The Clean Water Act:
An Overview

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Missouri Stream Team Program

What We'll Discuss: Part 1

Clean Water Act introduction & history

Section 303: Water quality standards, introduction to point source and nonpoint source pollution

Section 402: Stormwater permitting & land disturbance

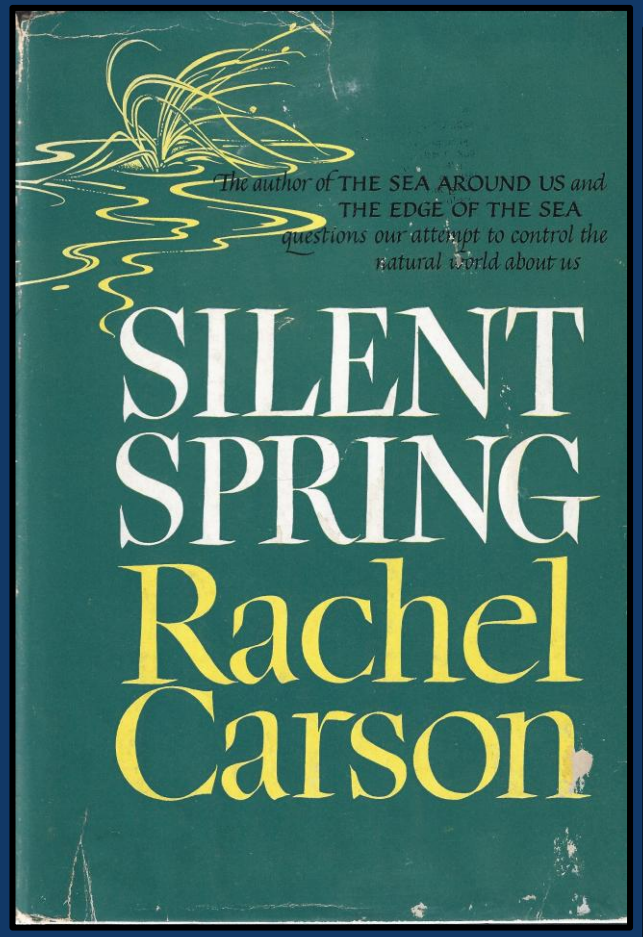
Sections 401/404: Discharges of fill material, sand & gravel mining, stream bank modification, permitting, and mitigation

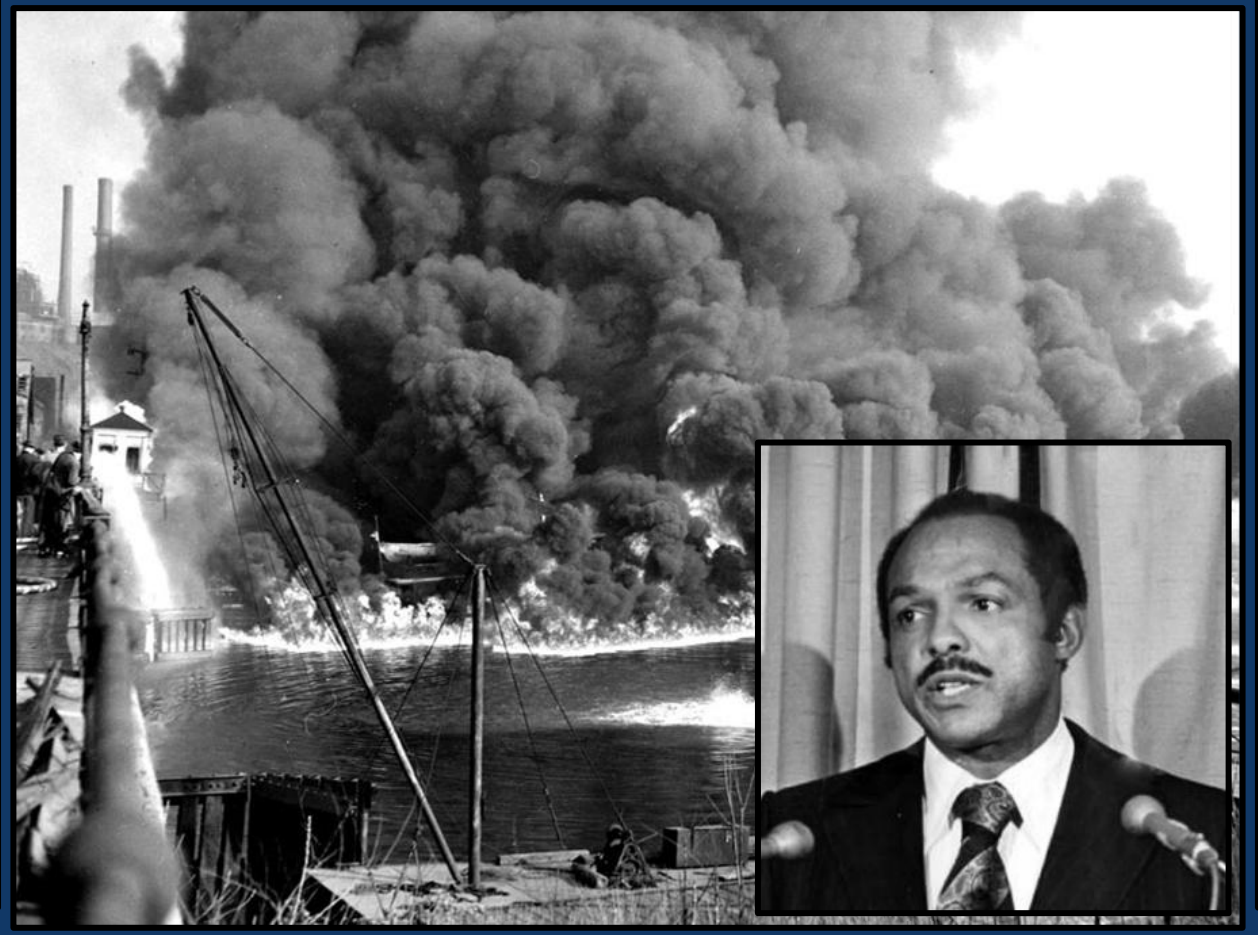
Sections 303/305: Assessments, impaired waters, and monitoring

Section 319: Nonpoint source pollution management, total maximum daily loads, and nutrient reduction strategy

What We'll Discuss: Part 2

Setting the Stage for Environmentalism





The Clean Water Act: A History

Rivers: historic waste receptors subject to massive pollution

Federal Water Pollution Control Act of 1948

Ohio's Cuyahoga River (and others) kept catching on fire

Early major overhauls & amendments in 1972, 1977, and 1987

One of multiple large pieces of environmental legislation

Big Picture of the Clean Water Act

- Provides structure for regulations
  - Discharges of pollutants into Waters of the United States
  - Surface water quality standards
- Focuses on point sources

Primary Goals of the Clean Water Act

Restore & maintain the chemical, physical, and biological integrity of the nation's waters

Zero discharge of pollutants by 1985

- In the interim, achieve water quality that is both "fishable" and "swimmable"

Provide financial assistance to construct publicly owned waste treatment facilities

Central to but not defined by the Clean Water Act

Waters previously, currently, or potentially used for interstate or foreign commerce, including all tidal waters

All interstate waters and interstate wetlands

All other waters that the use, degradation, or destruction of could affect interstate or foreign commerce

WOTUS

All impoundments of waters otherwise defined as WOTUS

Tributaries of WOTUS

The territorial sea

Wetlands adjacent to non-wetland waters of the U.S.

WOTUS

An Aside on DNR and Stream Team

Formed in 1974 on the heels of EPA

Established to “consolidate state agencies concerned with… land, air, water, energy, and cultural resources”

First Stream Team formed in 1989, the Volunteer Water Quality Monitoring Program soon after

MISSOURI STREAM TEAM

Water Quality Standards

Sections 303 & 304

Three components

Designated uses

What is the water to be used for?

Criteria

How much of a given pollutant, or what sort of qualitative conditions, are allowed?

Antidegradation

How will good water quality be maintained once achieved?

Water Quality Standards

Sections 303 & 304

Designated uses

- Protection of Aquatic Life
- Drinking Water Supply
- Whole Body & Secondary Contact Recreation

Criteria

- Quantitative limits & qualitative conditions
  - pH between 6.5 and 9.0
  - No "weirdness" or "gunk"

Antidegradation

- No permitting pollutant discharges or activities that would cause surface waters to drop below water quality standards

Point Source Pollution

Section 402

Discharges from a “discernible, confined, and discrete conveyance”

Pollutants are contained within the discharge

Includes (most) pipes, ditches, channels, tunnels, conduits, containers, CAFOs*

Easily regulated

Nonpoint Source Pollution

Section 319

Discharges not coming from a point source

Pollutants are largely picked up from the environment

Includes runoff, precipitation, atmospheric deposition, drainage, seepage

Not easily regulated

Permitting

Section 402

NPDES permits required for discharging pollutants through a point source into waters of the United States

- Include stormwater discharge
- Specify limitations and deadlines for compliance
- Require reporting
- Can be renewed every five years

Not required for nonpoint source pollution

Issued by EPA or most states

- MA, NH, NM


STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

DNR's role

Issues permits for domestic, industrial, municipal, construction, and CAFO* discharges

Has authority to conduct inspections on permitted facilities

Can have permits denied or exemptions issued by the Clean Water Commission

Permitting

Section 402

Land Disturbance

Section 402

Activities like clearing, grading, or filling land that destroys the root zone and/or is likely to pollute waters of the state

- Minimum size of 1 acre or 3,000 sqft

Requires a stormwater pollution prevention plan

- Includes site-specific best management practices to minimize:
  - Soil exposure
  - Soil erosion
  - Pollutant (sediment) discharge

Potential source of nonpoint source pollution

Volunteer Involvement

Methods are intermingled

Monitoring is key to knowing if methods are effective

DNR Environmental 911:
573-634-2436

MISSOURI STREAM TEAM

Volunteer Involvement

Pick up litter, stencil storm drains, use best management practices, build bioswales

Advocate

- Teach others
- Show up to (local) government meetings and voice concerns
- Explore more in Stream Team and related programs

If in an MS4, expand your partnerships and meet permit requirements through Stream Team

Sections 404 & 401

US Army Corps of Engineers (USACE) and Corresponding MoDNR Permits

Section 404

USACE issues these federal permits

Section 404 regulates the discharge of dredged or fill material into waters of the United States

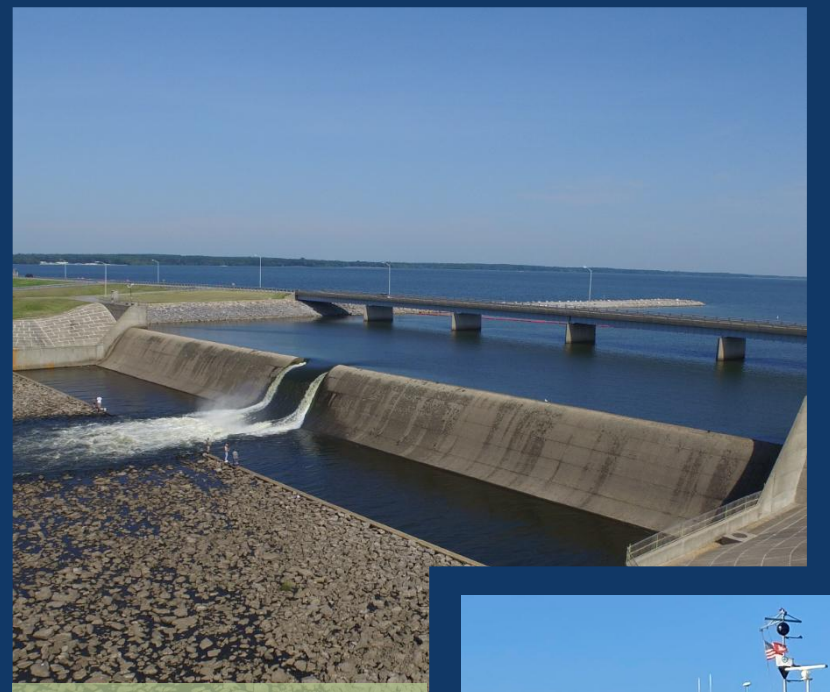
USACE will help determine if a water body is a water of the US if needed

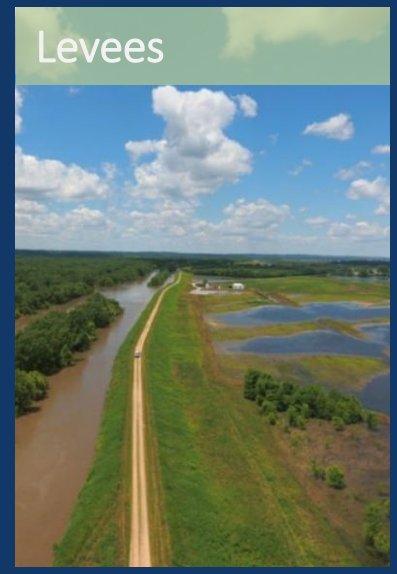
Generally, these permits are less stringent than a 401 permit issued by Missouri

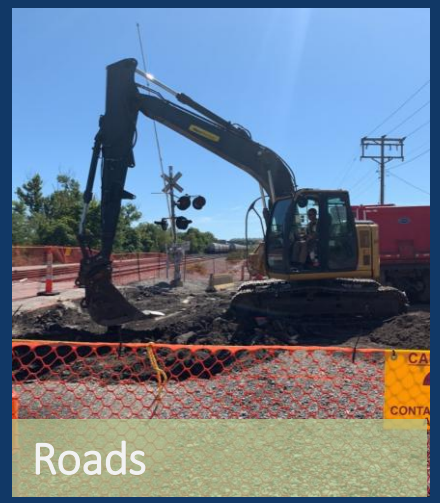
Focuses on effects of permitted activities on the broader surrounding ecosystems

Examples of 404 Permitted Activities

- Fill for developmet
- Water resources projects (like dams and levees)
- Infrastructure development (like highways and airports)
- Mining projects


Dams


Levees


Roads


Dredging

404 Permit Exemptions

Normal farming/ranching activities

Maintenance of ditches/dams/levees

Construction of stock ponds and farm roads

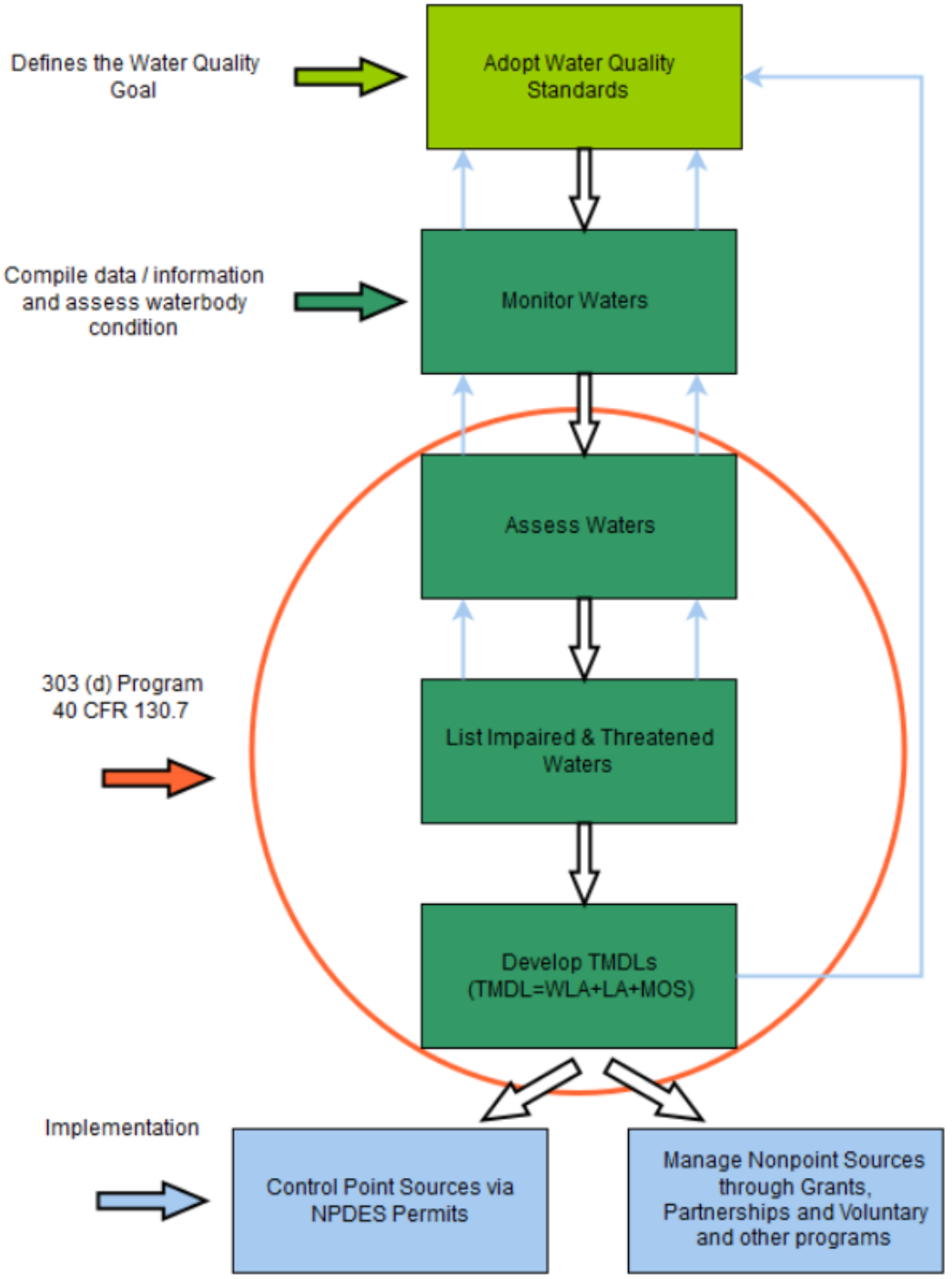
DNR 401 Permits

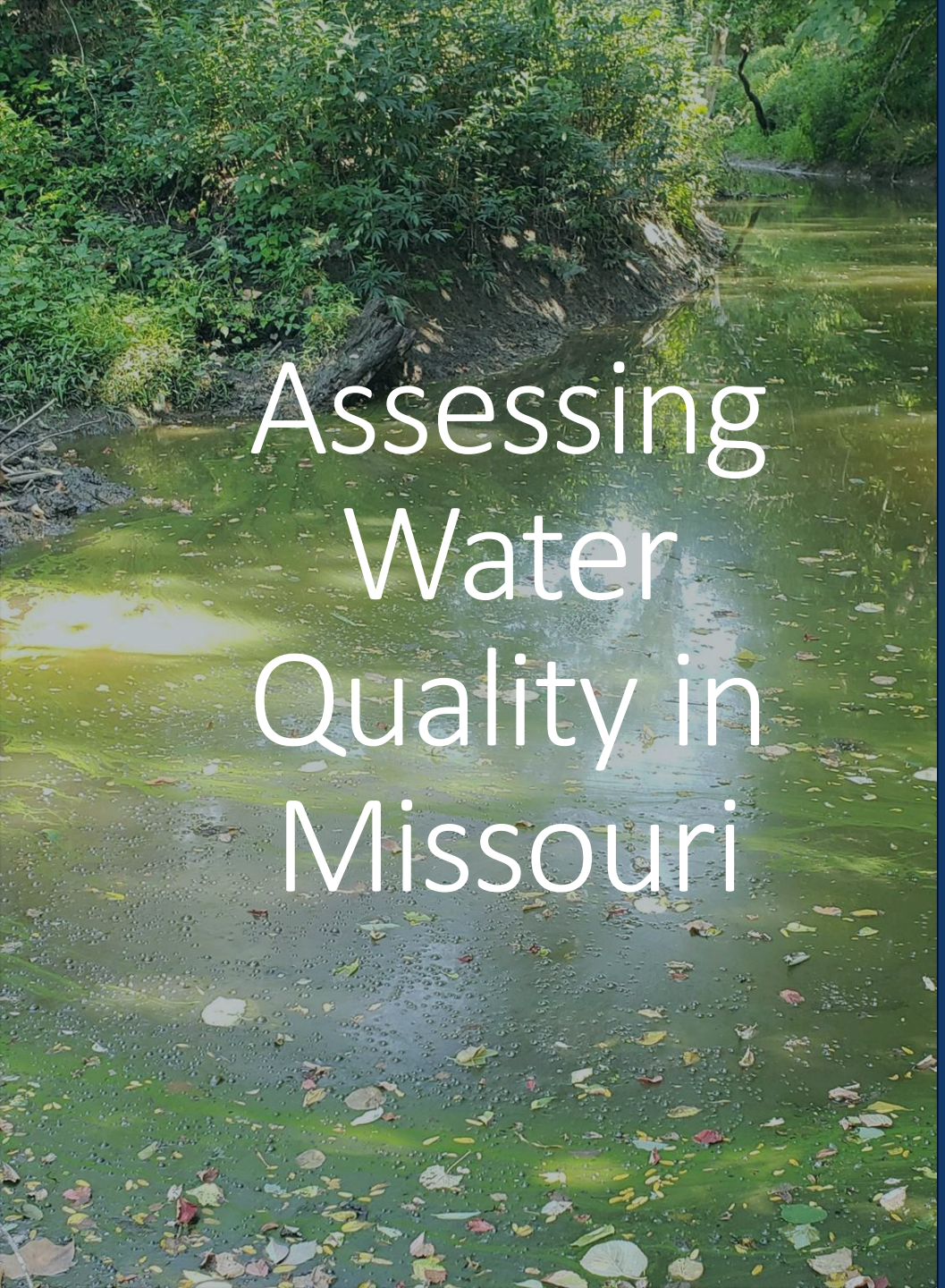
DNR issues permits in conjunction with 404 permits

- Ensure Missouri water law is upheld
- Often more specific
- Include more guidelines for BMPs and following Missouri water quality standards
- Can include mitigation efforts if necessary

Section 303(d)

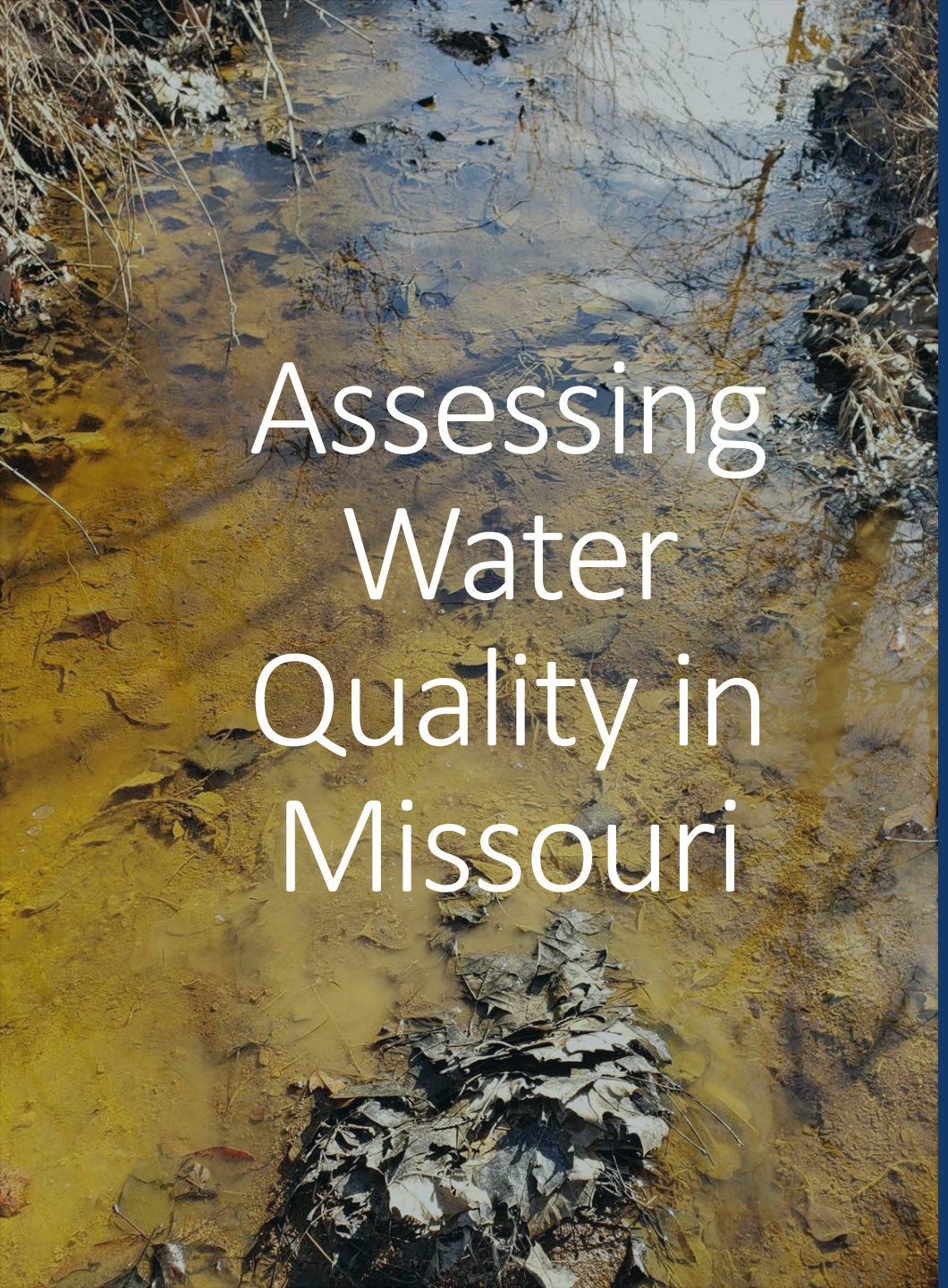
The big picture





Assessing Water Quality in Missouri

- Assess waters against standards
- Follow and review Listing Methodology Document
- Public Comment Period and Hearing
- Clean Water Commission Approval
- Submission to EPA by April 1st of even numbered years (every 2 years)



Assessing Water Quality in Missouri

Set Priorities for TMDL's

Identify Pollutant(s) for each waterbody

Identify source of pollutant(s)

Assessment Categories

Category 1

- **All** designated uses fully maintained

Category 2

- At least one designated use is fully attained, but **at least one** designated use has inadequate data or lacks information to assess

Category 3

- **All** designated uses have inadequate data or lack information to assess

Category 4

- A designated use is not attained, but a **TMDL or pollution control plan exists** for the impairment

← Category 4 waters can still be impaired

Category 5

- At least one discrete pollutant caused non-attainment of a use and a **TMDL or pollution control plan does not exist**

← Only Category 5 waters are on the 303(d) list

Missouri Department of Natural Resources

Grindstone Cr. - WBID 1009.00

Missouri Dept. of Natural Resources

HUC 8: 10300102

Org	Site Code	Site Name	Sample Type	Yr	Mo	Dy	Time	Rec Season	Sample ID	Qualifier	Ecoli (#/100ml)
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	4	1	1000	Y	242836		6.30
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	4	22	922	Y	242837		36.40
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	5	14	830	Y	242838		1299.70
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	6	3	911	Y	242839		34.10
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	6	24	930	Y	242840		2419.60
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	7	14	820	Y	242841		177.70
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	8	6	735	Y	251076		2.00
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	8	19	945	Y	251077		85.50
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	9	16	920	Y	251078		104.60
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2014	10	6	755	Y	251080		435.20
										Sample Count = 10	
									2014 Recreational Season Geometric Mean:	**89.78**	

**Sample is the average of two or more duplicate samples.*

MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2020	6	3	840	Y	295571		151.50
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2020	6	17	945	Y	295572		105.00
MDNR	1009/0.1	Grindstone Cr. nr. Mouth	Grab	2020	6	30	920	Y	295573		913.90
								2020 Recreational Season Geometric Mean - No Data Qualifier Adjustment:		**232.81**	**Sample Count = 5**
									2020 Recreational Season Geometric Mean:		**232.81**

**Sample is the average of two or more duplicate samples.*

Bacteria

Grindstone Cr. is a Class A Whole Body Contact recreational water with an E. coli standard of 126 colonies/100 ml. This standard is interpreted as the geometric mea least five samples taken during the recreational season, April 1 to October 31, of any given year. A water body is judged to be impaired if the standard is exceeded in last three years for which there is adequate data. Grindstone Cr. is also a Secondary Contact recreational water with an E. coli standard of 1134 colonies/100 ml. This is interpreted as the geometric mean of at least five samples taken during the recreational season, April 1 to October 31, of any given year. A water body is judged to impaired if the standard is exceeded in any of the last three years for which there is adequate data.
Grindstone Cr. has exceeded one or both criterion at least once in the last three years of available data.
Thus Grindstone Cr. is judged as impaired for Escherichia coli.

Missouri Department of Natural Resources, Water Protection Program, (573)751-1300, www.dnr.mo.gov

https://apps5.mo.gov/mocwis_public/wqa/waterbodySearch

https://dnr.mo.gov/water/hows-water/water-monitoring-data/quality-streams-rivers-lakes-wetlands/biological-assessments/reports?field_bioassessment_region_value=All&field_county_target_id=All&order=field_bioassessment_years&sort=desc

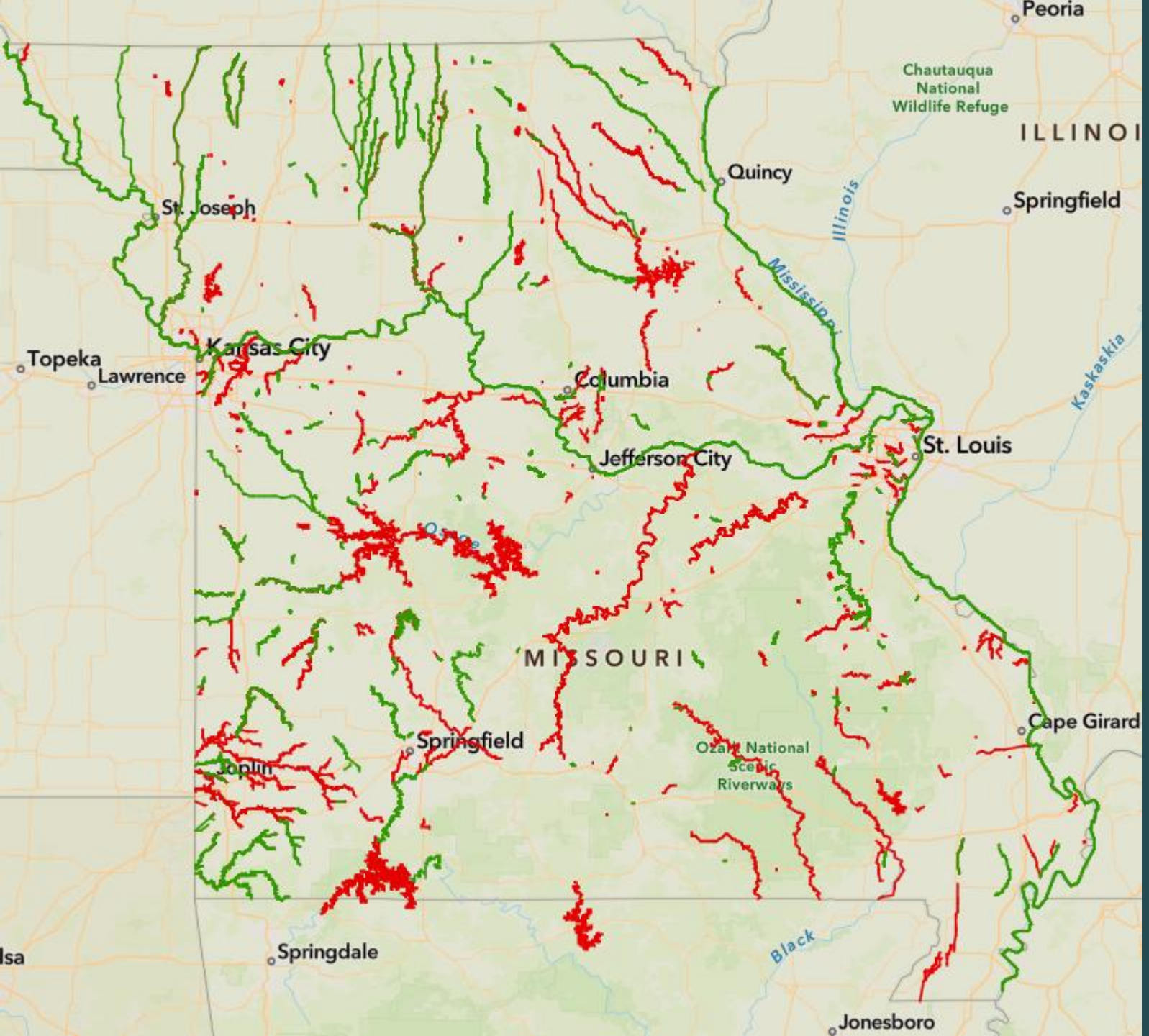
Assessment Worksheets

Publicly available and downloadable with Missouri's 303(d) list

Shows data used to assess each waterbody on the list

Gives a summary of the designated use and pollutants involved

Proposed List for Clean Water Commission Approval, Jan. 14, 2026 | Missouri Department of Natural Resources



Impaired Waters Map

Red: Category 5

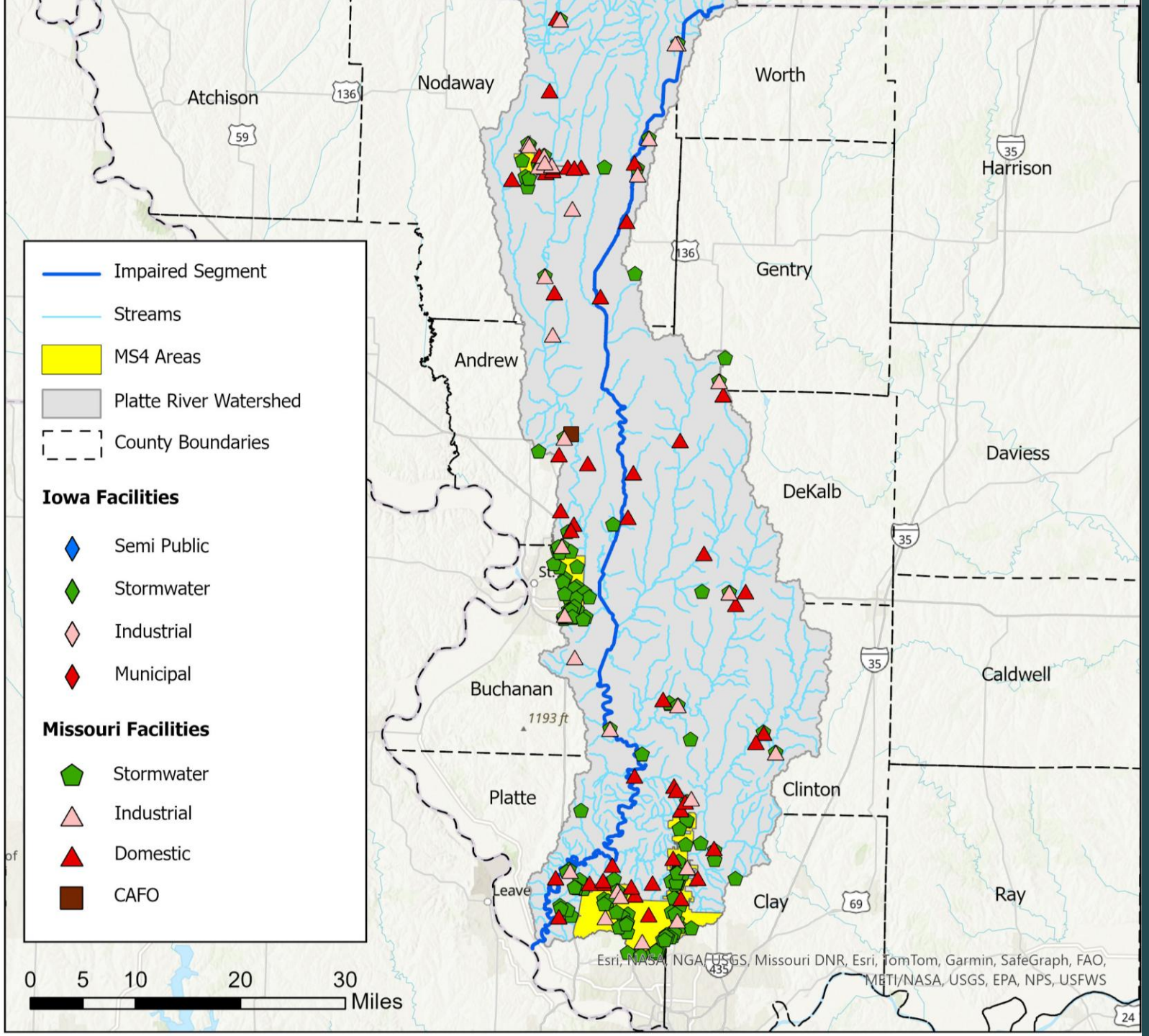
Green: Category 4 (TMDL or pollution control plan)

From DNR's MAPiT

TMDL Development

What is a TMDL?

- Total Maximum Daily Load
- A calculation of the **maximum amount** of a pollutant that a body of water can assimilate and **not** exceed the water quality criteria for that water
- Refers to both the numeric “load” and the report document
- An allocation of that amount to the pollutants sources
- Tool to inform watershed planning
- TMDL = WLA + LA + MOS + RC



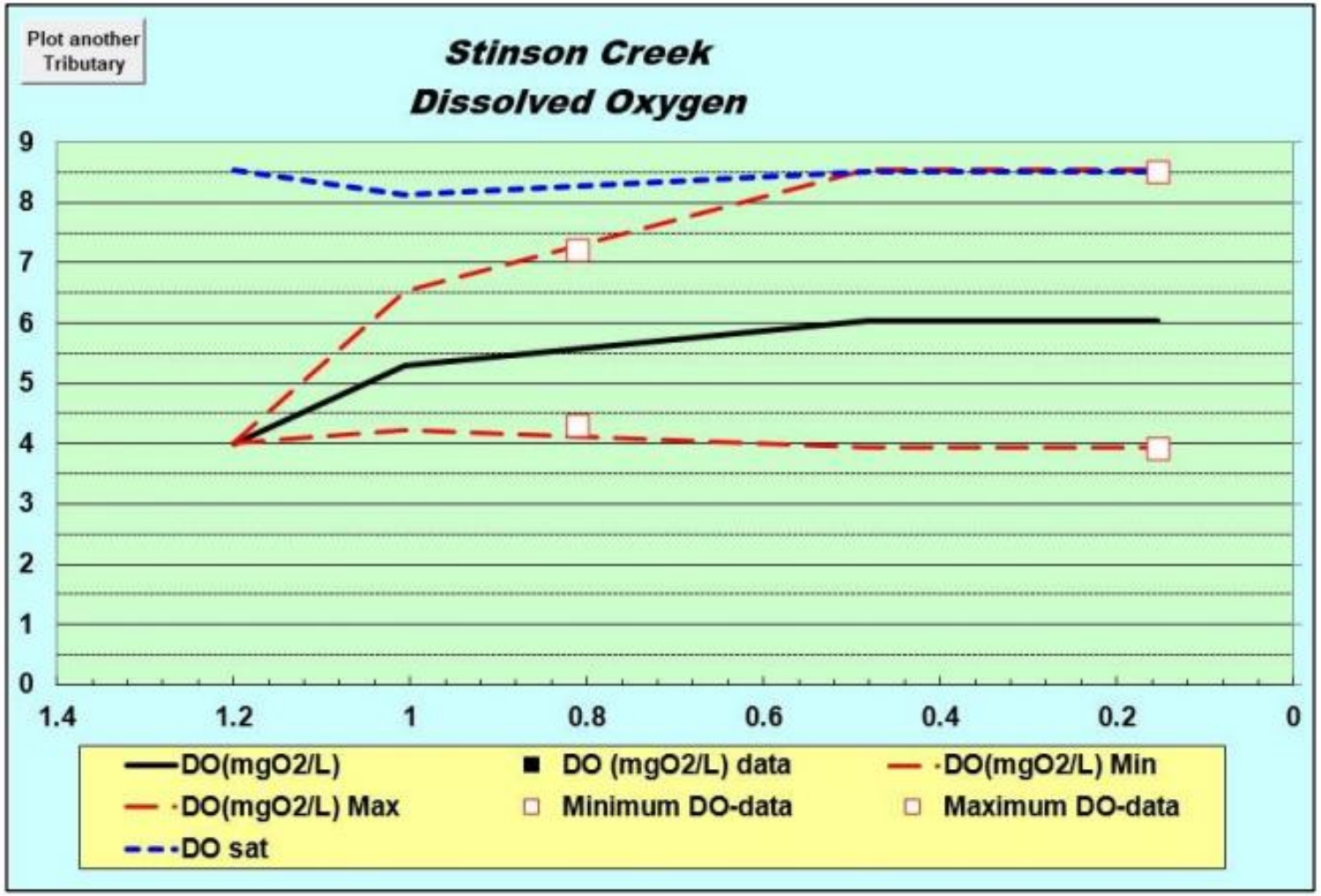
TMDL Process:
Define pollutant and source

Why is it impaired?

What are the potential contributing sources?

When is pollutant loading likely to occur?

- Seasonality
- Critical conditions



TMDL Process: Determining the TMDL

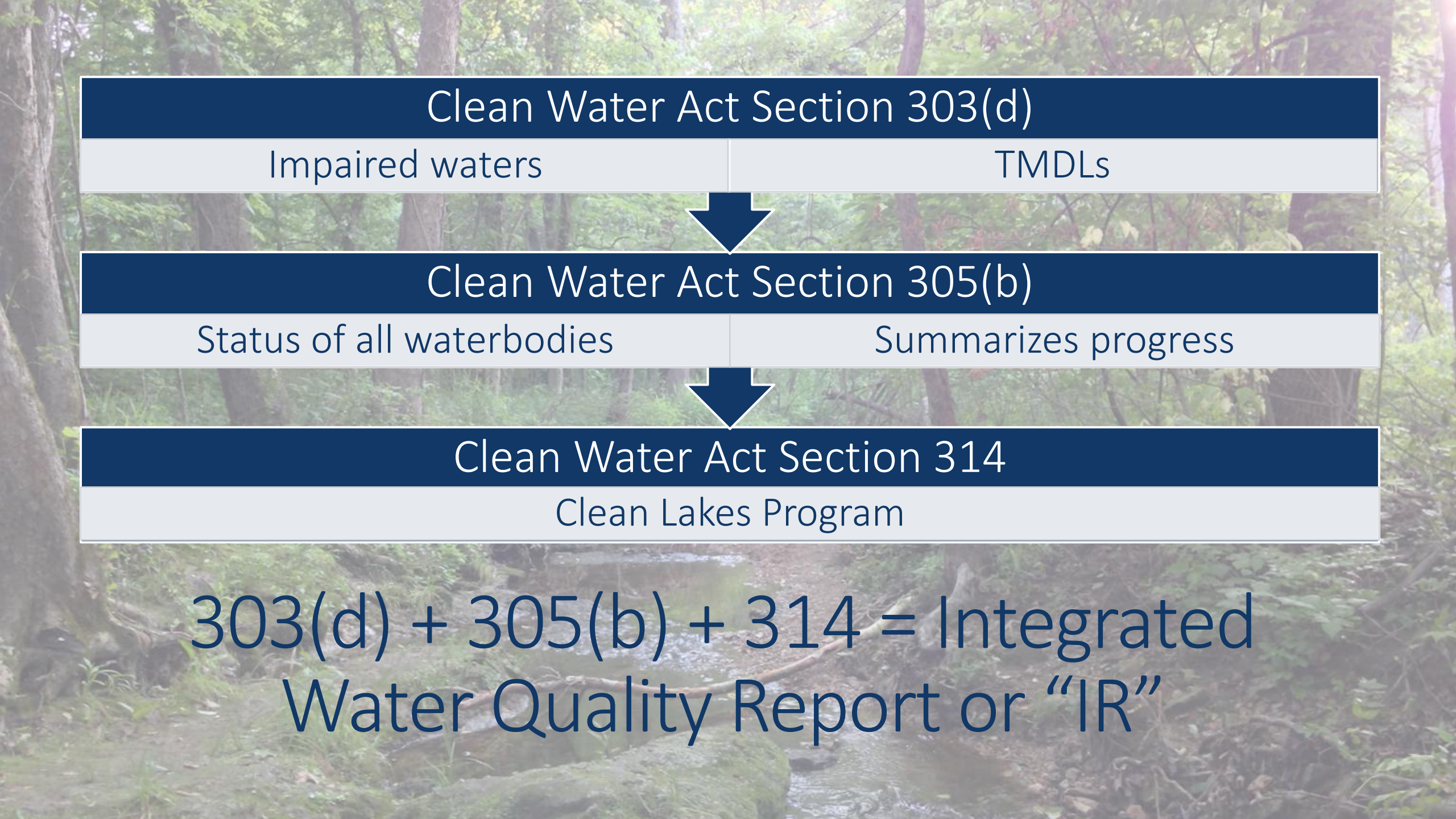
Make an estimate with the use of models

A water quality model is a mathematical representation of pollutant **fate**, **transport**, and **degradation** within a watershed or water body.

- Often a series of equations

Section 305(b)

Water Quality Report



303(d) + 305(b) + 314 = Integrated Water Quality Report or "IR"

The Condition of Missouri's Streams

Draft 2026 305(b) Report:

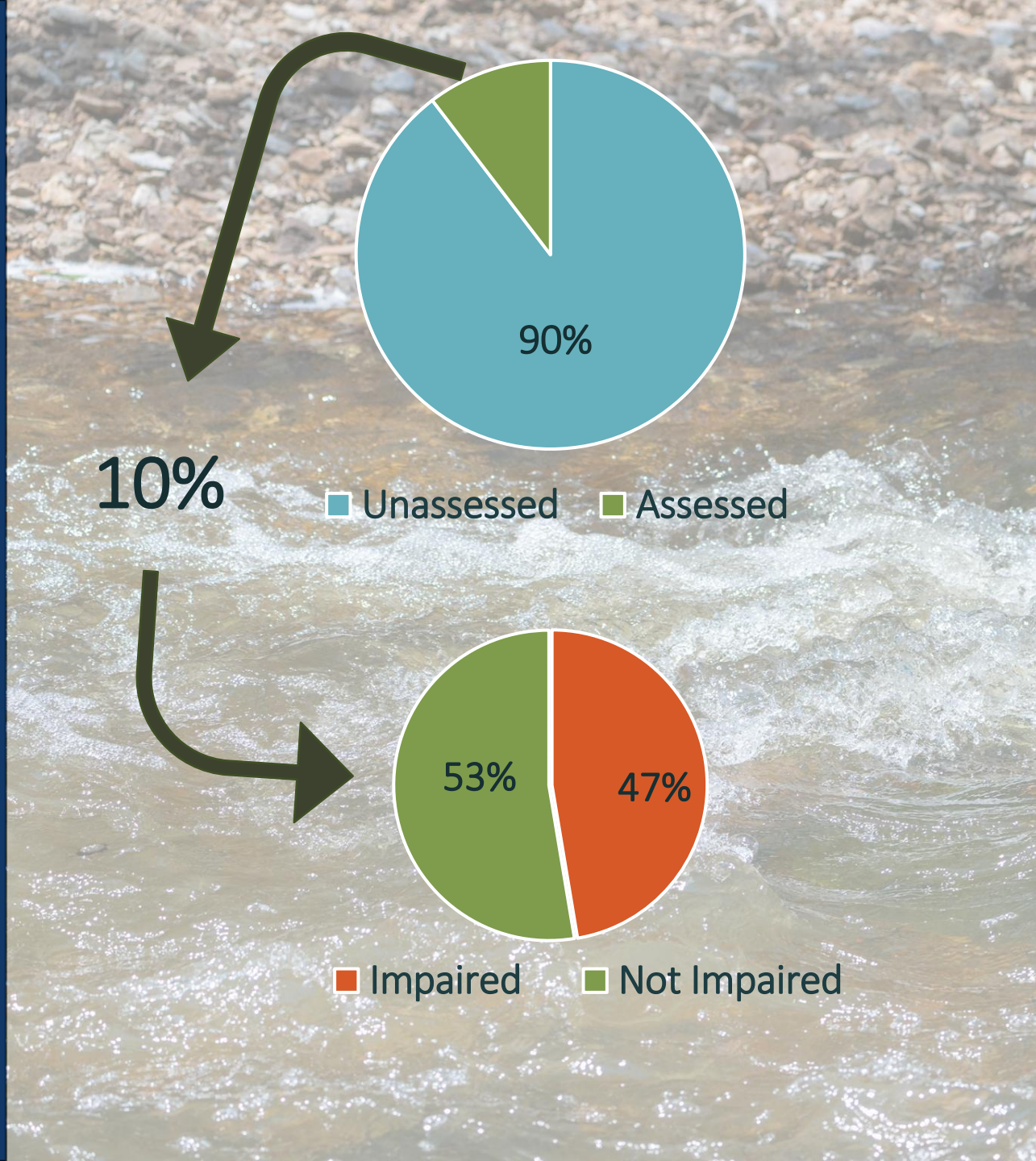
12,013 miles assessed

115,700 miles of stream

5,407 miles impaired

12,013 miles assessed

Approximately **1,400** additional miles are TMDL streams



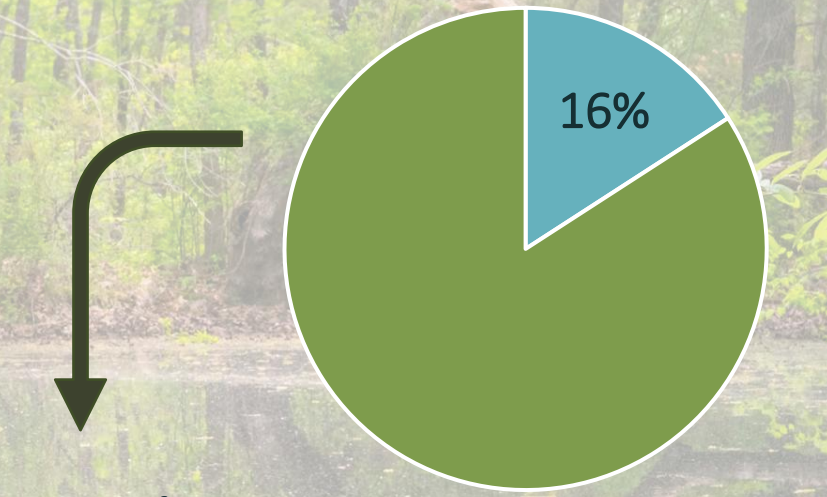
The Condition of Missouri's Lakes

Draft 2026 305(b) Report:

$$\frac{\textbf{270,683 } \textit{acres assessed}}{\textbf{312,736 } \textit{acres of lake}}$$

$$\frac{\textbf{223,950 acres impaired}}{\textbf{270,683 acres assessed}}$$

Approximately **2,600** additional acres are TMDL lakes.



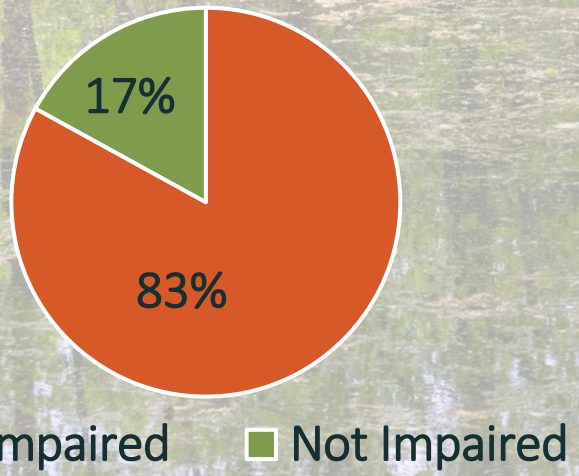
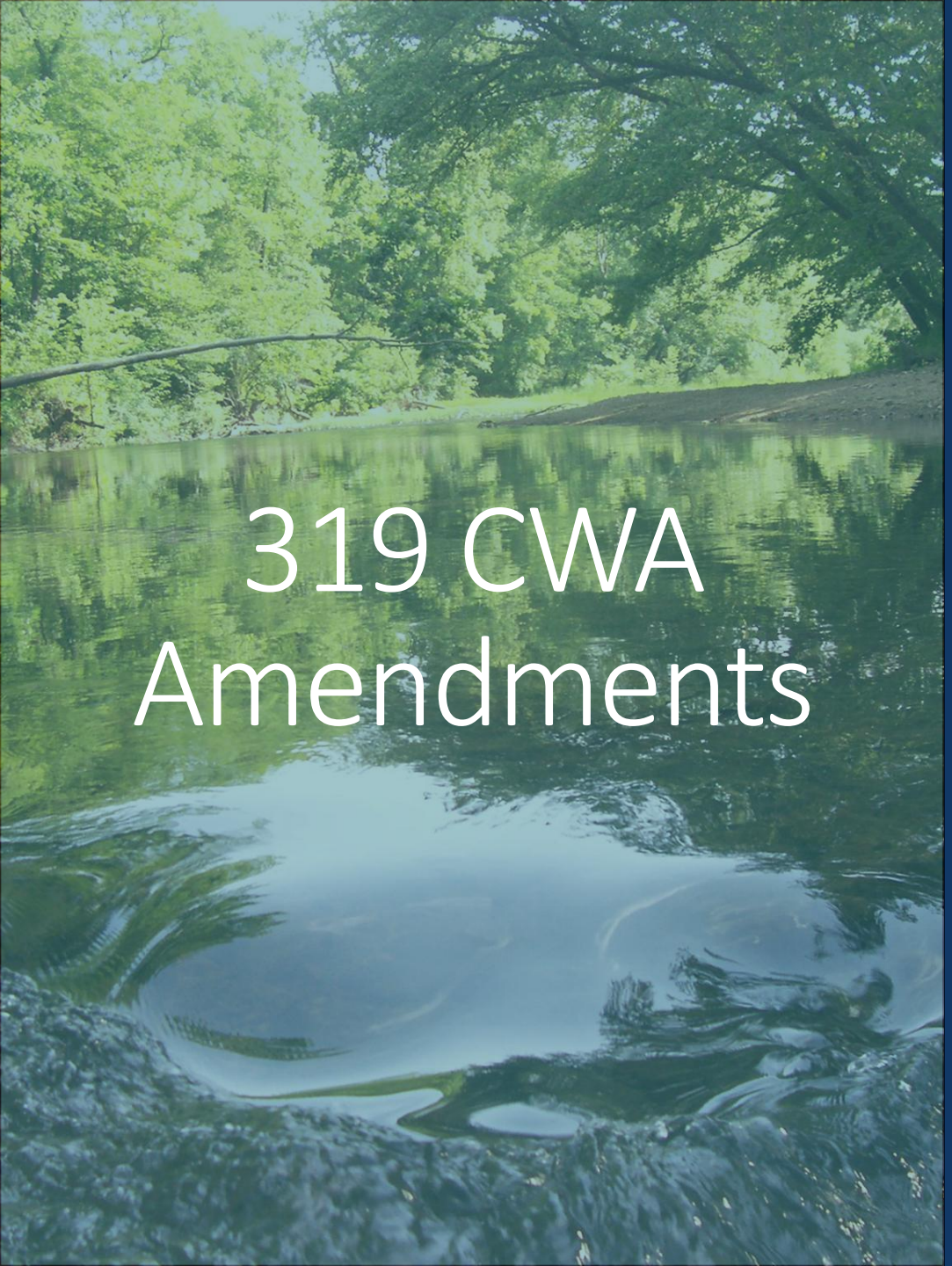


Photo by Garrett Frandson

Section 319

Watershed-Based Plans



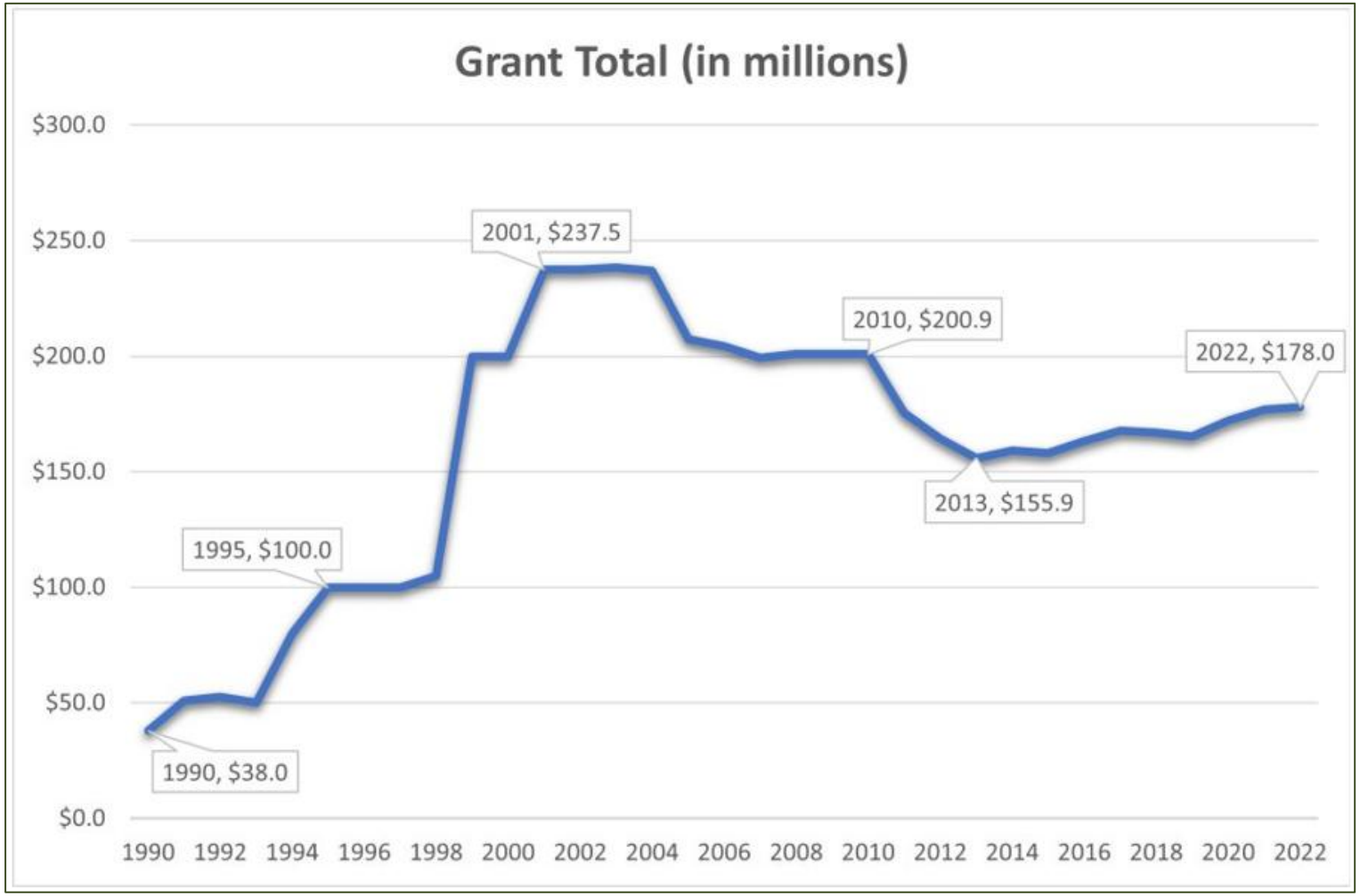
319 CWA Amendments

The Federal Water Pollution Control Act of 1948 amended, creating the CWA, addressing point source pollution

1972

1987

The CWA was amended to address nonpoint source pollution by providing grant funds to implement voluntary practices



Federal Provisions to all states for Section 319 since 1990

319 NPS Program

The US Congress annually provides a national grant allocation for states, tribes, and territories to address nonpoint source pollution under Section 319 of the CWA

Since 2016, Missouri's total annual allocation has ranged from 3.6 to 3.8 million dollars

Addressing Nonpoint Source Pollution

Developing watershed-based plans is a key way to address nonpoint source pollution.

- Follow specific planning requirements
- Approved by EPA
- Eligible parties can receive 319 funding after plans are developed

Voluntary

Locally led

Community-involved

Experienced water resource management individuals

A plan's success includes stakeholder involvement and sound science to support improvements.

Nine Key Elements

A watershed-based plan is like a road map, directing you from start to finish.

1. Causes and Sources of Pollution	2. Load Reductions	3. NPS Management Measures
4. Technical and Financial Assistance	5. Information and Outreach	6. Schedule
7. Milestones	8. Performance Criteria	9. Monitoring

About the 319 Grant

$400,000 maximum funding request

- 60/40 match requirement

Eligible entities:

- Municipal and County Governments
- State Agencies
- Non-Profits
- Universities
- Soil and Water Conservation Districts
- Regional Planning Commissions and Councils of Government

Eligible Activities

- Protection of high quality or threatened waters
- Groundwater protection
- Agriculture BMPs
- Innovative stormwater practices
- Stream/riparian restoration
- Lake management practices
- Wetland restoration and protection
- Mine drainage

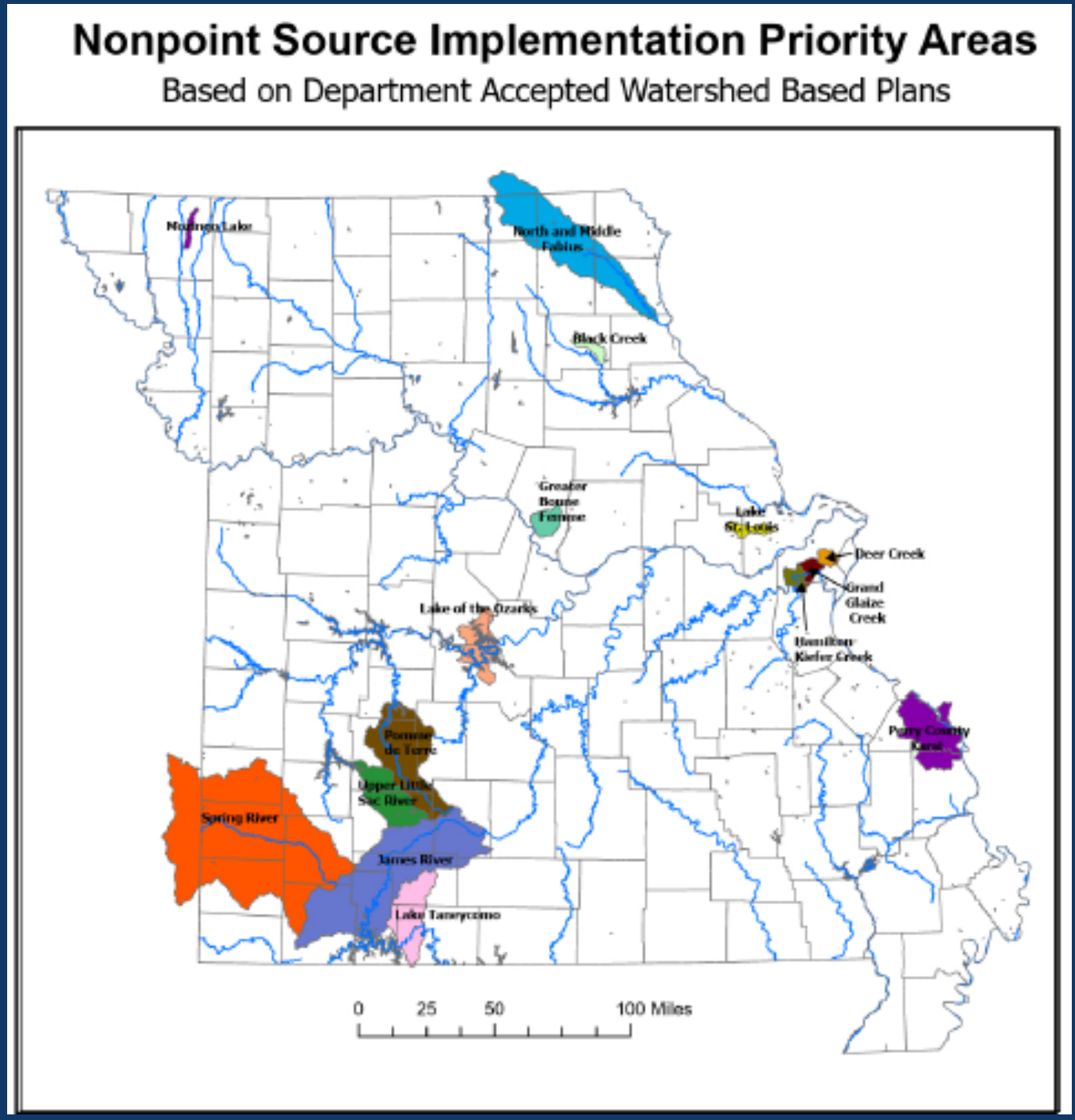
319 Priorities for 2026-2031

Status of 310 planning activities:

- **14** approved Watershed-Based Plans
- **5** Watershed-Based Plans currently in development

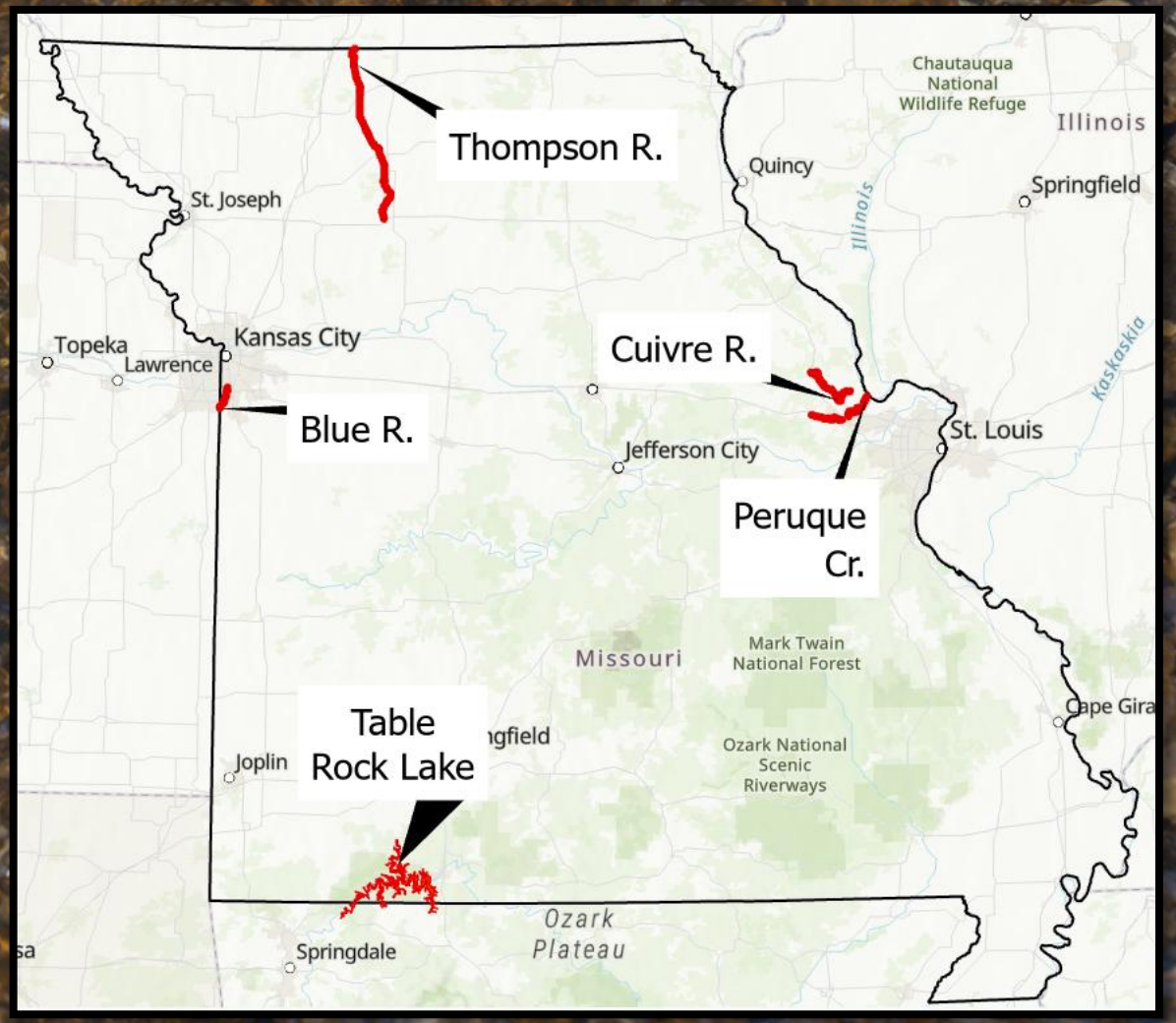
Priority locations for implementation are in areas with approved Watershed-Based Plans

Areas with approved TMDLs are also good candidates for Watershed-Based Plans



Plans Under Development

- Blue River (KC)
- Cuivre River
- Peruque Creek
- Table Rock Lake
- Thompson River



Public Involvement

Watershed Engagement

Watershed Plans & TMDLs

Public comment periods

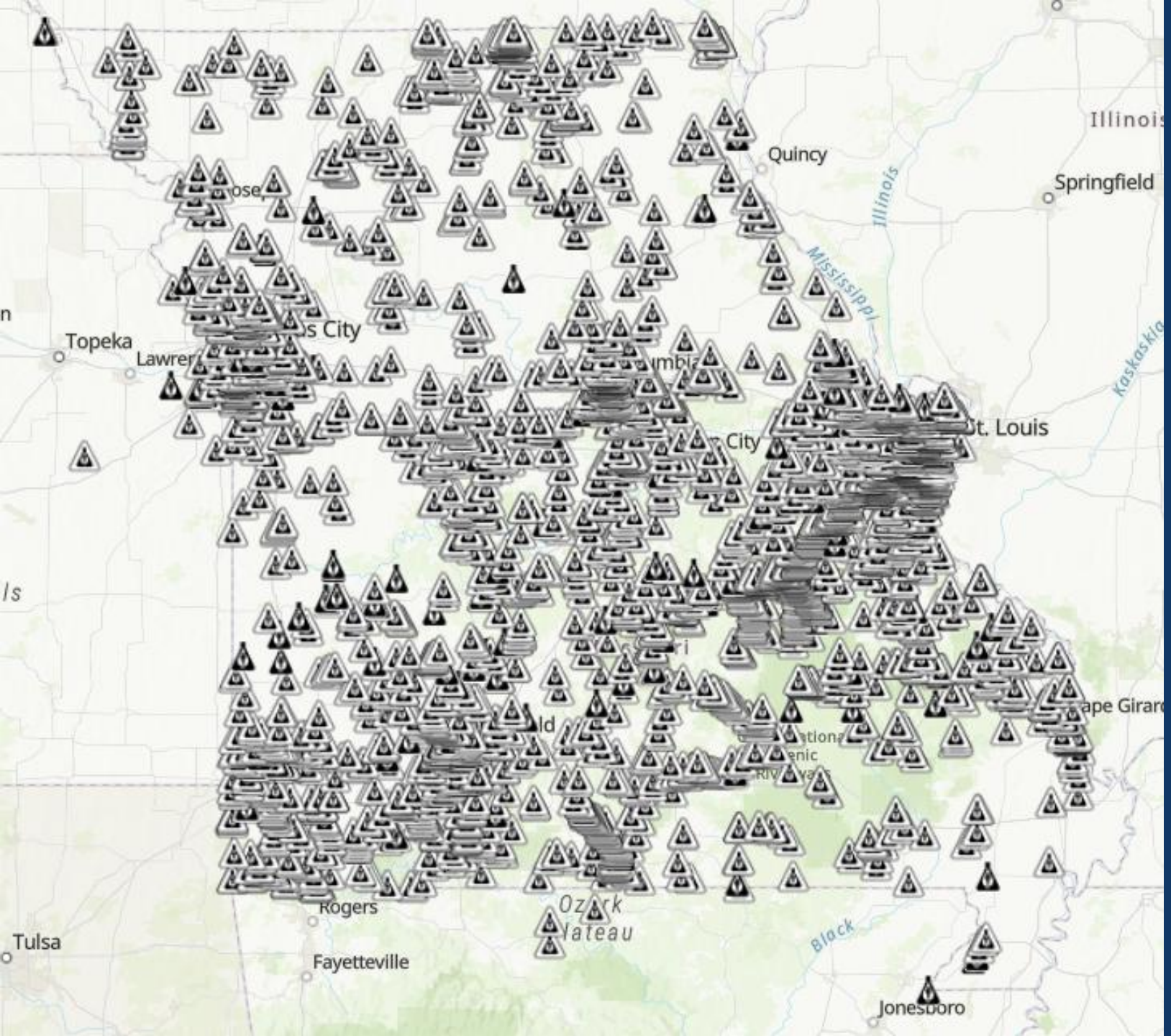
Remediation

Public education

Advocacy – Steam Teams United

Sign up to receive notifications with DNR's

Gov Delivery Sign Up



Volunteer Data Collection

Volunteer Water Quality Monitoring data:

- Education
- Advocacy
- Screening data
- 305(b) report
- CSI data
- 319 data

All Stream Teams Advocacy Meeting
January 22, 2026, 6 PM to 7:30 PM

Virtually by Zoom

Join Stream Teams United on Thursday, January 22nd for the first of our 2026 quarterly advocacy meetings for registered Missouri Stream Teams. Learn more about current advocacy issues at the local, state, and federal levels and ways to advocate. Bring your questions and concerns to discuss with fellow Stream Teams members and Stream Teams United staff.

Register at the link below

stream teams united

Registration link:
https://us02web.zoom.us/meeting/register/CyufjnY9SAiihTv1jG9p7A

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