

# **Overview of USGS Continuous Water-Quality Network**

**Patrick Rasmussen, Lawrence, Kansas, USA**

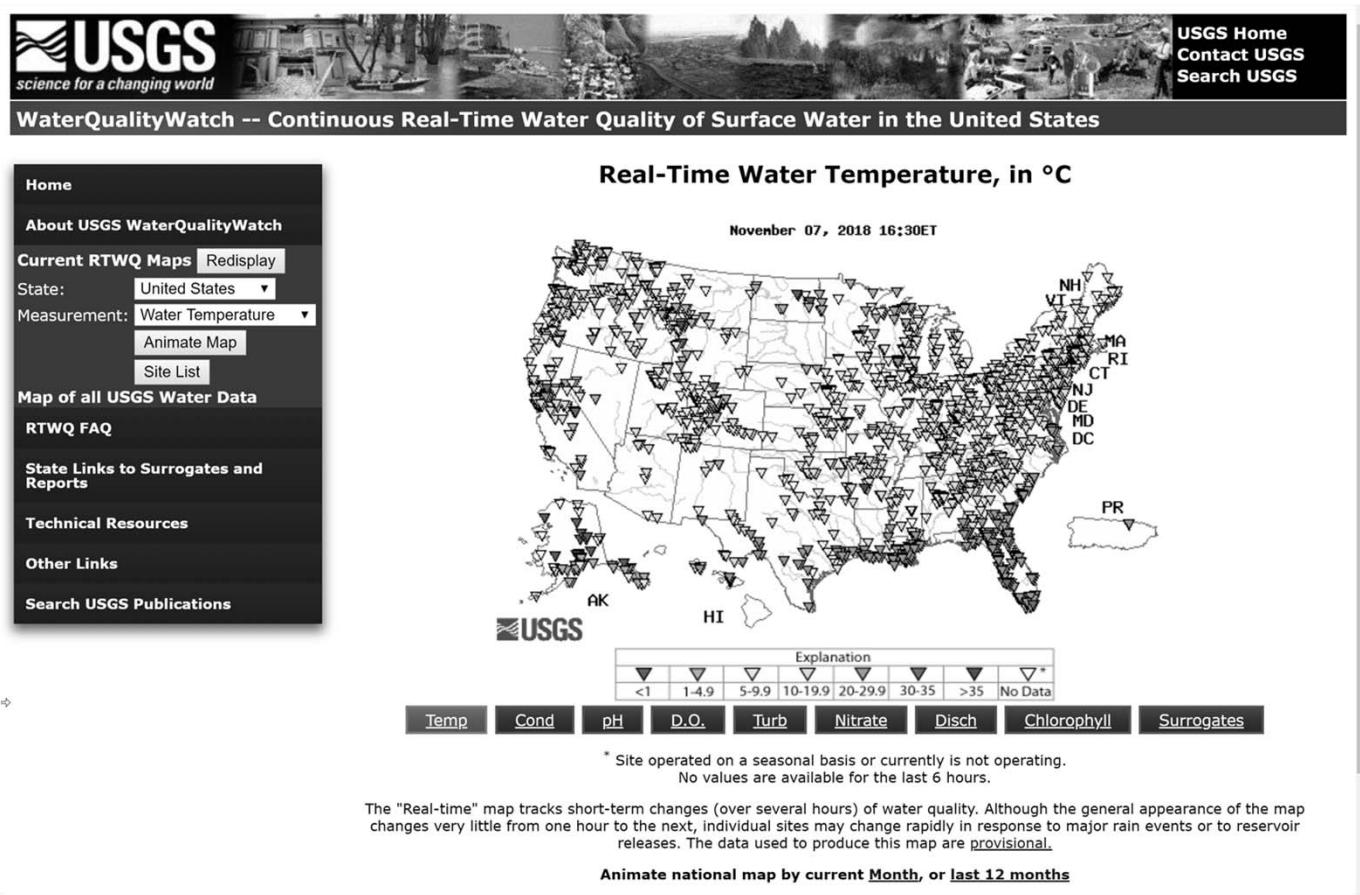
**Real-time Water Quality Monitoring Workshop 2018**

**St. John's, NF, Canada**

**U.S. Department of the Interior**

**U.S. Geological Survey**

# USGS continuous WQ network

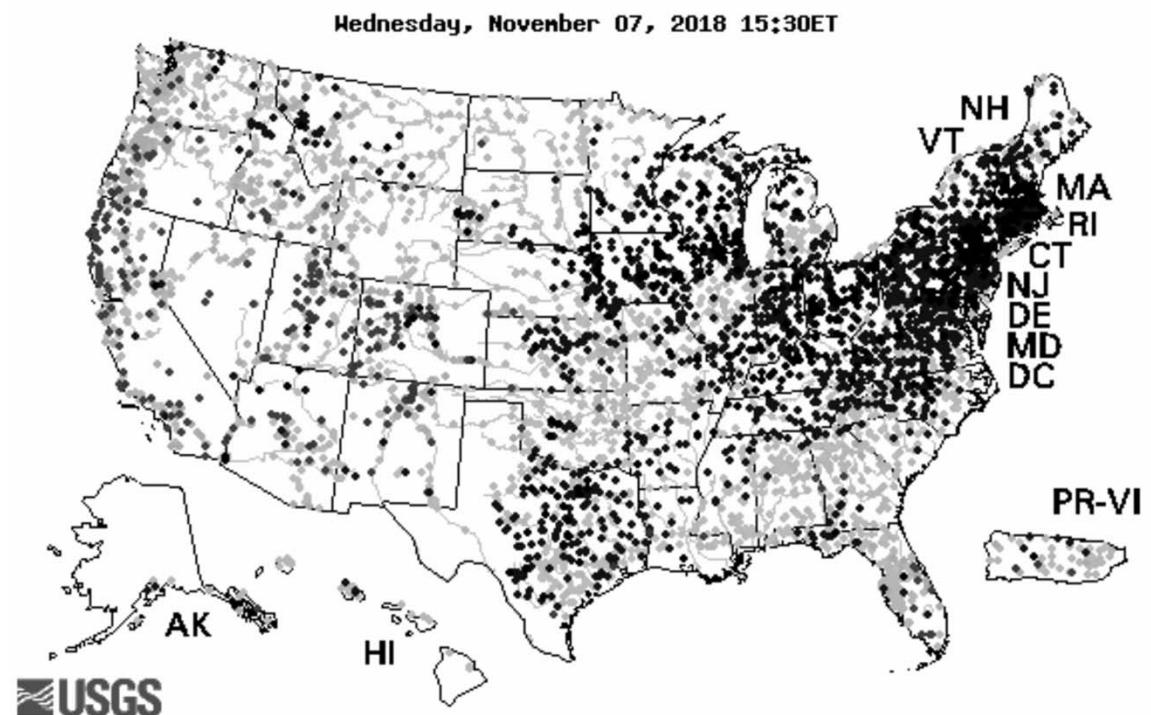


# USGS streamgage network

There is no USGS network per se

USGS sites are typically operated by local offices

8,667 streamgage infrastructure



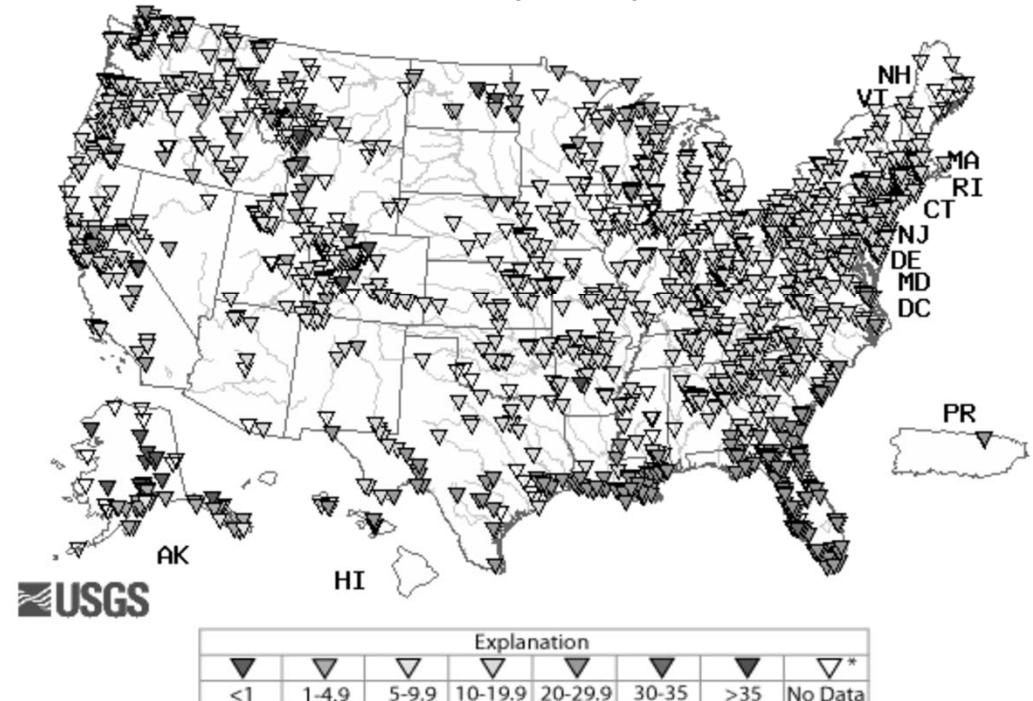
# USGS water temperature network

2,842 water  
temperature sites or  
32% of streamgages

Looking to expand the  
number of water  
temperature sites

Real-Time Water Temperature, in °C

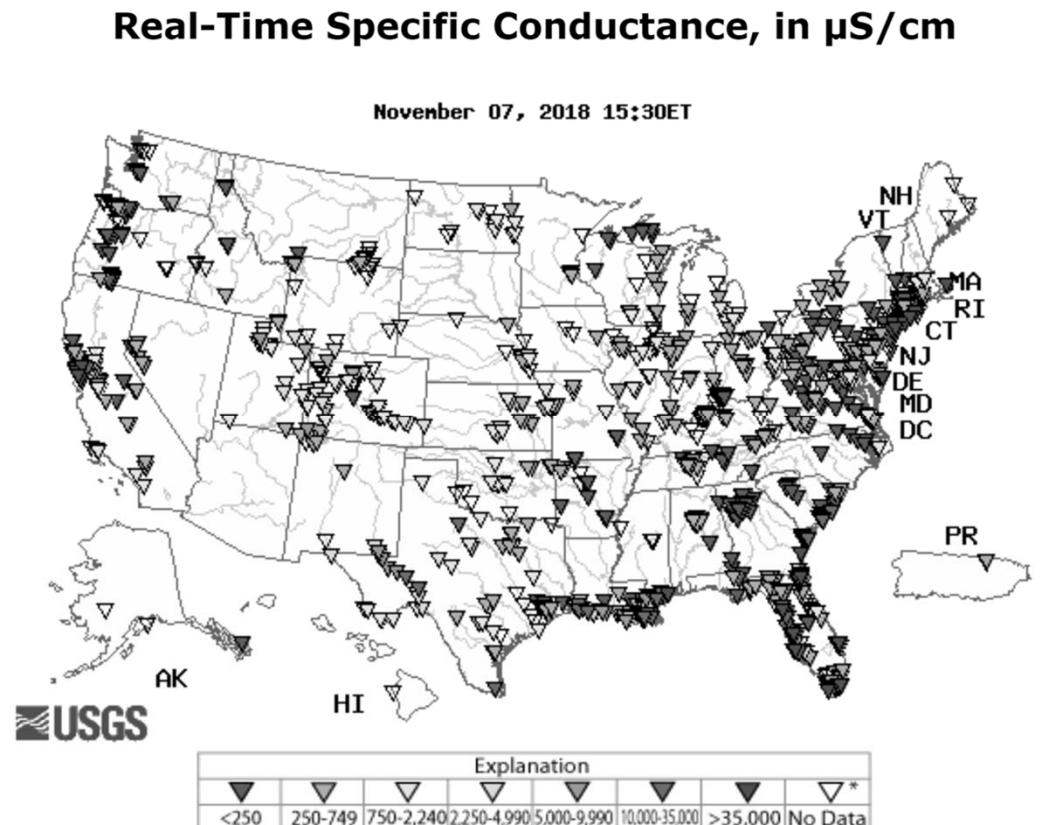
November 07, 2018 15:30ET



# USGS specific conductance network

**1,209 specific  
conductance sites or  
14% of streamgages**

**SC is excellent  
surrogate for  
dissolved  
constituents**



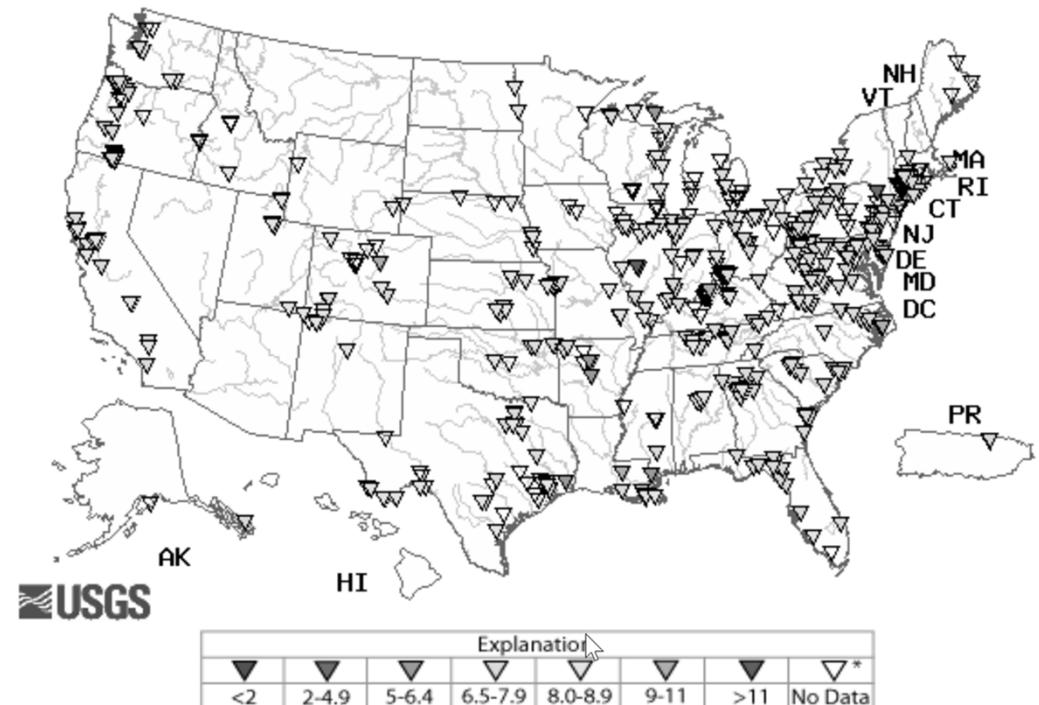
# USGS pH network

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

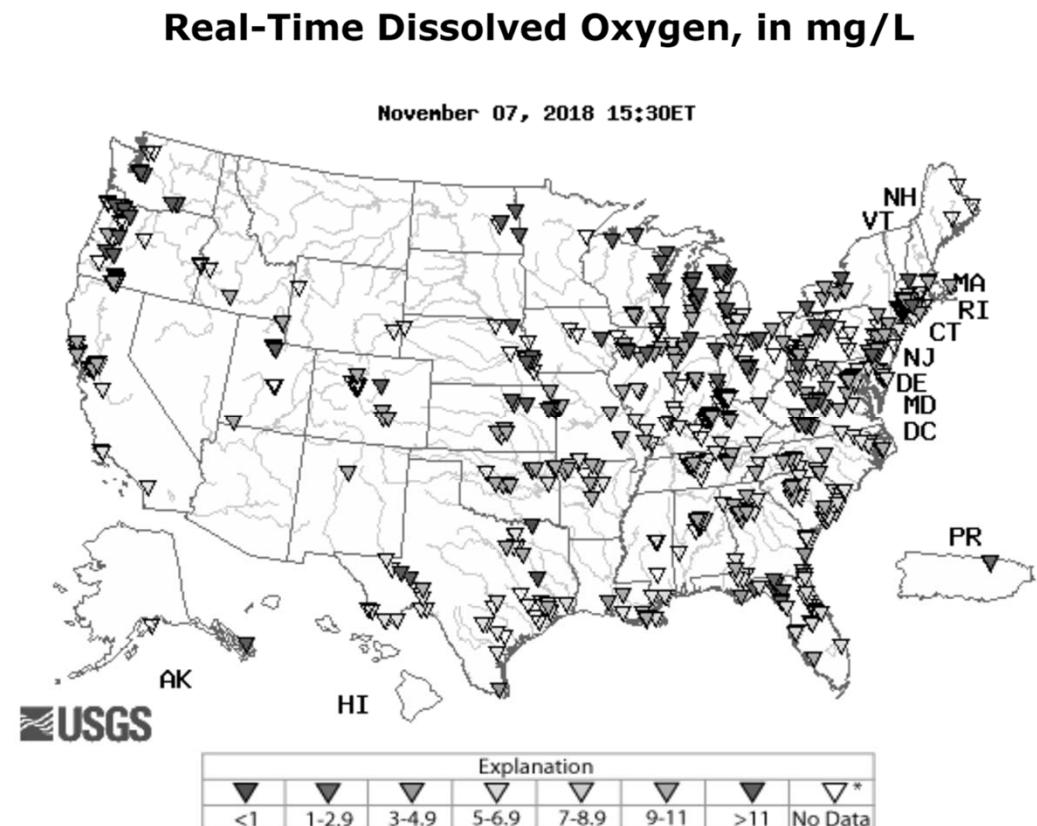
November 07, 2018 15:30ET



# USGS dissolved oxygen network

676 dissolved oxygen sites or 8% of streamgages

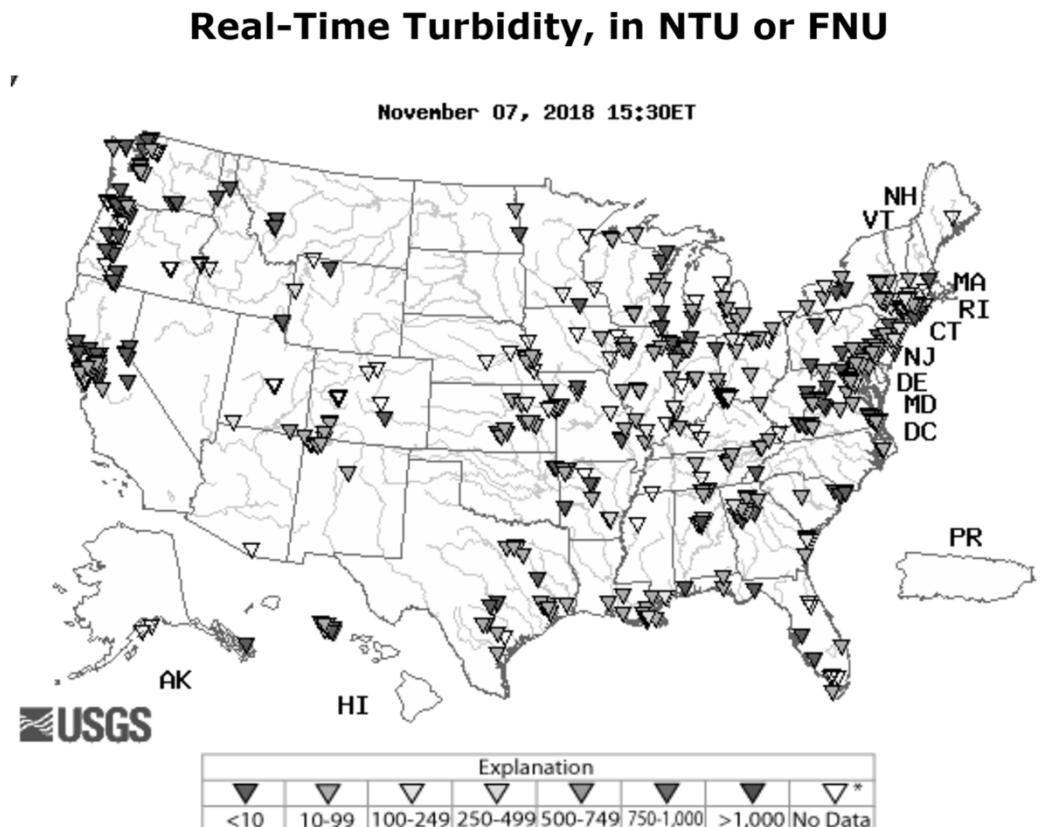
DO < 5 mg/L for extended periods of time is bad for aquatic life



# USGS turbidity network

639 turbidity sites or  
8% of streamgages

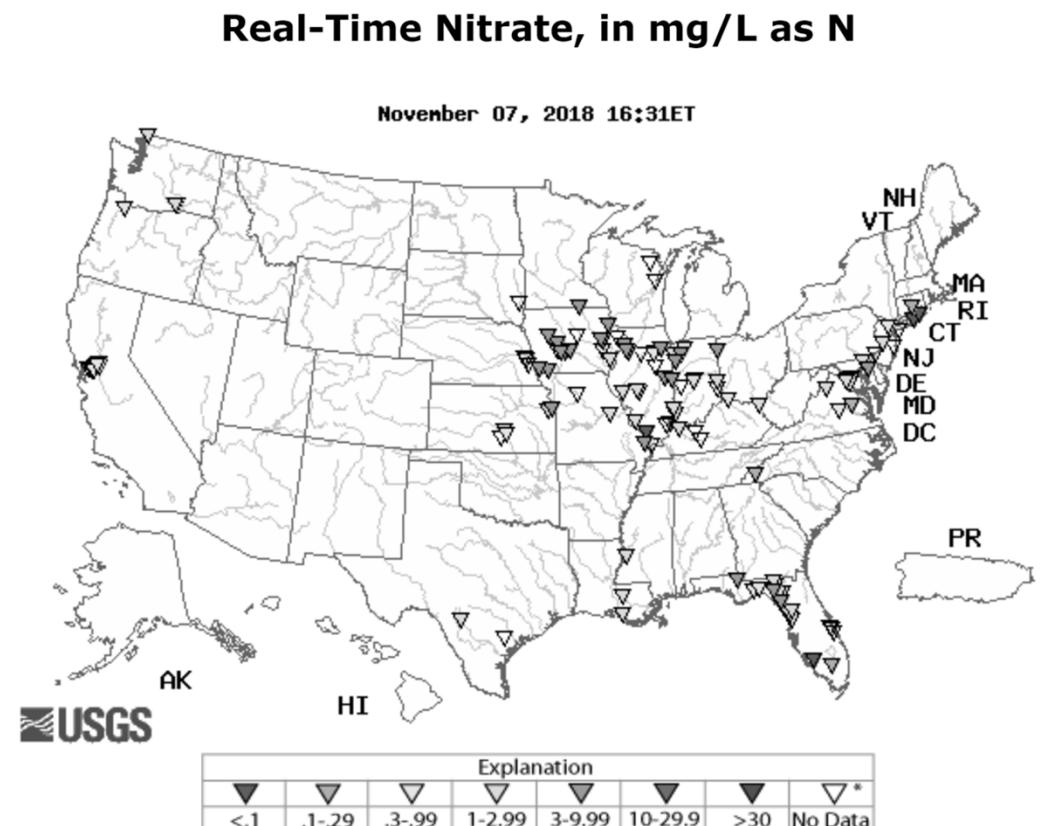
Turbidity is excellent  
surrogate for solids  
and suspended  
sediment



# USGS nitrate network

142 nitrate sites or 2%  
of streamgages

Nitrate is our fastest  
growing sensor

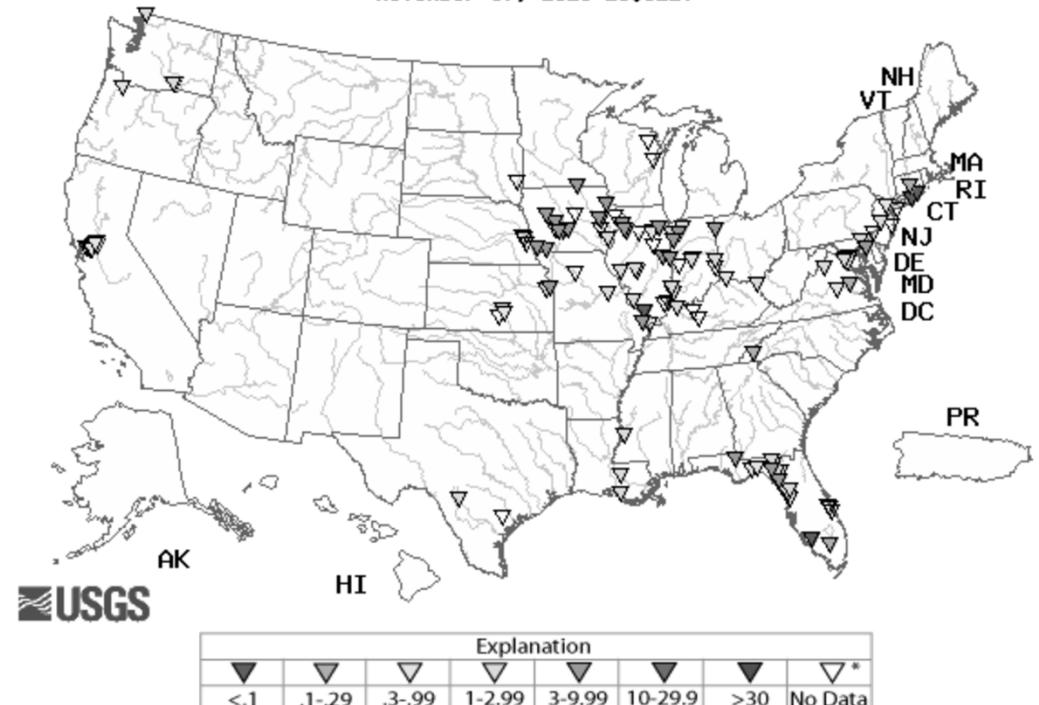


# Finding sites and data on WQWatch

Select any state

Real-Time Nitrate, in mg/L as N

November 07, 2018 16:31ET

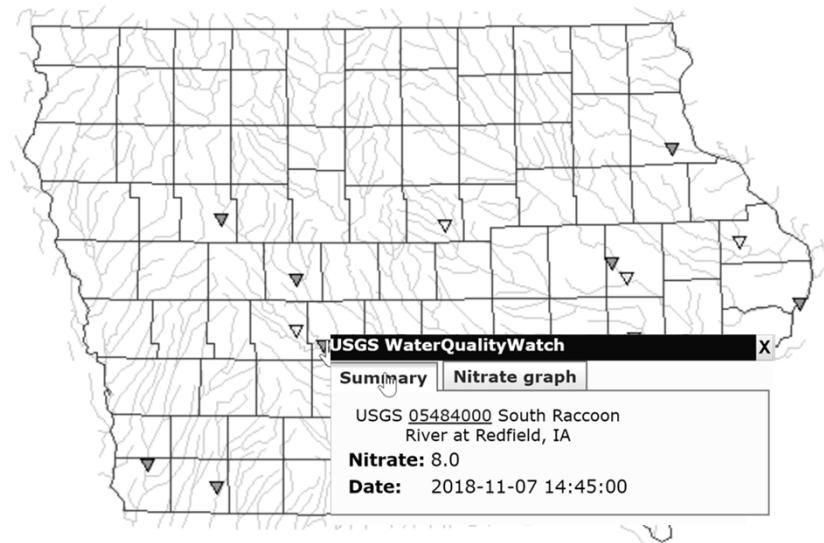


# Finding sites and data on WQWatch

Select any site to see  
real-time readings

Real-Time Nitrate, in mg/L as N

November 07, 2018 16:31ET



is

Explanation							
▼	▼	▼	▼	▼	▼	▼	▼*

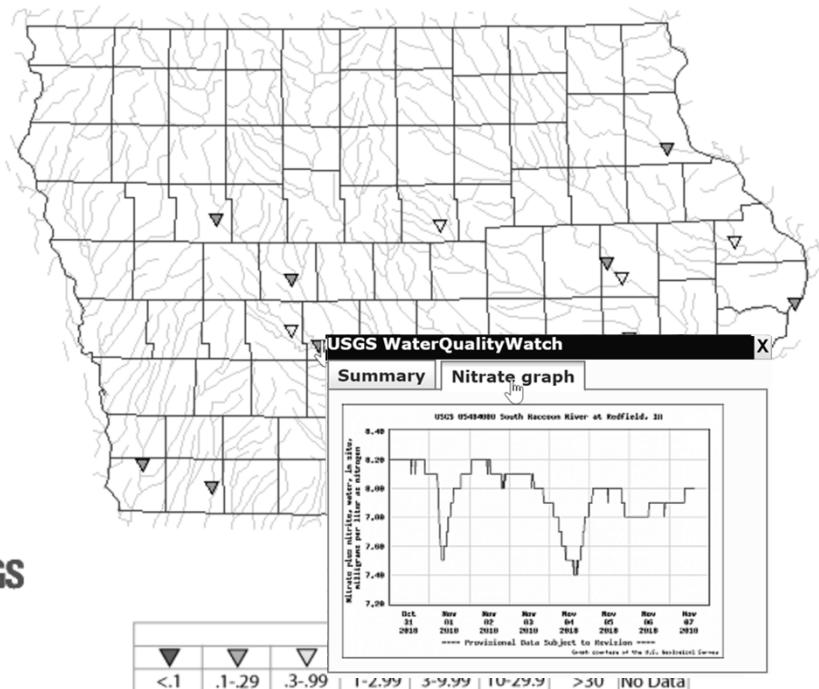
<.1 .1-29 .3-99 1-2.99 3-9.99 10-29.9 >30 No Data

# Finding sites and data on WQWatch

Can also see 7-day graph of data

Real-Time Nitrate, in mg/L as N

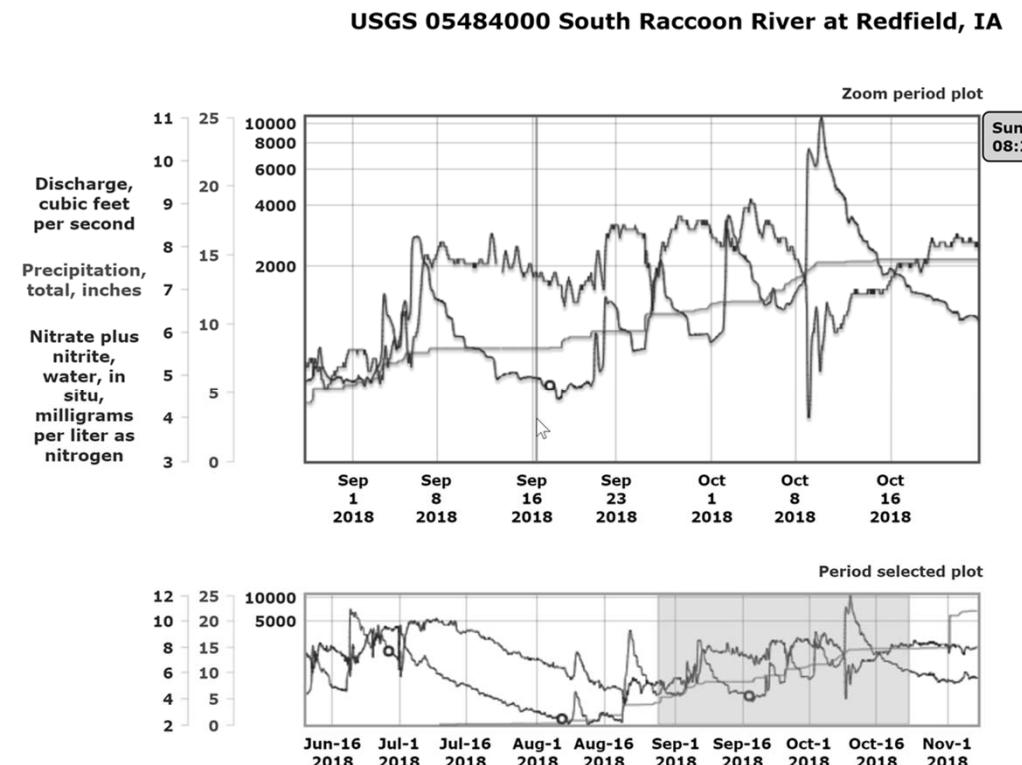
November 07, 2018 16:31ET



# 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

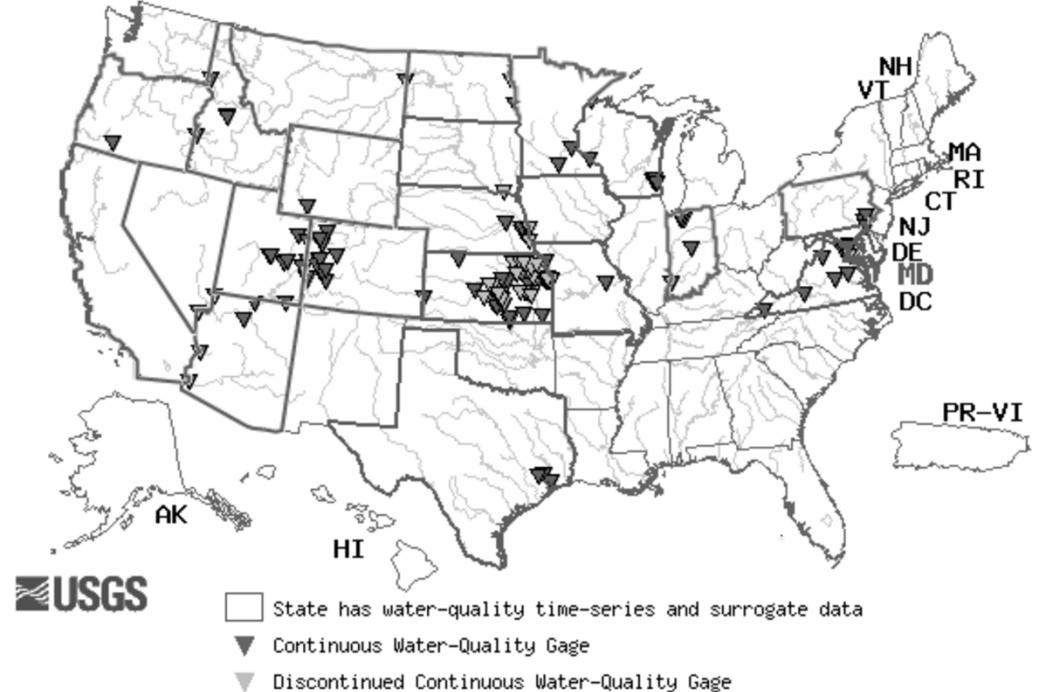
**Sites with surrogate(s)**

**Voluntary sign up**

**Mostly suspended  
sediment**

**National Surrogate Real-Time Water Quality Sites**

October 12, 2018 06:00ET

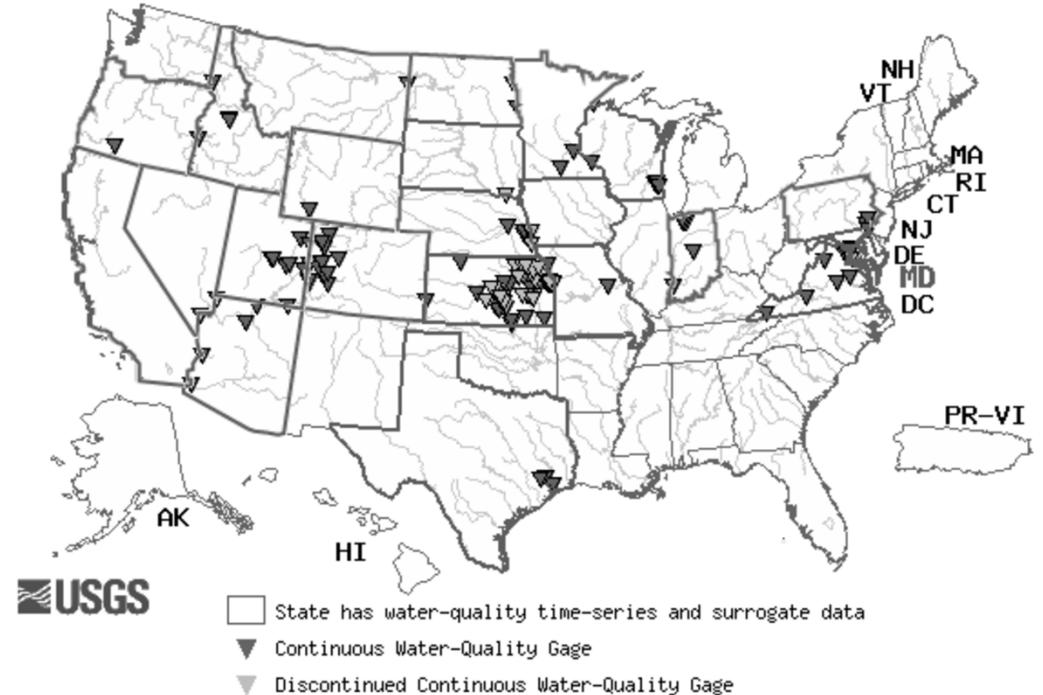


# USGS surrogate network

Select any state

National Surrogate Real-Time Water Quality Sites

October 12, 2018 06:00ET

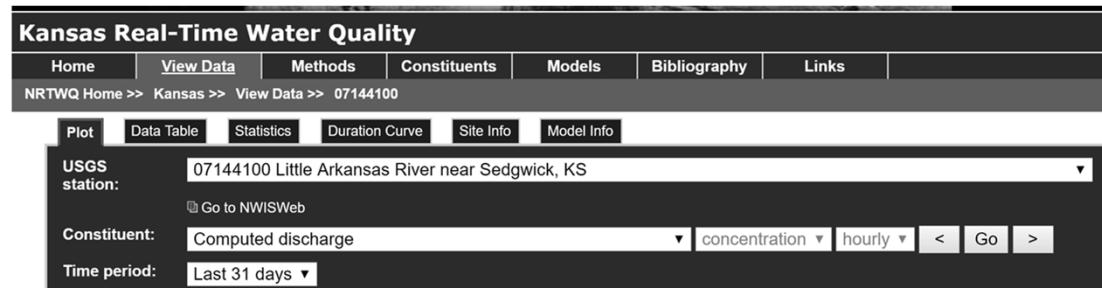


# USGS surrogate network

Select any site

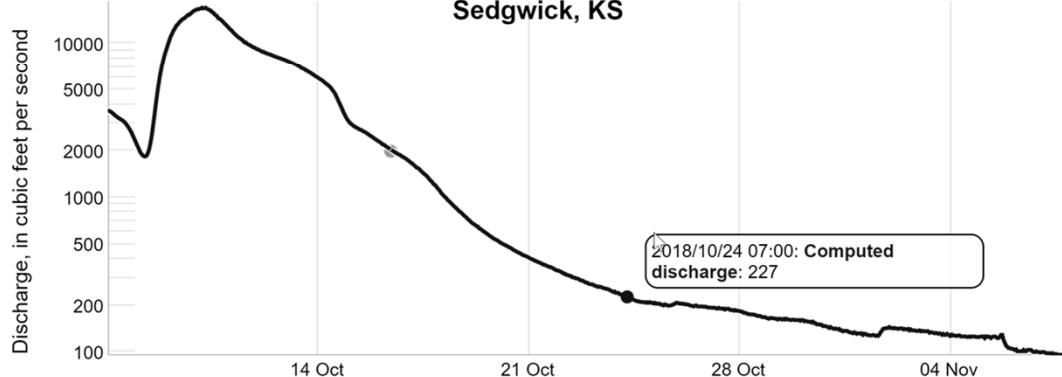


# USGS surrogate network



The data used to produce this plot are **provisional** and have not been reviewed or edited. They may be subject to change.

Computed instantaneous computed discharge in Little Arkansas River near Sedgwick, KS

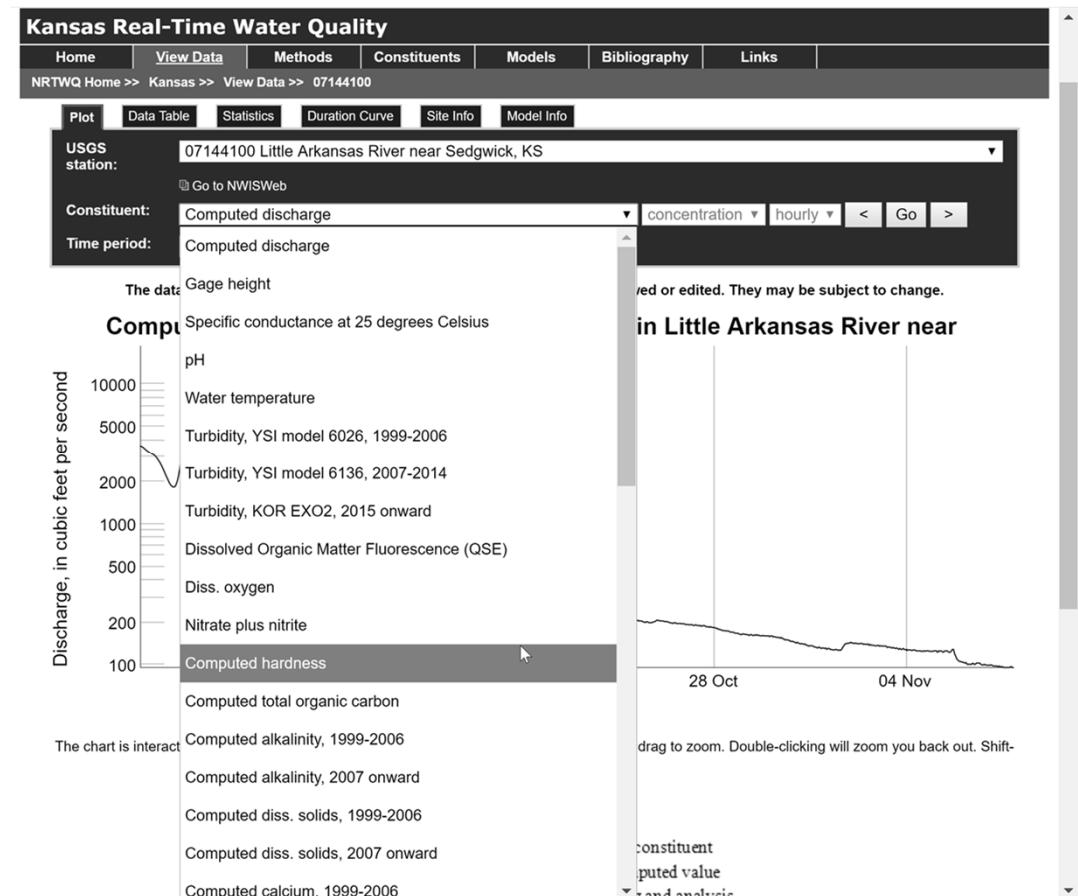


Data pulled 11-08-18 00:09.  
The chart is interactive: you can mouse over to highlight individual values. You can click and drag to zoom. Double-clicking will zoom you back out. Shift-drag will pan.

[EXPLANATION](#)

# 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://water.usgs.gov/osw/suspended_sediment/time_series.html)

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

<http://nrtwq.usgs.gov>