

Water Resources Council (WRC)

October 12, 2022



North Central Texas Council of Governments
**Environment
& Development**

www.nctcog.org/WaterResources

Procedures for Online Meeting

- Today's presentation is posted on the WRC website at:
<https://www.nctcog.org/envir/committees/water-resources-council>
- Roll call today in lieu of sign-in sheet.
- Please state your name and entity you are representing when you ask a question or provide a comment.
- Please keep your microphone on mute when not speaking.
- Approval of action items will still be done by a voice vote. Please only vote if you are a member of the WRC.

Water Resources Council

October 12, 2022

1. Welcome and Introductions

- WRC attendance by roll call
- Guests are welcome to introduce themselves in the chat.
- Thank you for attending!

Water Resources Council

October 12, 2022

2. New Member Welcome

- Stephen Gay, Director of Utilities, City of Denton
- Rachel Ickert, Chief Water Resources Officer, Tarrant Regional Water District
- Matthew Jalbert, P.E., Executive Manger, Northern Region, Trinity River Authority

Action Items

3. Meeting Summary

The [July 13, 2022 meeting summary](#) will be presented for approval.

Presentation

4. U.S. Geological Survey (USGS) National Water Dashboard (NWD): Modern Water Data Delivery for the Next Decade.

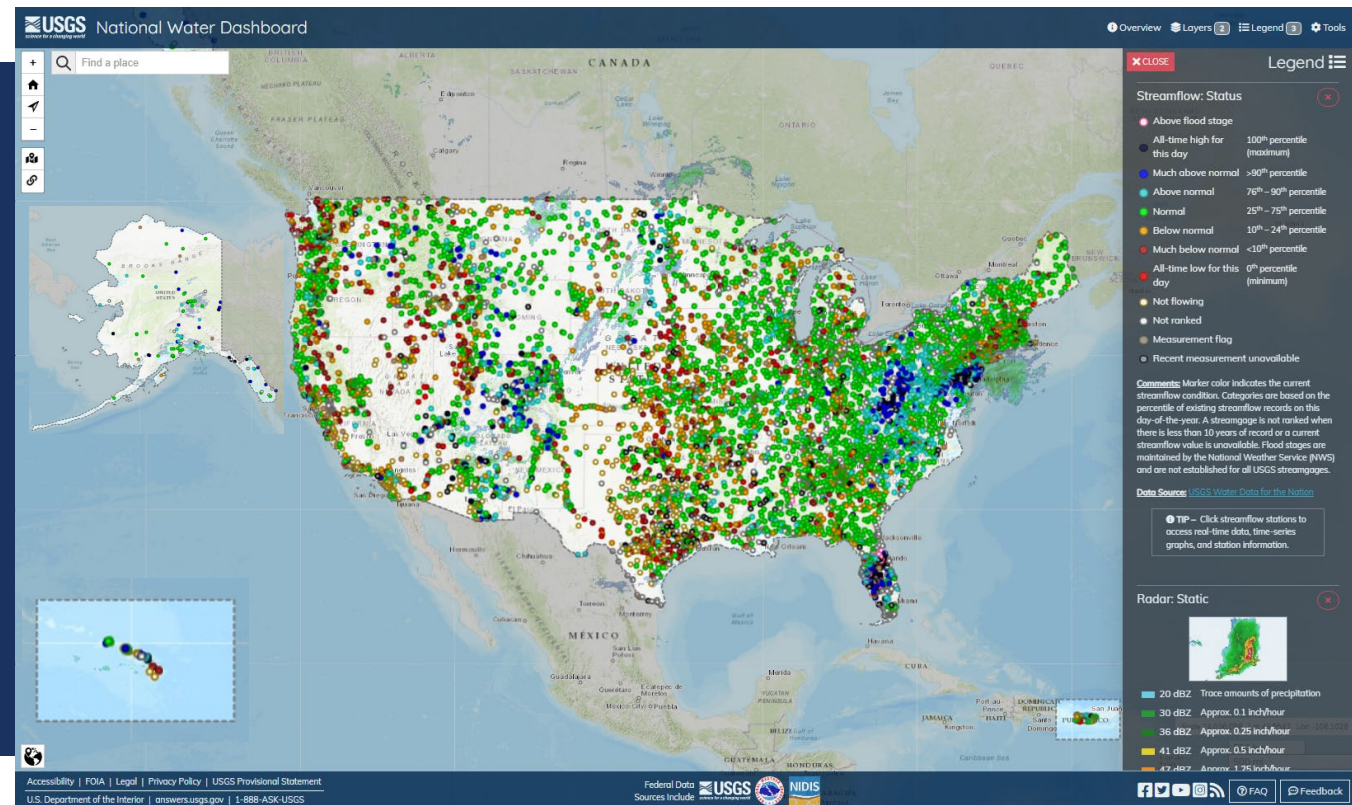
Thomas Burley, Physical Scientist (Informatics Specialist)

Oklahoma-Texas Water Science Center,
U.S. Geological Survey (USGS)

USGS NATIONAL WATER DASHBOARD

MODERN WATER DATA DELIVERY FOR THE NEXT DECADE

Thomas E. Burley
Physical Scientist (Informatics Specialist)
National Water Dashboard Product Owner
Oklahoma-Texas Water Science Center
U.S. Geological Survey
October 12, 2022



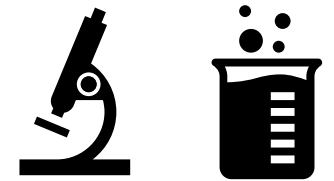
USGS WATER DATA DISCOVERY AND ACCESS



- National Water Dashboard (NWD) Overview
- Data and Data Criteria
- Use Cases
- New Features and Planned Enhancements



THE USGS WATER RESOURCES MISSION



- Department of the Interior, USGS founded in 1879, non-regulatory scientific mission
- Vision for Water Science in the USGS¹: *The USGS will provide unbiased knowledge of the Nation's water resources to support human well-being, healthy ecosystems, economic prosperity, and anticipate and help resolve impending water resources conflicts and emergencies....through integrated activities...will serve society through water-resource monitoring, assessment, modeling, and research to provide tools that managers and policymakers can use for the following:*
 - Preserving the quality and quantity of the Nation's water resources
 - Balancing water quantity and quality in relation to potential conflicting uses
 - Understanding, predicting, and mitigating water-related hazards such as floods, droughts, and contamination events
 - Quantifying the vulnerability of human populations and ecosystems to water shortages, surpluses, and degradation of water quality

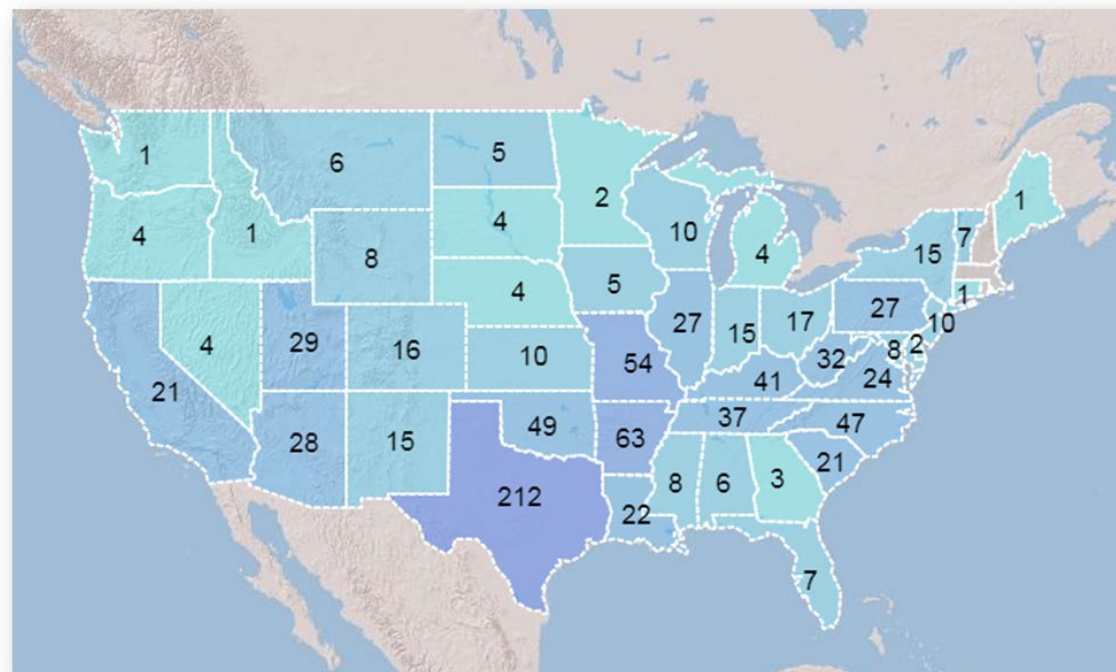


1.) Evenson, E.J., Orndorff, R.C., Blome, C.D., Böhlke, J.K., Hershberger, P.K., Langenheim, V.E., McCabe, G.J., Morlock, S.E., Reeves, H.W., Verdin, J.P., Weyers, H.S., and Wood, T.M., 2013, U.S. Geological Survey water science strategy—Observing, understanding, predicting, and delivering water science to the Nation: U.S. Geological Survey Circular 1383–G, 49 p.

REALITY: MOTIVATION AND CONTEXT

***Flood fatalities occur in almost every state.
Texas from 2010-2018 lead the U.S. in flood fatalities and vehicle-related flood fatalities!***

2010-2018 U.S. Flood Fatalities



Source: NOAA/National Weather Service

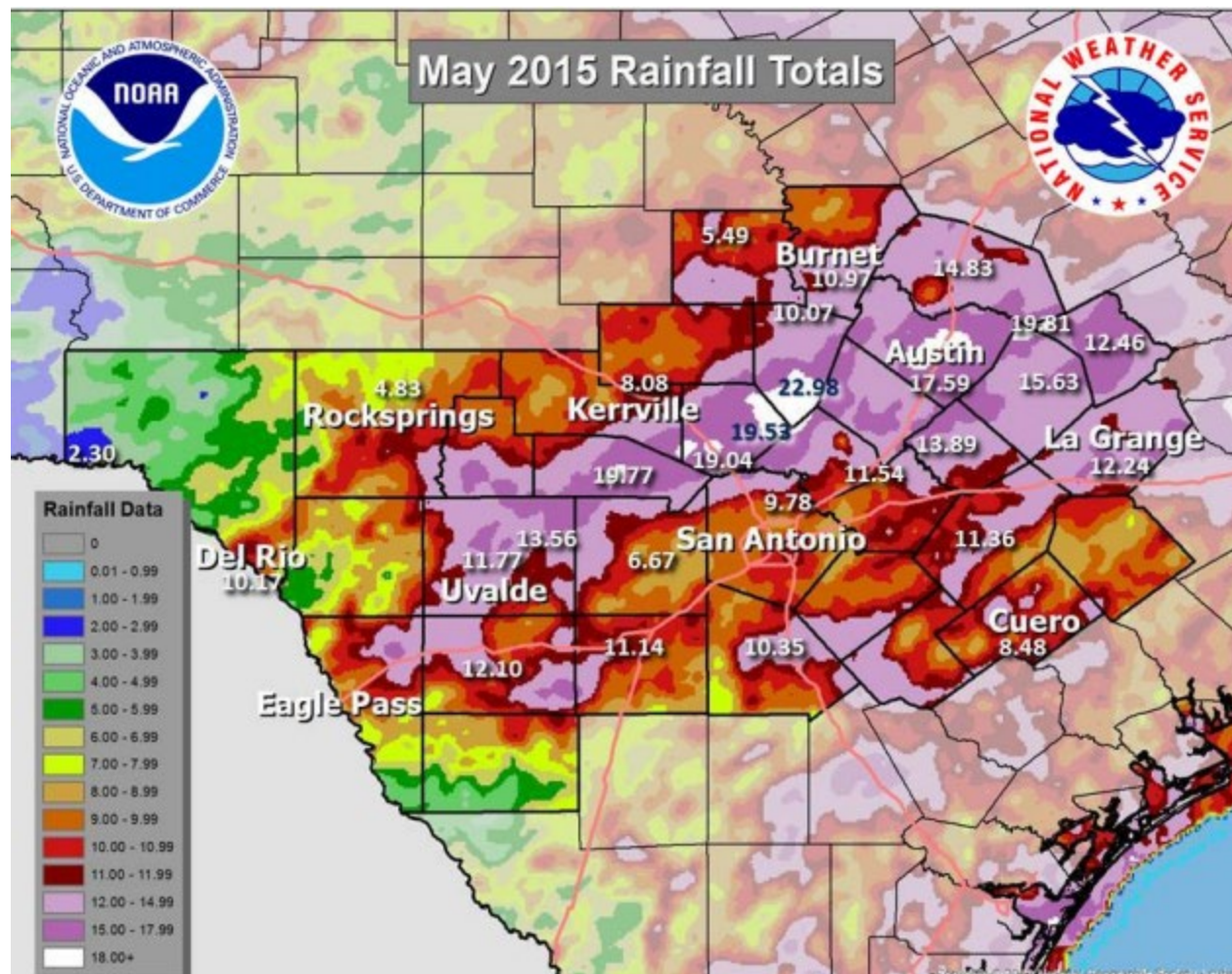


1.) Han, Z., and Sharif, H.O., 2020, Vehicle-Related Flood Fatalities in Texas, 1959-2019, Water 12(10), p.1-15.

2.) <https://www.weather.gov/arx/usflood>

DRIVER: MEMORIAL DAY FLOODING 2015

- May 2015 All-Time Record Wet Month in Texas¹
- Memorial Day 2015: approx. 10-13 inches rain in < 24 hours
- USGS Site Blanco River at Wimberley, TX (08171000) stream stage increased from approx. 9 feet at 10:30 PM CDT on May 23 to over 40 feet at 1 AM CDT on May 24
- 14 people lost their lives, including 12 along the Blanco River



2

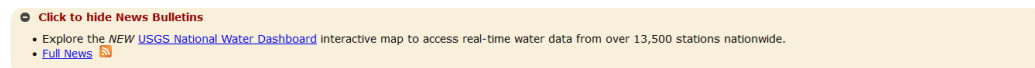
1.) <https://weather.com/forecast/regional/news/plains-rain-flood-threat-wettest-may-ranking>

2.) <https://www.weather.gov/media/ewx/wxevents/ewx-20150524.pdf>

USGS NATIONAL WATER INFORMATION SYSTEM (NWIS)



- Public data from [USGS Water Data for the Nation \(WDFN\)](https://waterdata.usgs.gov) (historically known as NWISWeb)
- Current conditions (commonly referred to as real-time): typically 15 minute data
- Historical observations
- Detailed monitoring site information
- Discrete data (field measurements)
- Statistics
- Types: Surface Water, Groundwater, Water Quality, Water Use, Precipitation



USGS Water Data for the Nation

Search for Sites With Data

Current Conditions

Sites with real-time or recent surface-water, groundwater, or water-quality data.

Site Information

Descriptive site information for all sites with links to all available water data for individual sites.

Map of all sites

Map of all sites with links to all available water data for individual sites.

Introduction

These pages provide access to water-resources data collected at approximately 1.9 million sites in all 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa and the Commonwealth of the Northern Mariana Islands. Online access to this data is organized around the categories listed to the left.

The USGS investigates the occurrence, quantity, quality, distribution, and movement of surface and underground waters and disseminates the data to the public, State and local governments, public and private utilities, and other Federal agencies involved with managing our water resources.

About Us

Help

Tutorial

Frequent Searches By Data Category

Surface Water

Water flow and levels in streams and lakes.

Groundwater

Water levels in wells.

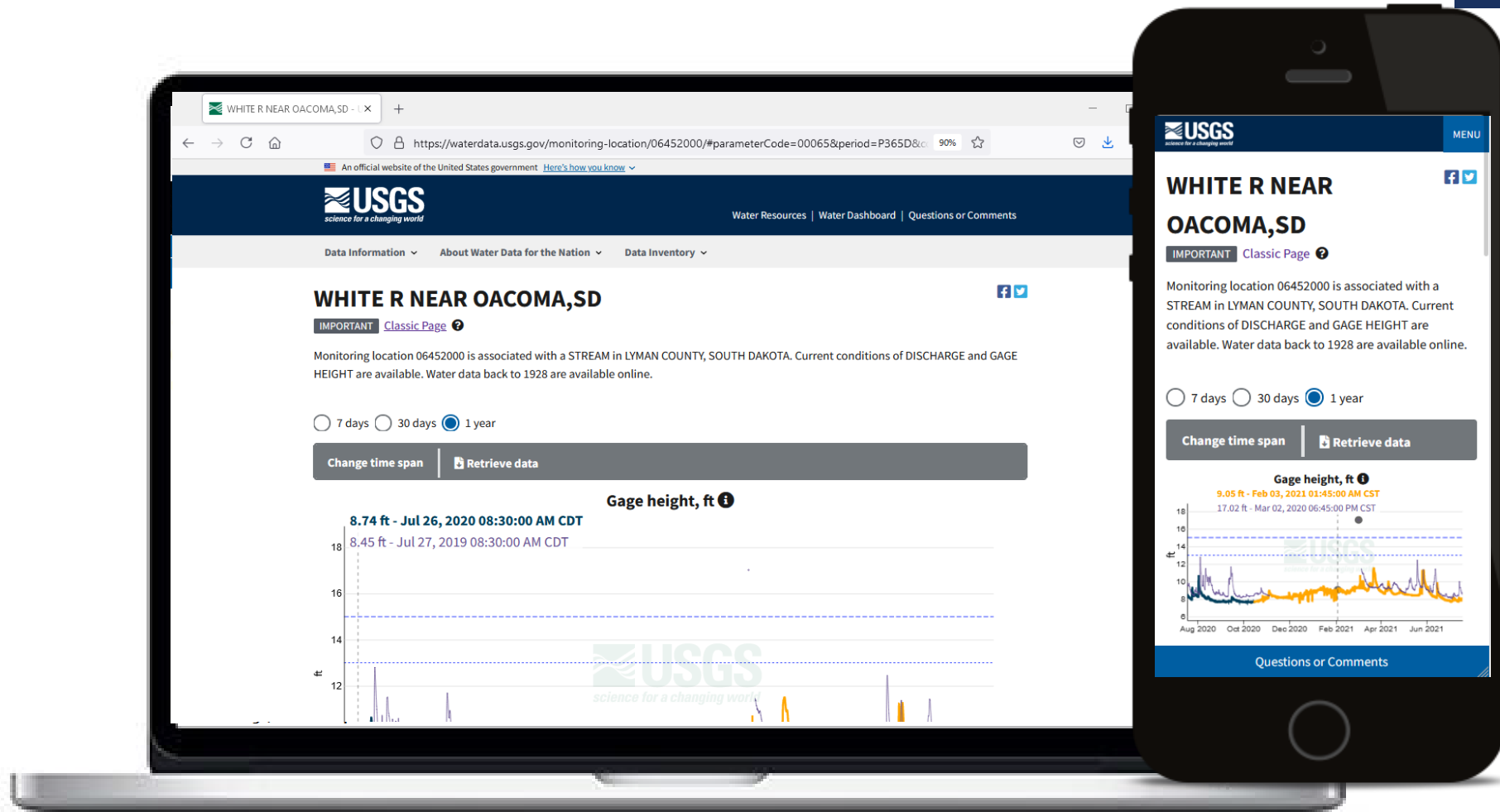
Water Quality

Chemical and physical data for streams, lakes, springs, wells and other sites.

Water Use

Water use information.

NWIS WEB CLASSIC AND WDFN: MODERNIZATION



THE REALITIES OF PROVIDING SITUATIONAL AWARENESS

- Current conditions: Where are the nearest streamgages? Which ones are upstream of me? What if I'm not familiar with the area?
- Forecast conditions: National Weather Service (NWS) Advanced Hydrologic Prediction Service (AHPS)
- Can you show me all this on a map with contextual layers including NWS Watches, Warnings, and Radar?
- User experience and user interface for non-hydrologists
- Assume urgent use cases and reliance on mobile devices

When an event hits and a river rises more than 30 feet in about 4 hours, how do we make all of this information consumable for a wide audience?



Source: <https://www.texastribune.org/2018/02/05/wimberley-floods-2015-caused-weather-patterns-intensified-development/>, Photo Credit: Marjorie Kamys Cotera

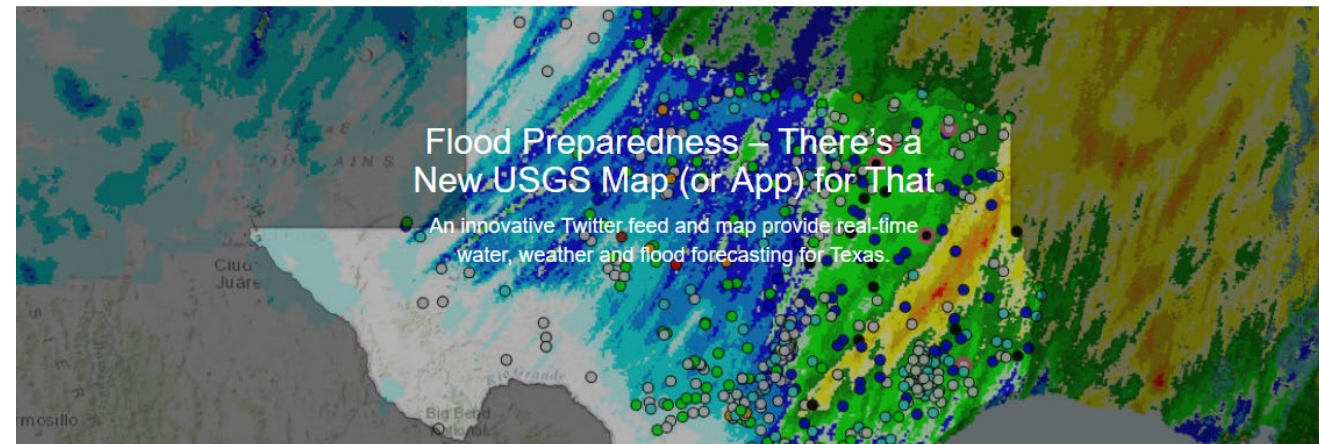
GETTING STARTED: TEXAS SCALE

- Texas Water Dashboard formally announced in Spring 2016
- First generation web mashup built with mobile in mind
- At-a-glance situational awareness: current conditions, forecast conditions, flood stage information

It was a start...



Flood Preparedness – There's a New USGS Map (or App) for That



Release Date: APRIL 28, 2016

Flood Preparedness – There's a New USGS Map (or App) for That

During the recent Texas flooding, the U.S. Geological Survey unveiled a new tool that gives users real-time water, weather and National Weather Service flood forecast information all in one place.

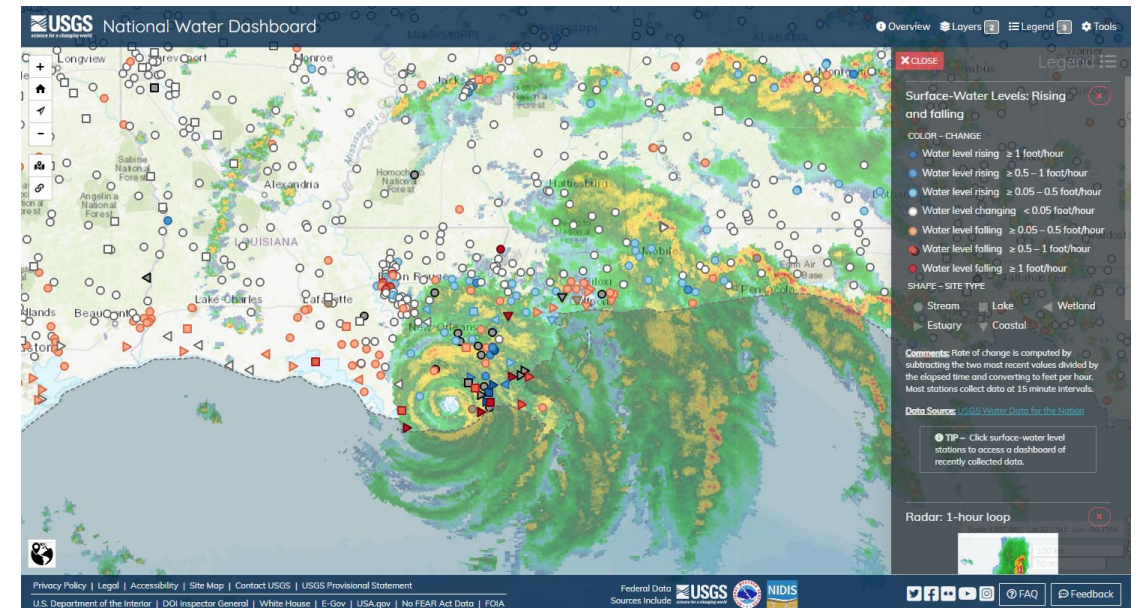
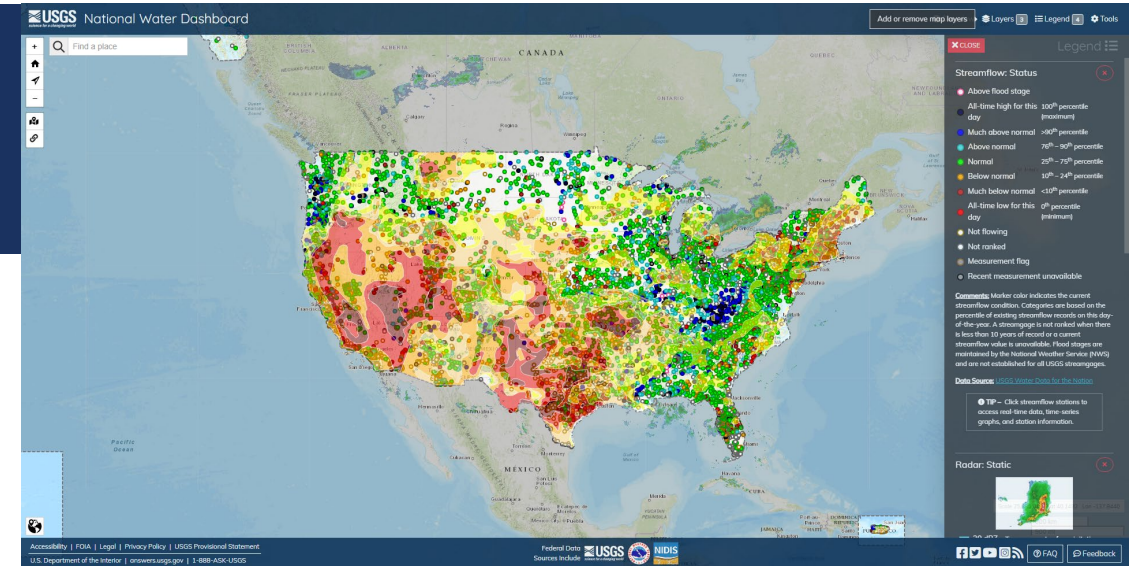


Contacts

Department of the Interior,
U.S. Geological Survey
Office of Communications and
Publishing
12201 Sunrise Valley Drive

NATIONAL WATER DASHBOARD

- **October 2020 release**
- Integrates USGS current conditions water data and other Federal water information together into a streamlined mobile-friendly interface
- Streamflow, surface water levels, groundwater, springs, water quality, precipitation, atmospheric
 - Current conditions, flow statistics, rate of change
- Streamflow summaries
- National Weather Service (NWS) flood stage status
- National Integrated Drought Information System (NIDIS) drought layer
- Weather radar, alerts, recent conditions, forecast
- Hydrologic context layers
- Additional partner data
- WaterAlert ➡ NextGen WaterAlert

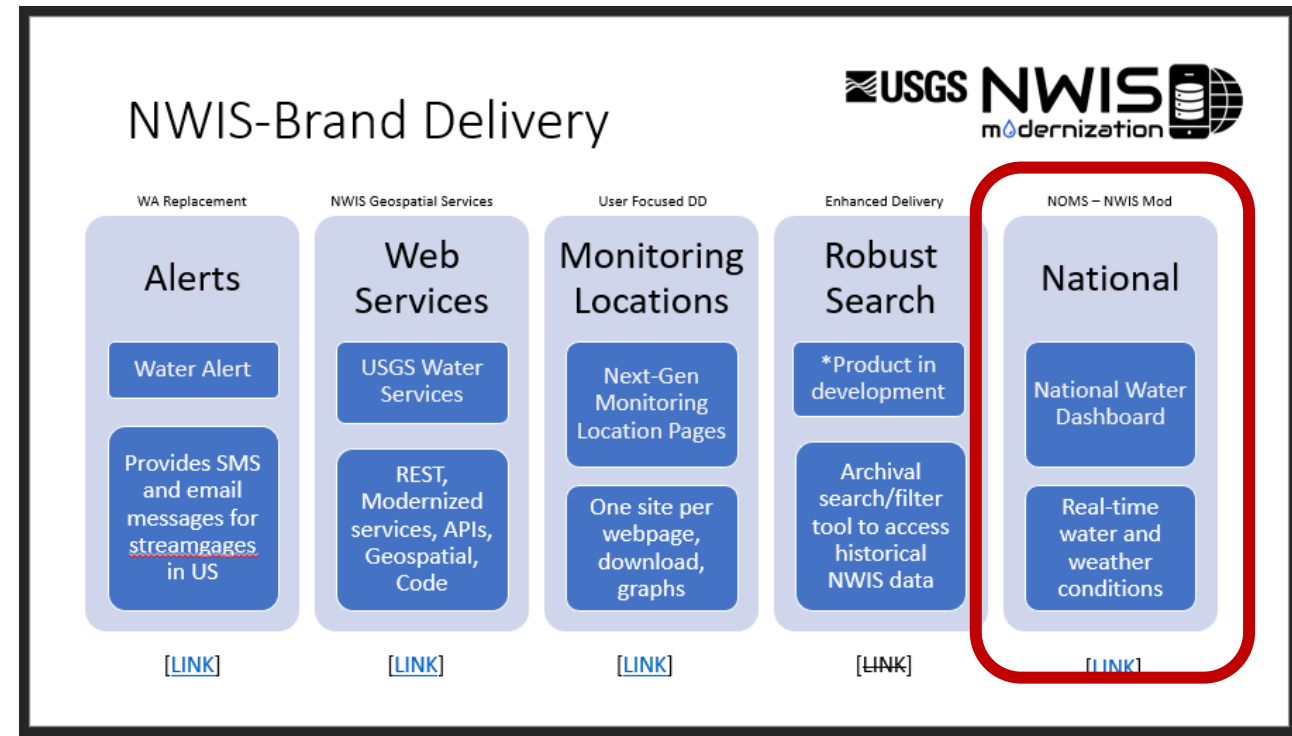


USGS WATER DATA, DELIVERED

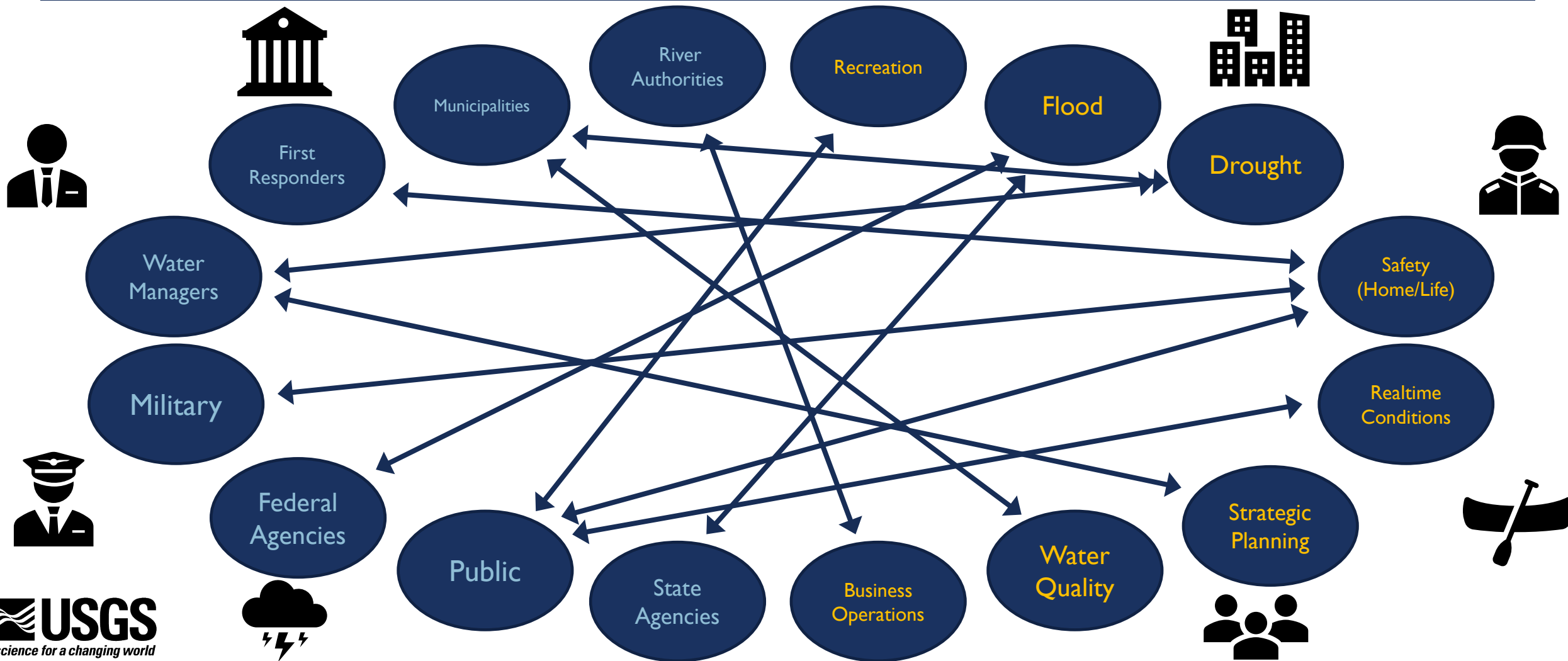
“The National Water Information System (NWIS) Modernization Program will provide necessary improvements to NWIS, the world's largest authoritative enterprise water information system, which is foundational to advancing priorities and meeting the emerging needs of USGS and WMA stakeholders.”

Components:

- Alerts ✓
- Web Services ✓
- Monitoring Locations ✓
- Robust Search ✓ in development
- **National: NWD** ✓



AUDIENCE ↔ DATA NEEDS...ENDLESS CONNECTIONS



SCENARIOS

“I am a private citizen camping in the Texas Hill Country and need to understand the local flow conditions due to a significant storm”

“I am a decision maker or program manager needing to know USGS current conditions monitoring sites near me while in the field on a mobile device”

“I need a one-stop resource for exploring USGS water data to make decisions associated with preserving life and property related to a chemical spill”

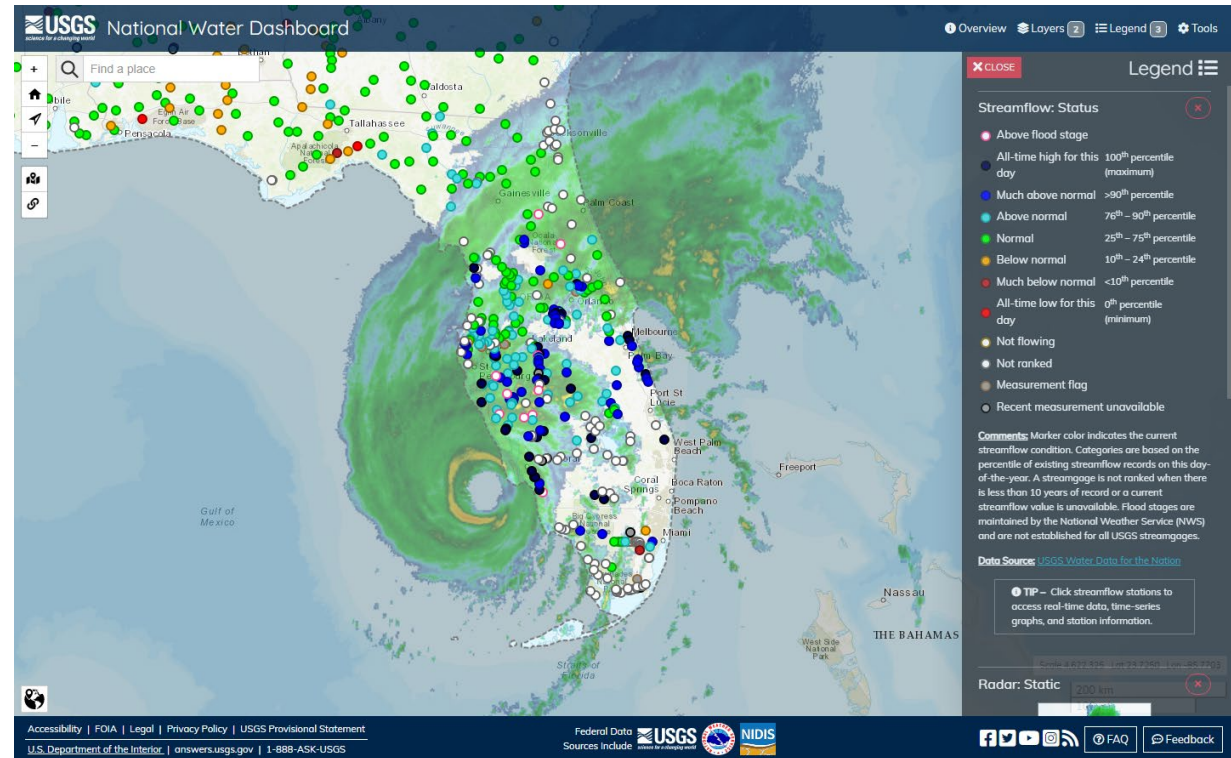
“I am an emergency manager or first responder in need of USGS current conditions water data in concert with watches, warnings, and forecast data from the National Weather Service for situational awareness in a rapidly changing flood event”

“I am a landowner and am concerned about the drought status of my area as well as groundwater levels”

“I am a manager concerned about chemical transport and monitoring real-time water quality conditions upstream of public drinking water intakes”

DATA CRITERIA

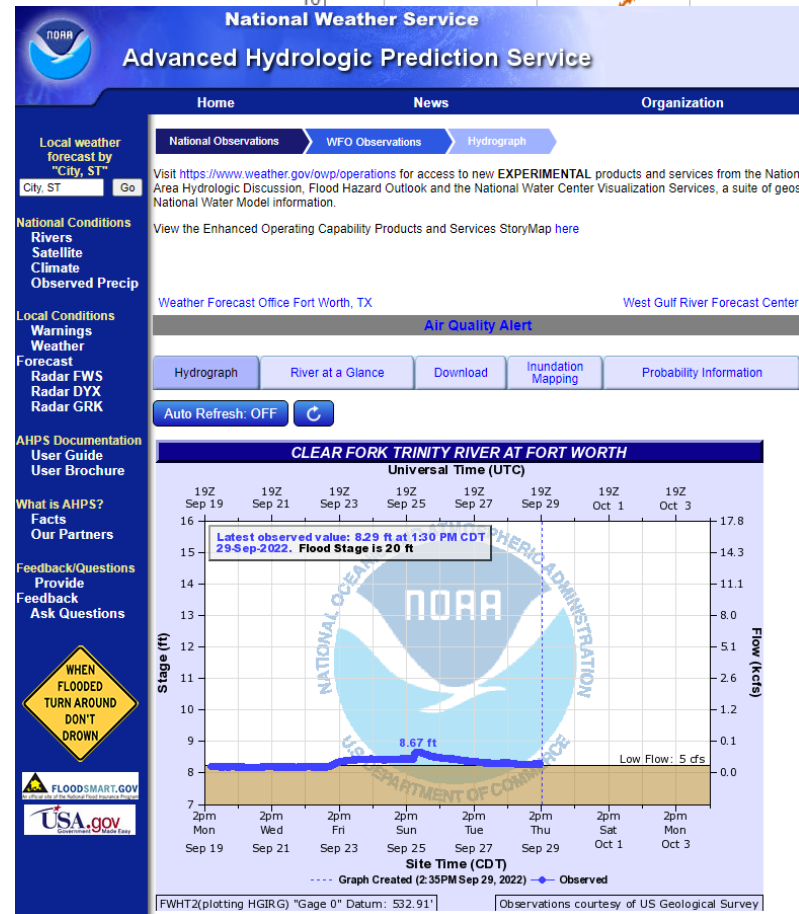
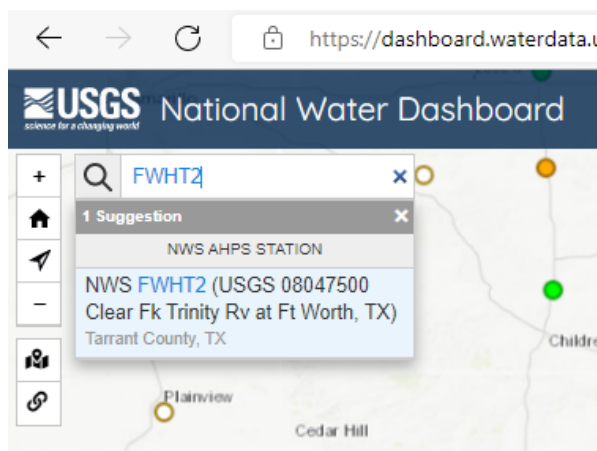
- National scale
- Stable web services
- Use case / requirements driven
- Audience



NEW FEATURES

Recent New Features and Functionality

- Handshake connection with NWS Forecasts
- Search for NWS five-digit site IDs
- Refactor for modernized USGS WaterAlert
- Data plot logscale option



USGS NEXT GENERATION WATERALERT



“I am a case manager that needs to know when certain water condition thresholds are exceeded, including pH, turbidity, dissolved oxygen, and discharge (flow)”

“...and I need push notifications to where I don't need to worry about checking a web page”

- Original WaterAlert released in 2010, first of its kind SMS (text) and email-based notification system for alerts when threshold conditions are met
- Allows users to set notification thresholds for any current conditions streamgage, precipitation, water-quality, or groundwater monitoring site
- NextGen updates include message delivery formats, look and feel, design refactor

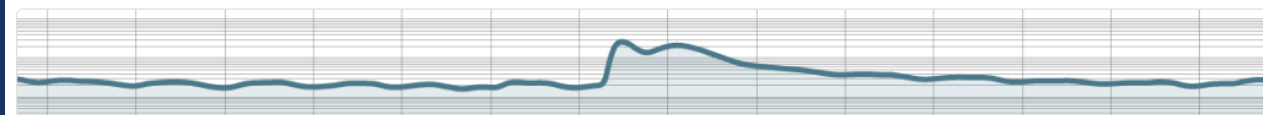
A screenshot of the USGS WaterAlert website. The header features the USGS logo and navigation links for WaterAlert, My Alerts, and User Guide. A 'Sign in' button and a 'Settings' gear icon are visible. A reminder message states 'Reminder: you're not signed in'. The main heading is 'USGS WaterAlert'. Below this, there's a 'Welcome to WaterAlert' section with a smartphone image showing the app interface. The text explains that users get notifications for changes in water conditions based on chosen thresholds. It notes that the service is free, notifications are sent via email or phone, and users can create, edit, or remove subscriptions. A 'User Guide' link is provided. A paragraph explains that real-time data from USGS monitoring locations are transmitted via satellite or telemetry to USGS offices at various intervals, typically hourly, with emergency transmissions during floods. A link to a 'Check Status User blog post' is included. At the bottom, there's a 'Questions or Comments' button.

NEW FEATURES

- Update to Graphing Water Information System (GWIS) API
- Build USGS water data time-series plots and link to or embed them in your own dashboard or web application

Example: National Park Service Chattahoochee National Recreation Area:

<https://www.nps.gov/chat/planyourvisit/river-flow-rate.htm>



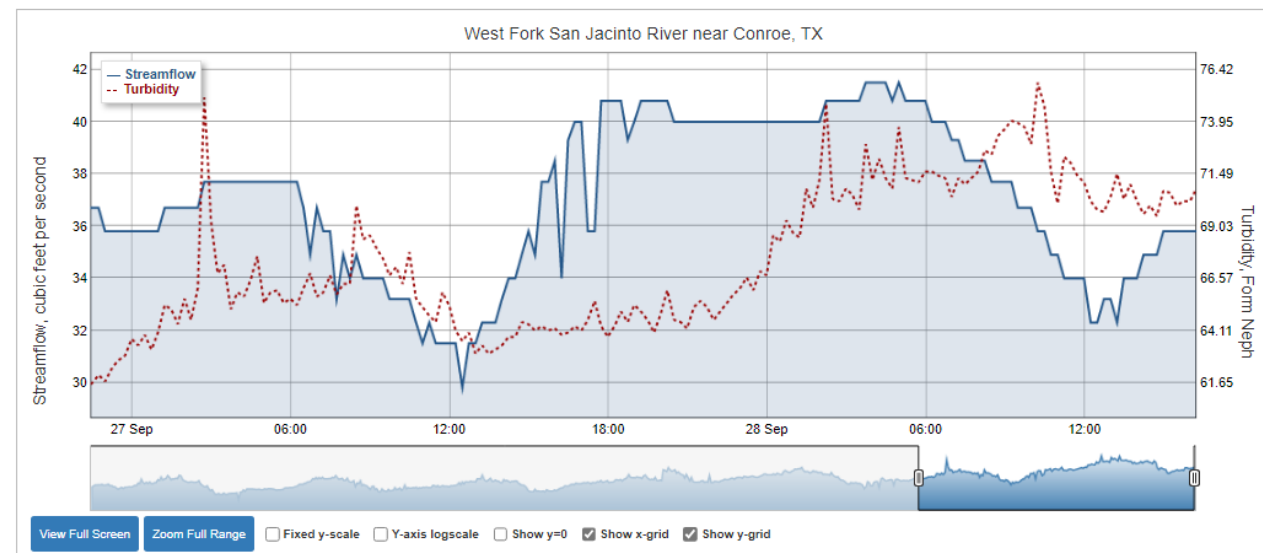
GWIS JavaScript API Version 1.0 ▼ Select Version

[Overview](#) [Samples](#) [Documentation](#) [Services](#) [FAQ](#) [Download](#)

Overview

GWIS (Graphing Water Information System) is a JavaScript library for creating time-series plots of data measured at USGS data collection sites. The user-friendly interface integrates the open-source [dygraphs JavaScript charting library](#) with the backbone data provided by [USGS water services](#).

GWIS allows you to easily insert one or more interactive plots of any current or historical data available from the USGS [Instantaneous \(Real-Time\)](#) or [Daily Value Service](#) like this into your web page:



NEW FEATURES AND PRODUCTS



- Geocoder JavaScript API for webpage search boxes
 - Built on top of Geographic Names Information System (GNIS)
 - USGS sites update automatically
 - Search by USGS site descriptive names
 - Agency codes included

USGS
science for a changing world

Geocoder JavaScript API Version 1.0.0

Overview Examples Documentation Download Service FAQ

Welcome to the
Geocoder JavaScript API

The Geocoder API is a JavaScript library for creating webpage search boxes that find places in the United States and U.S. Territories.

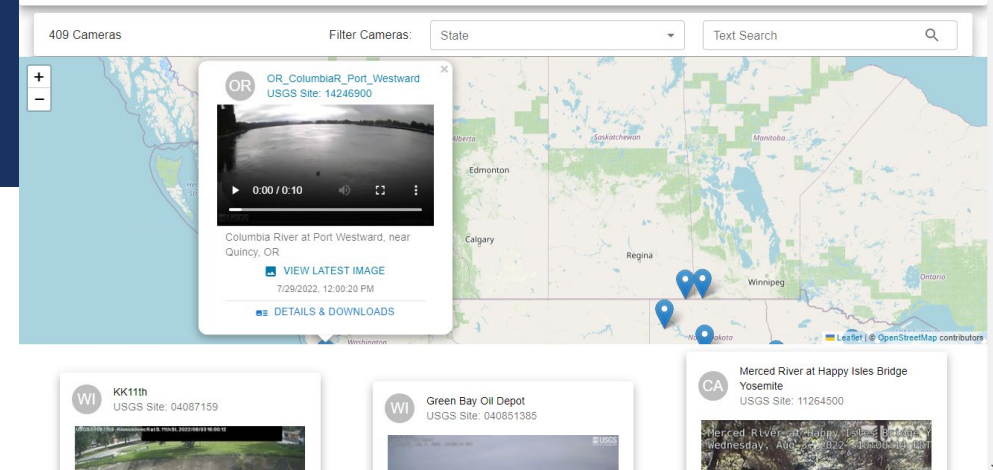
An auto-complete menu shows suggested locations as text is typed, and you define what action to take when a location is selected.

Live Demo

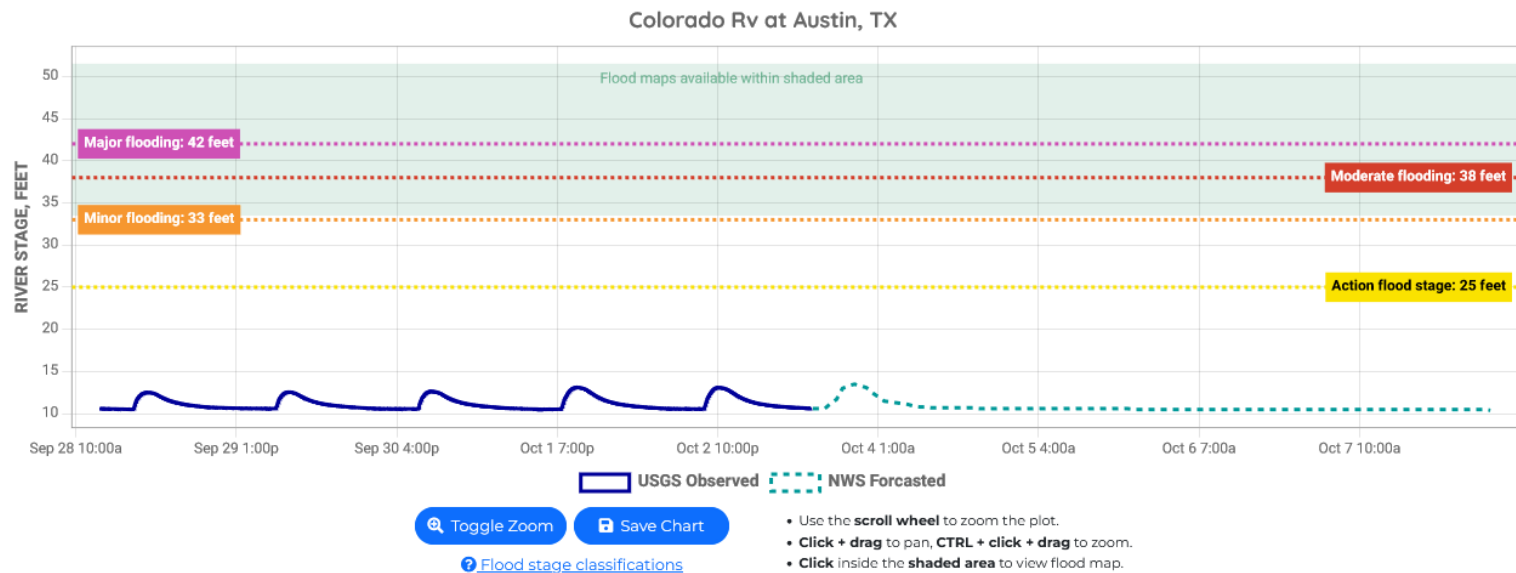
Find a place

PLANNED ENHANCEMENTS

- Spanish language version
- Current conditions geospatial services API
- Groundwater status
- More detailed sensor information
- New areas of interest (for example, hydrologic unit codes)
- Incorporate NWS forecast plots
- Streamgauge cameras (fixed)
- Advanced search



Hydrograph



THANK YOU!

Thomas E. Burley

Physical Scientist (Informatics Specialist)

National Water Dashboard Product Owner

Oklahoma-Texas Water Science Center

U.S. Geological Survey

teburley@usgs.gov

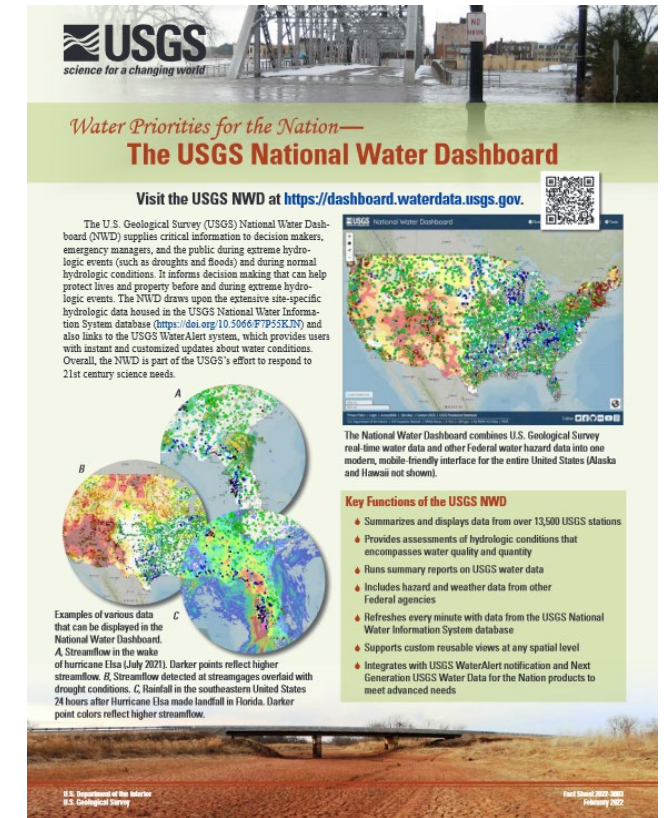
210-414-9577

<https://dashboard.waterdata.usgs.gov>

NWD:



Fact Sheet:



Miller, M.P., Burley, T.E., and McCallum, B.E., 2022, Water priorities for the Nation—The USGS National Water Dashboard: U.S. Geological Survey Fact Sheet 2022–3003, 2 p., <https://doi.org/10.3133/fs20223003>

Discussion

5. FY2023 Water Resources Council Membership

NCTCOG will present the final WRC FY2023 membership [roster](#) and [structure](#). New two-year terms began for new members and reappointed members on October 1, 2022, and expire on September 30, 2024.

Discussion

6. FY2023 Water Resources Education and Outreach

The WRC is asked for input on the topics and speakers for upcoming webinars or workshops.
Thank you!

Other Business and Roundtable Discussion

7. NCTCOG Updates

a. *Final 2022 Update to the North Central Texas Water Quality Management Plan.*

2022 Update to the North Central Texas Water Quality Management Plan - Executive Summary, Acronyms, and Figures



August 30, 2022

PREPARED IN COOPERATION WITH THE TEXAS COMMISSION ON ENVIRONMENTAL
QUALITY AND U.S. ENVIRONMENTAL PROTECTION AGENCY

Other Business and Roundtable Discussion

7. NCTCOG Updates (con't)

b. Trash Free Waters Project

- [Trash Free Texas partners](#)
- [Trash Free Texas map](#)
- Trash Free Texas Single-Use Plastic Reduction Workgroup Meeting. (Virtual)
 - Monday, November 7 at 2:30 p.m. [Add to Calendar](#)



Other Business and Roundtable Discussion

7. NCTCOG Updates (con't)

c. Trinity River National Water Trail Task Force Meeting.

➤ Wednesday, November 2, 2022

10:00 a.m. Online.

[Add to Calendar](#)



Other Business and Roundtable Discussion

7. NCTCOG Updates (con't)

d. Total Maximum Daily Load Program

Staff Contact - Hannah Allen, hallen@nctcog.org

- DRAFT “Don’t Feed the Birds” Educational Explainer Video, [Draft Script](#) and [Draft Video](#)
- DRAFT “No Muss, No Fuss - Be Wise When You Flush” Explainer Video, [Draft Script](#) and [Draft Video](#)



Other Business and Roundtable Discussion

7. NCTCOG Updates (con't)

e. Wastewater and Treatment Education Roundtable

Staff contact: Hannah Allen, hallen@nctcog.org.

➤ Join the 2022 [Holiday Grease Roundup!](#)

Monday, November 14, 2022 through January 9, 2023.

➤ Next WATER Meeting. Thursday, October 20, 2022, 10:00 a.m. In-Person at NCTCOG. [Add to Calendar](#)

➤ [FY2023 Water Program](#) participation is open now.



Other Business and Roundtable Discussion



16TH ANNUAL NORTH TEXAS REGIONAL WATER CONSERVATION SYMPOSIUM

**NOVEMBER 17, 2022
8 AM - 3:30 PM**

[NTXH2OSYMPOSIUM.EVENTBRITE.COM](https://ntxh2osymposium.eventbrite.com/)

EVENT LOCATION:
FOUR POINTS SHERATON
1580 POINT W BLVD
COPPELL, TX 75019

Sponsored by:
City of Dallas
Water Utilities

North Texas Municipal
Water District

Tarrant Regional
Water District

Upper Trinity Regional
Water District

DON'T MISS IT!

TOPICS

COMMUNICATING CONSERVATION
CONSERVATION AND PLANNING FOR THE FUTURE
INCENTIVE PROGRAMS
CONSERVATION FOR SMALL AND MEDIUM UTILITIES

BREAKFAST AND LUNCH SERVED

PRIZE DRAWINGS!

<https://ntxh2osymposium.eventbrite.com/>

Other Business and Roundtable Discussion

**North Central Texas Community Rating System (CRS)
Users Group Meeting and Elected Officials Floodplain
Seminar**

Tuesday, October 25, In-Person

9:30 a.m. - 11:30 a.m.

NCTCOG's Transportation Council Room

Register [here](#)

Other Business and Roundtable Discussion

L-273 Course for Floodplain Managers

Hosted by the Federal Emergency Management Agency and
NCTCOG

Monday – Thursday, November 14-17, 8:00 a.m. – 5:00 p.m.,
and

TFMA Certified Floodplain Manager exam on
Friday, November 18 at 9:00 a.m.

NCTCOG's Metroplex Conference Room

Other Business and Roundtable Discussion

8. Future Agenda Items

The WRC can request future agenda items.

9. Roundtable

The WRC is invited to share what is happening in their communities.

Other Business and Roundtable Discussion

10. Next Meetings

- All meetings are from 10:30 a.m. - 12:30 p.m.

Tuesday, January 10, 2023 - [Add to Calendar](#) (In-Person)

Wednesday, April 12, 2023 - [Add to Calendar](#) (Online)

Wednesday, July 12, 2023 - [Add to Calendar](#) (In-Person)

Wednesday, October 11, 2023 - [Add to Calendar](#) (Online)

11. Adjournment

Staff Contacts

➤ **Elena Berg**

Environment and
Development Planner III

EBerg@nctcog.org

817-608-2363

➤ **Cassidy Campbell**

Environment and
Development Program
Manager

CCampbell@nctcog.org

817-608-2368

➤ **Edith Marvin**

Director of Environment
and Development

EMarvin@nctcog.org

817-695-9211