

Overview of USGS Continuous Water-Quality Network

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Real-time Water Quality Monitoring Workshop 2018

St. John's, NF, Canada

U.S. Department of the Interior

U.S. Geological Survey

USGS continuous WQ network



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WaterQualityWatch -- Continuous Real-Time Water Quality of Surface Water in the United States

Home

About USGS WaterQualityWatch

Current RTWQ Maps [Redisplay](#)

State:

Measurement:

[Animate Map](#)

[Site List](#)

Map of all USGS Water Data

RTWQ FAQ

State Links to Surrogates and Reports


Technical Resources

Other Links

Search USGS Publications

Real-Time Water Temperature, in °C

November 07, 2018 16:30ET



Explanation							
▼	▼	▼	▼	▼	▼	▼	▼*
<1	1-4.9	5-9.9	10-19.9	20-29.9	30-35	>35	No Data

Temp
Cond
pH
D.O.
Turb
Nitrate
Disch
Chlorophyll
Surrogates

* Site operated on a seasonal basis or currently is not operating.
No values are available for the last 6 hours.

The "Real-time" map tracks short-term changes (over several hours) of water quality. Although the general appearance of the map changes very little from one hour to the next, individual sites may change rapidly in response to major rain events or to reservoir releases. The data used to produce this map are provisional.

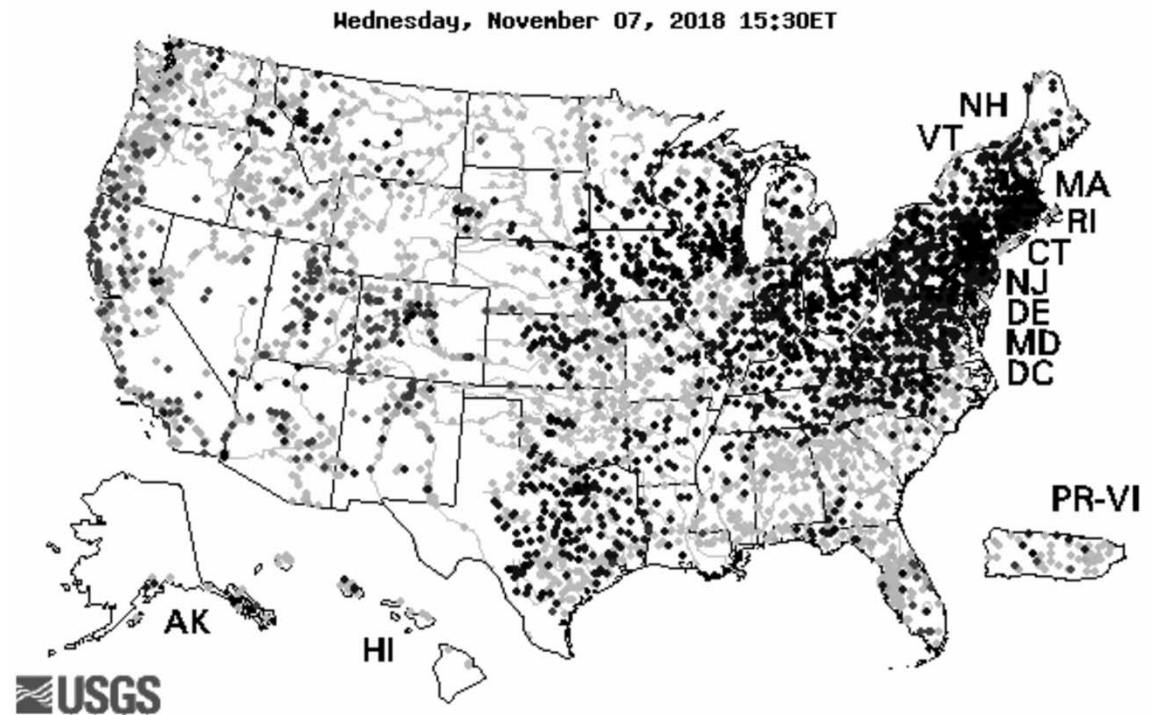
Animate national map by current Month, or last 12 months

USGS streamgauge network

There is no USGS network per se

USGS sites are typically operated by local offices

8,667 streamgauge infrastructure



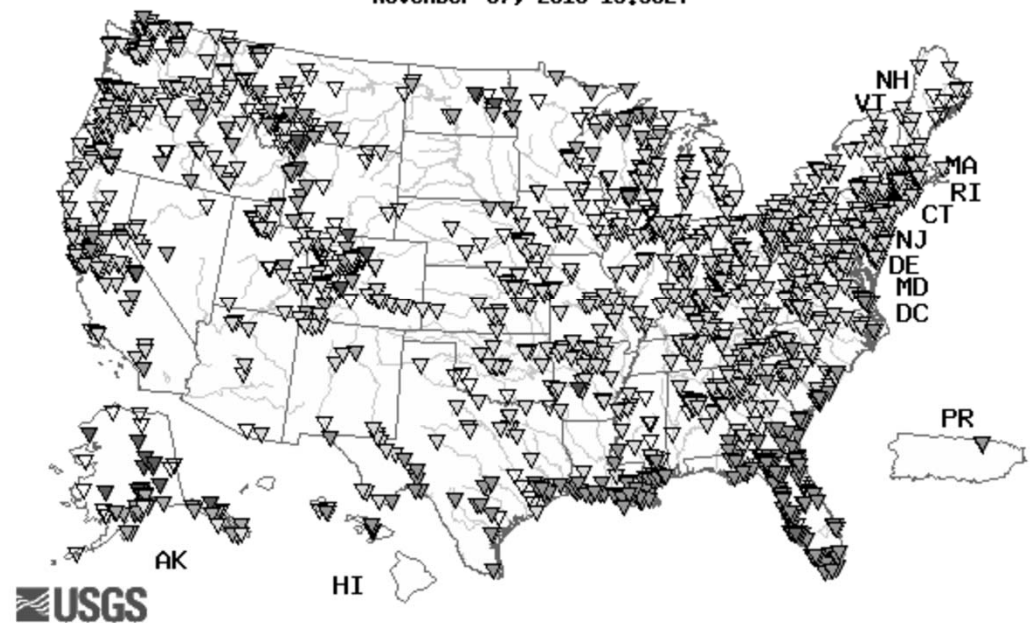
USGS water temperature network

2,842 water temperature sites or 32% of streamgages

Looking to expand the number of water temperature sites

Real-Time Water Temperature, in °C

November 07, 2018 15:30ET

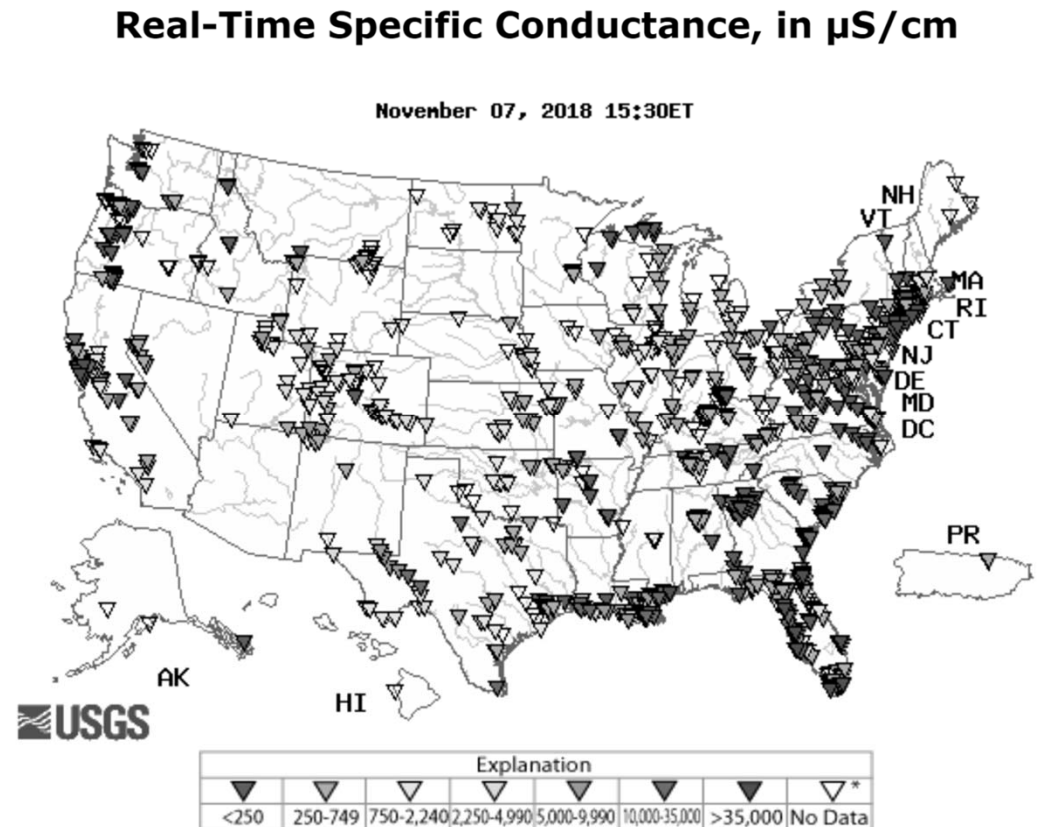


Explanation							
▼	▼	▼	▼	▼	▼	▼*	
<1	1-4.9	5-9.9	10-19.9	20-29.9	30-35	>35	No Data

USGS specific conductance network

1,209 specific conductance sites or 14% of streamgages

SC is excellent surrogate for dissolved constituents



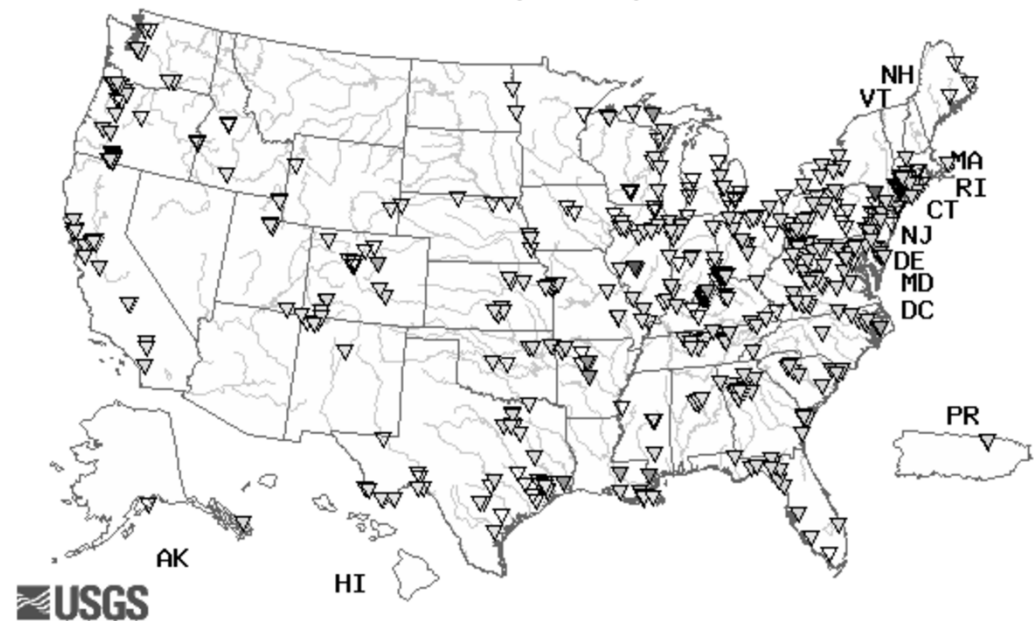
USGS pH network

509 pH sites or 6% of streamgages

pH is typically a regulatory parameter and can be used to compute primary production

Real-Time pH, field, in standard units

November 07, 2018 15:30ET



Explanation							
▼	▼	▼	▼	▼	▼	▼	▼*
<2	2-4.9	5-6.4	6.5-7.9	8.0-8.9	9-11	>11	No Data

USGS dissolved oxygen network

676 dissolved oxygen sites or 8% of streamgages

DO < 5 mg/L for extended periods of time is bad for aquatic life

Real-Time Dissolved Oxygen, in mg/L

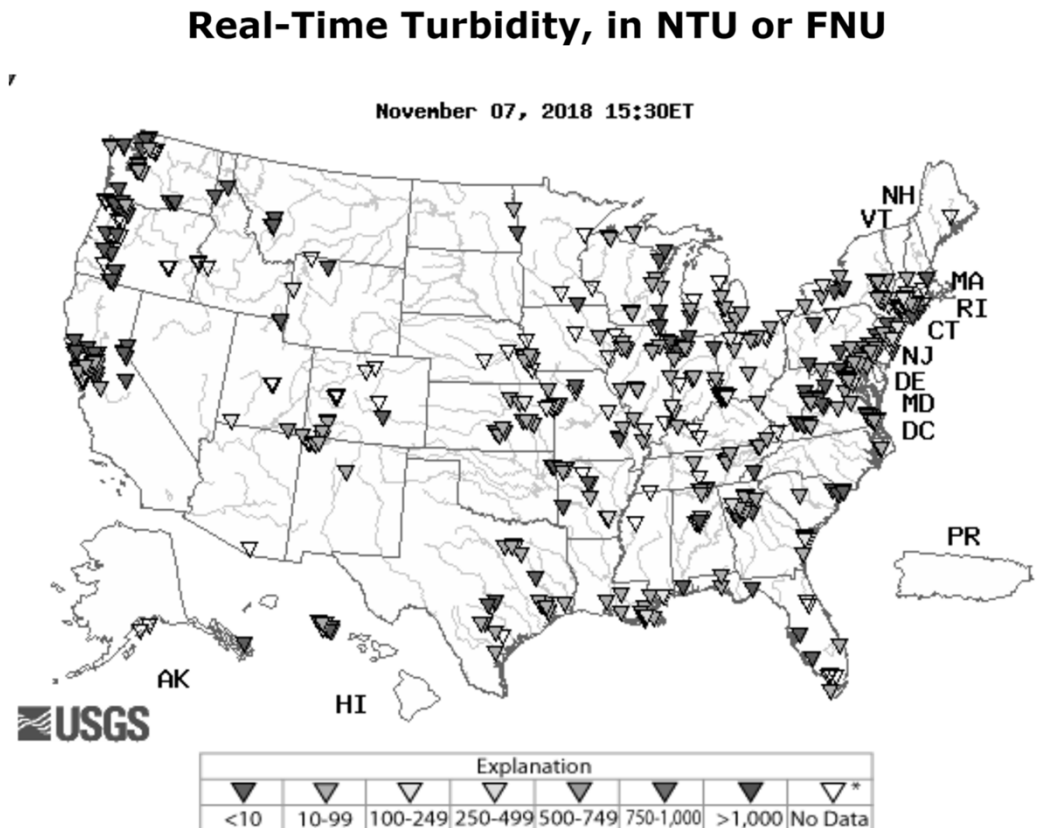
November 07, 2018 15:30ET



USGS turbidity network

639 turbidity sites or
8% of streamgages

Turbidity is excellent
surrogate for solids
and suspended
sediment



USGS nitrate network

142 nitrate sites or 2%
of streamgages

Nitrate is our fastest
growing sensor

Real-Time Nitrate, in mg/L as N

November 07, 2018 16:31ET



Explanation							
▼	▼	▼	▼	▼	▼	▼	▼*
<.1	.1-.29	.3-.99	1-2.99	3-9.99	10-29.9	>30	No Data

Finding sites and data on WQWatch

Select any state

Real-Time Nitrate, in mg/L as N

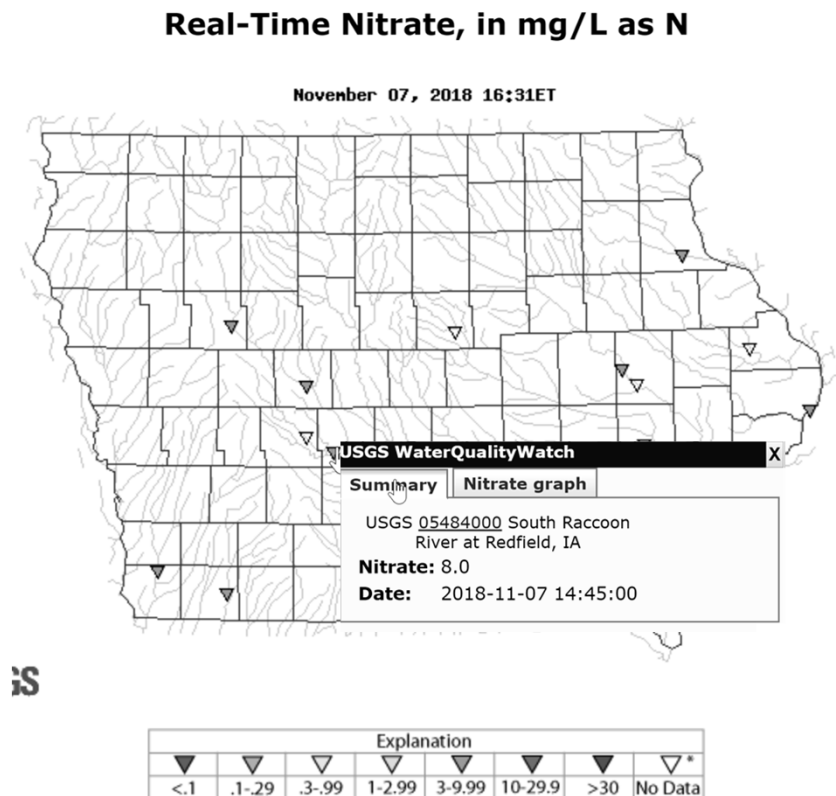
November 07, 2018 16:31ET



Explanation							
▼	▼	▼	▼	▼	▼	▼	▼*
<.1	.1-.29	.3-.99	1-2.99	3-9.99	10-29.9	>30	No Data

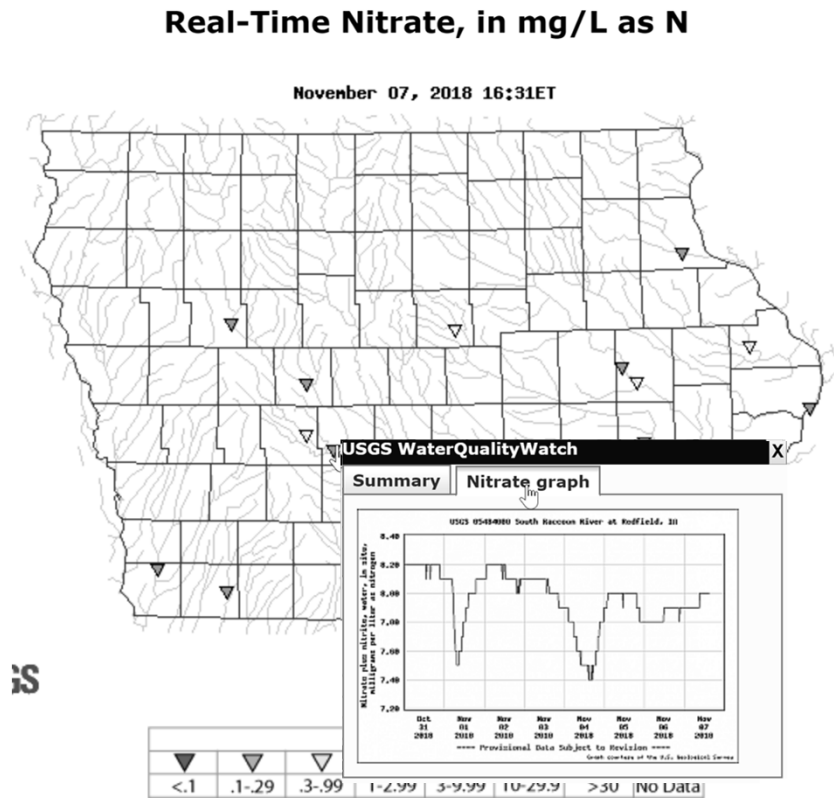
Finding sites and data on WQWatch

Select any site to see
real-time readings



Finding sites and data on WQWatch

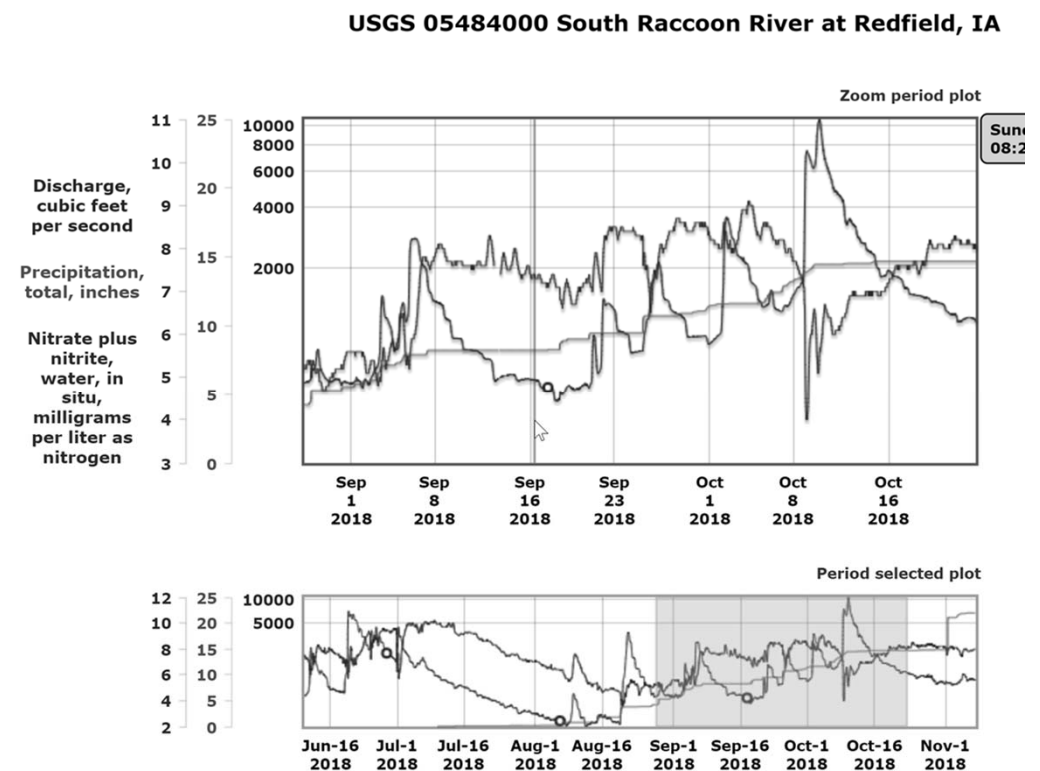
Can also see 7-day graph of data



Finding sites and data on WQWatch

A click on the 7-day graph will take you to the real-time site page

Displays data for all sensors



USGS surrogate network

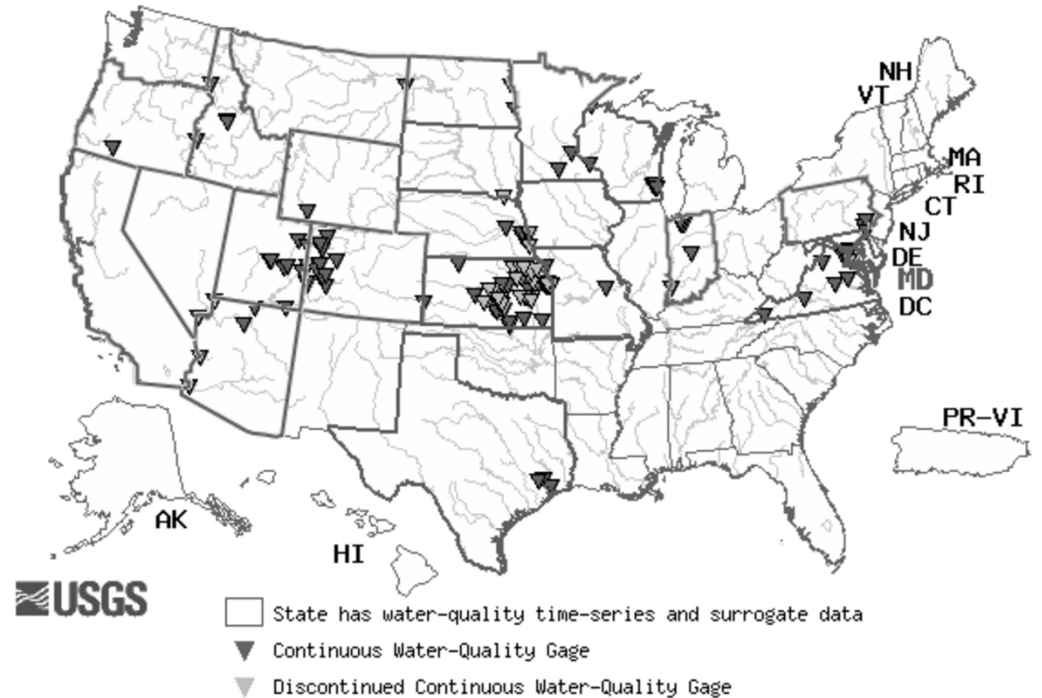
Sites with surrogate(s)

Voluntary sign up

Mostly suspended sediment

National Surrogate Real-Time Water Quality Sites

October 12, 2018 06:00ET

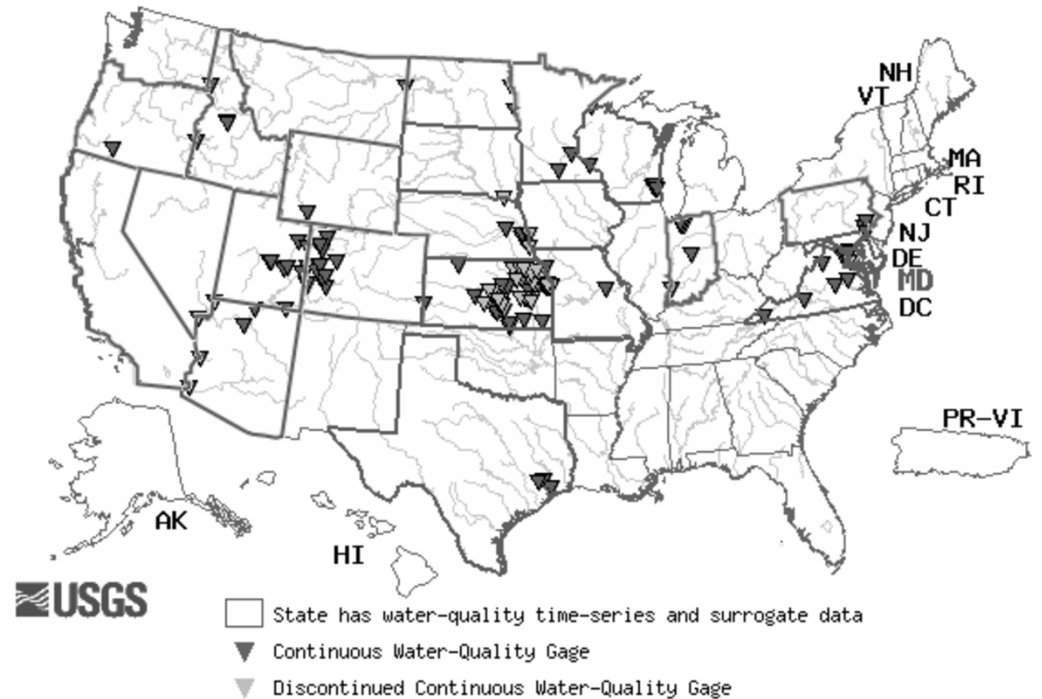


USGS surrogate network

Select any state

National Surrogate Real-Time Water Quality Sites

October 12, 2018 06:00ET



USGS surrogate network

Select any site

Kansas Real-Time Water Quality

Home [View Data](#) Methods Constituents Models Bibliography Links

NRTWQ Home >> Kansas

Kansas Real-Time Water Quality

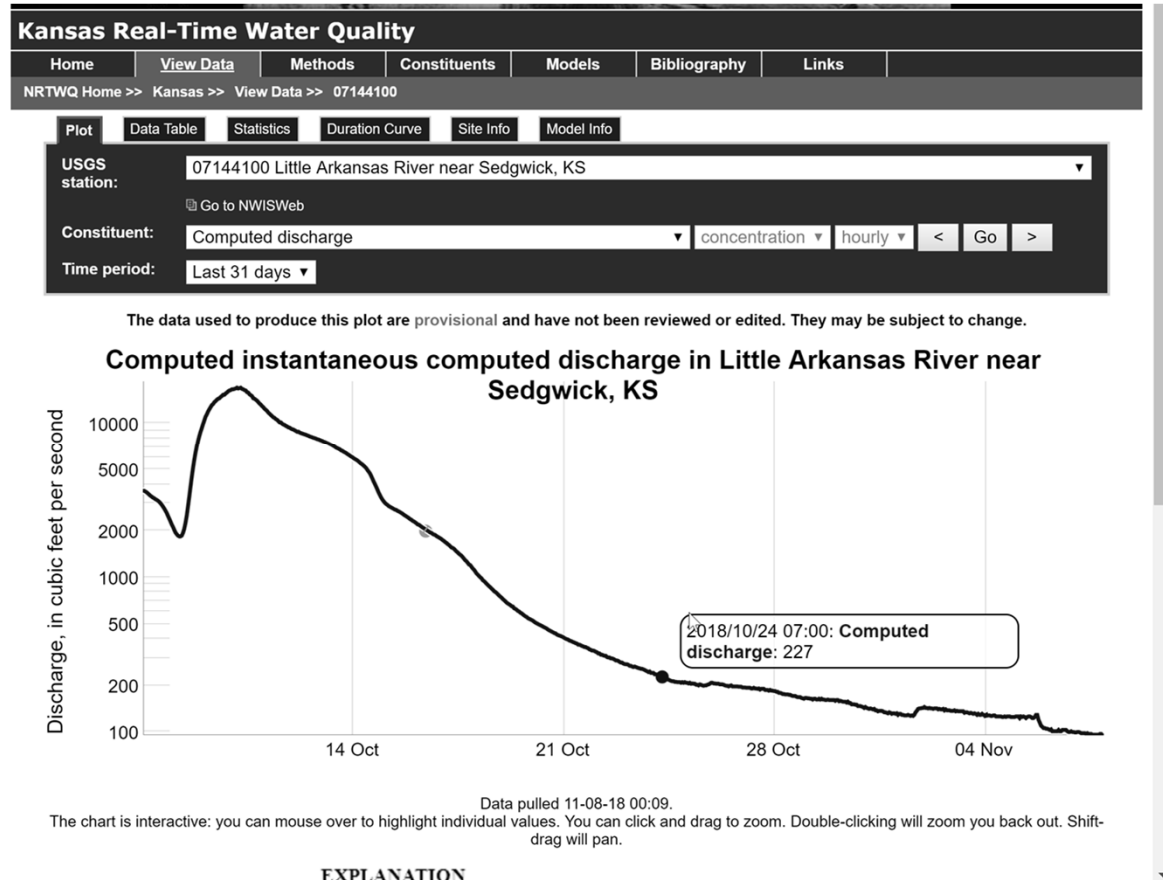
Real-time computed concentrations of water-quality constituents such as suspended sediment, total nitrogen, and total phosphorus are calculated using ordinary least squares regression models. The results of these models, along with direct water-quality measurements, can be viewed here as time-series graphs, or downloaded as tabular data.

Ordinary least squares regression models on this site use conventional sensor measurements (for example, discharge, temperature, pH, specific conductance, turbidity, and dissolved oxygen) to compute concentrations and loads of other water-quality constituents in real time. This makes it possible to compute instantaneous values of many constituents in real time for public safety without the lengthy time delay of collecting a sample and waiting for analysis of a sample at a laboratory.

Please select a site from below to start viewing data. You also can read more about the methods, measured constituents, and disclaimers by using the navigation bar at the top of each page.

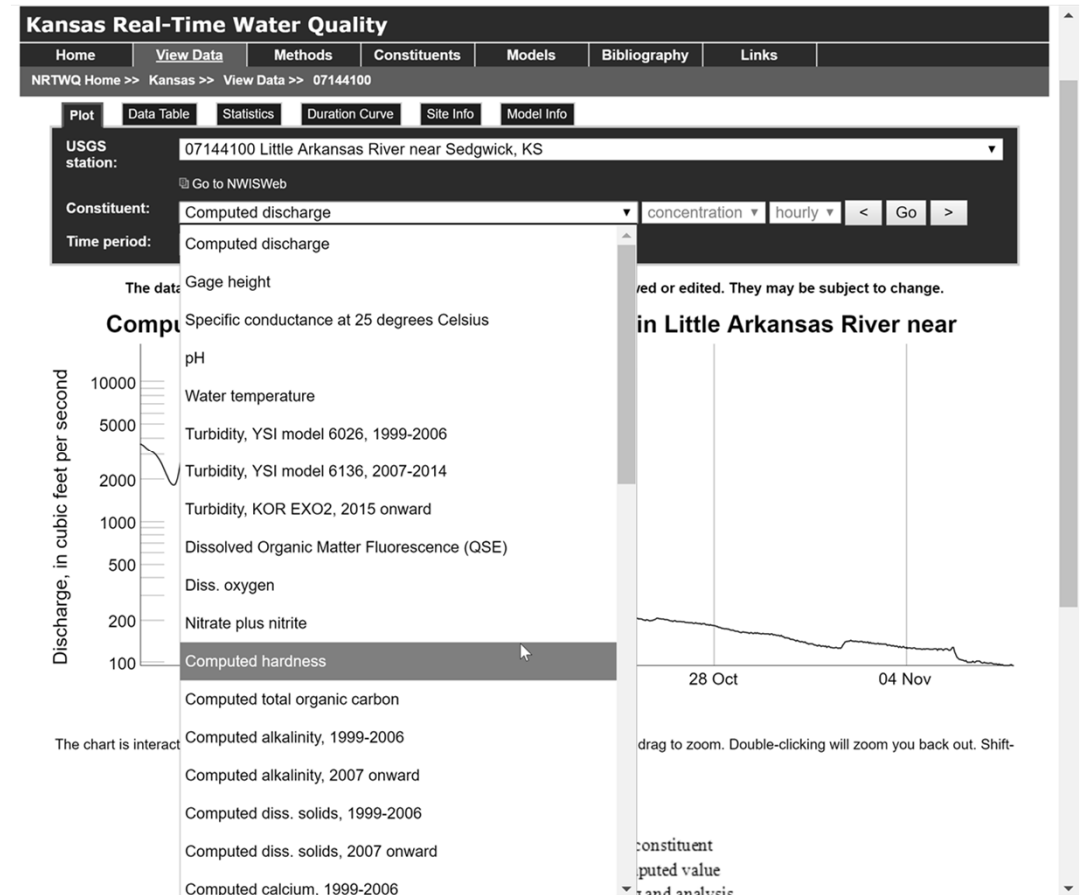


USGS surrogate network



USGS surrogate network

Select any constituent



Questions?

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<http://pubs.usgs.gov/tm/tm3c4/>

http://water.usgs.gov/osw/suspended_sediment/time_series.html

<http://waterwatch.usgs.gov/wqwatch/>

<http://nrtwq.usgs.gov>