

# USGS Ambient WQ Monitoring Network

## Water Protection Forum

### August 12, 2020

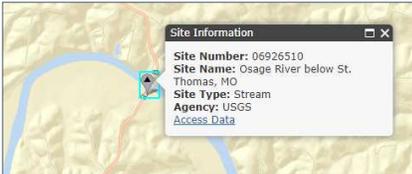
**Pictured:**  
**USGS 06926510**  
**Osage River below St. Thomas, MO**




# USGS Ambient WQ Monitoring Network

## Why USGS for ambient water quality data?

- Long track record of collecting surface water quality data
- Ability to record stream flow (high, medium, and low)
- Stream gages maintained and rating curves developed
- Quality Assurance, Quality Control measures in place
- Data available online, integrated with map viewer




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## USGS Ambient WQ Monitoring Network

Ambient monitoring sites believed to have water quality that represents streams in the region due to likeness in watershed geology, hydrology, and land use.

- Not reference sites, but representative of the region
- Provide a watershed-based perspective of water quality



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## USGS Ambient WQ Monitoring Network

DNR provides funding to USGS for an ambient stream network monitored between 4 to 12 times per year

- Network includes nearly 70 sites statewide
- Monitors physical, chemical, and bacteriological constituents
- Six sites sampled for range of pesticides
- Two sites on Missouri River use sondes to collect continuous nitrate data from spring to fall (St. Joseph & Hermann)



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# USGS Ambient WQ Monitoring Network

Physical, chemical, and bacteriological sampling

- Water temperature, air temperature, discharge, specific conductance, pH, alkalinity, dissolved oxygen, % saturated oxygen, E. coli, fecal coliform
- Trace metals and major ions
- Total Residue
- Nutrients



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# USGS Ambient WQ Monitoring Network

- Legend
- Major Rivers
  - Counties
- Sampling Methods  
[Symbol Size=Samples/Year]
- Nutrients [4, 6, 9, 12]
  - Trace metals and major ions: 1146 [2, 3, 4]
  - Total residue [2, 4, 6, 8]
  - Pesticides [6]
  - Major ions [4]
  - Trace metals and major ions: 1630 [4]
  - Continuous monitor operation and maintenance
  - Gage operation and maintenance

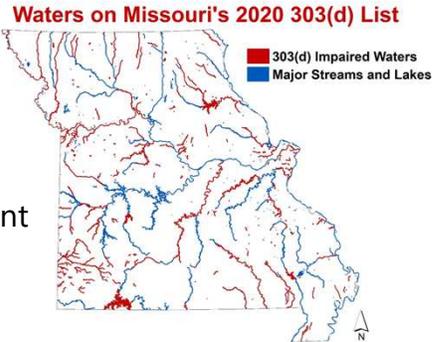


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# USGS Ambient WQ Monitoring Network

Data collected from the ambient network are used to inform department processes and decisions.

- 303(d) List
- 305(b) Integrated Report
- TMDL Development and Implementation
- Nonpoint Source Management Plan Implementation



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# USGS Ambient WQ Monitoring Network

Data collected from the ambient network are used to inform department processes and decisions.

- Water Quality Standards Development
- Operating Permit Effluent Limit Derivation



Ecoregion Category Description	# of Samples	Median pH
Central Irregular Plains	11101	7.8
Interior River Valleys and Hills	4706	7.9
Mississippi Alluvial Plain	1091	7.7
Ozark Highlands	20471	7.8
Western Corn Belt Plains	3445	8.0



Ecoregion Category Description	# of Samples	Median Temp °C
Central Irregular Plains	11053	17.3
Interior River Valleys and Hills	7176	17.8
Mississippi Alluvial Plain	1588	16.0
Ozark Highlands	23535	14.1
Western Corn Belt Plains	4310	16.6

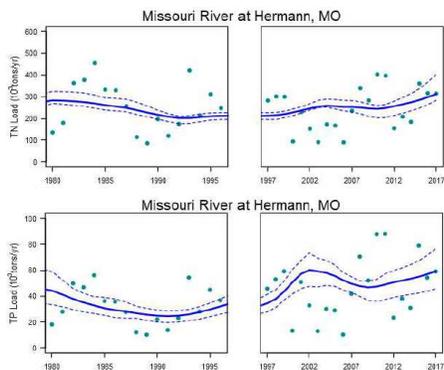
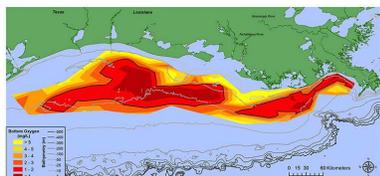


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## USGS Ambient WQ Monitoring Network

Data collected from the ambient network are used for “big picture” projects, such as nutrient loading.

- MO Nutrient Loss Reduction Strategy
- Hypoxia Task Force



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# Questions?

