on the land surface, the site ID is typically an 8 to 10 digit downstream order number, which locates the site in terms of the site's distance from the source (upstream end) of the surface-water body. For surface-water sites the station name consists of five parts: (1) the feature name (stream, canal, or reservoir); (2) the generic name ("River," "Lake," "tunnel" and so on); (3) the term to indicate location ("at," "above," "below," "near," and so on); (4) the place name (city, town, or major feature); and (5) the State or States where the reference place name is located. For example: SPOKANE RIVER BELOW UPRIVER DAM AT SPOKANE, WA.

Water Data for Other States

Publicly viewable water-resource data for other states are available at

<http://waterdata.usgs.gov/wa/nwis/nwis>

by using the navigation buttons in the lower left corner of the banner to select the data category and geographic area of interest.

Public Inquires and Data Requests

Inquires and requests for data and reports may be made on-line at the WAWSC web-page,

<http://wa.water.usgs.gov/pubinfo/>

Or by contacting the Public Information Officer,
253-552-1635

Washington Water Science Center at:

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Washington Water Science Center
934 Broadway, Suite 300
Tacoma, Washington 98402
<http://wa.water.usgs.gov/>