

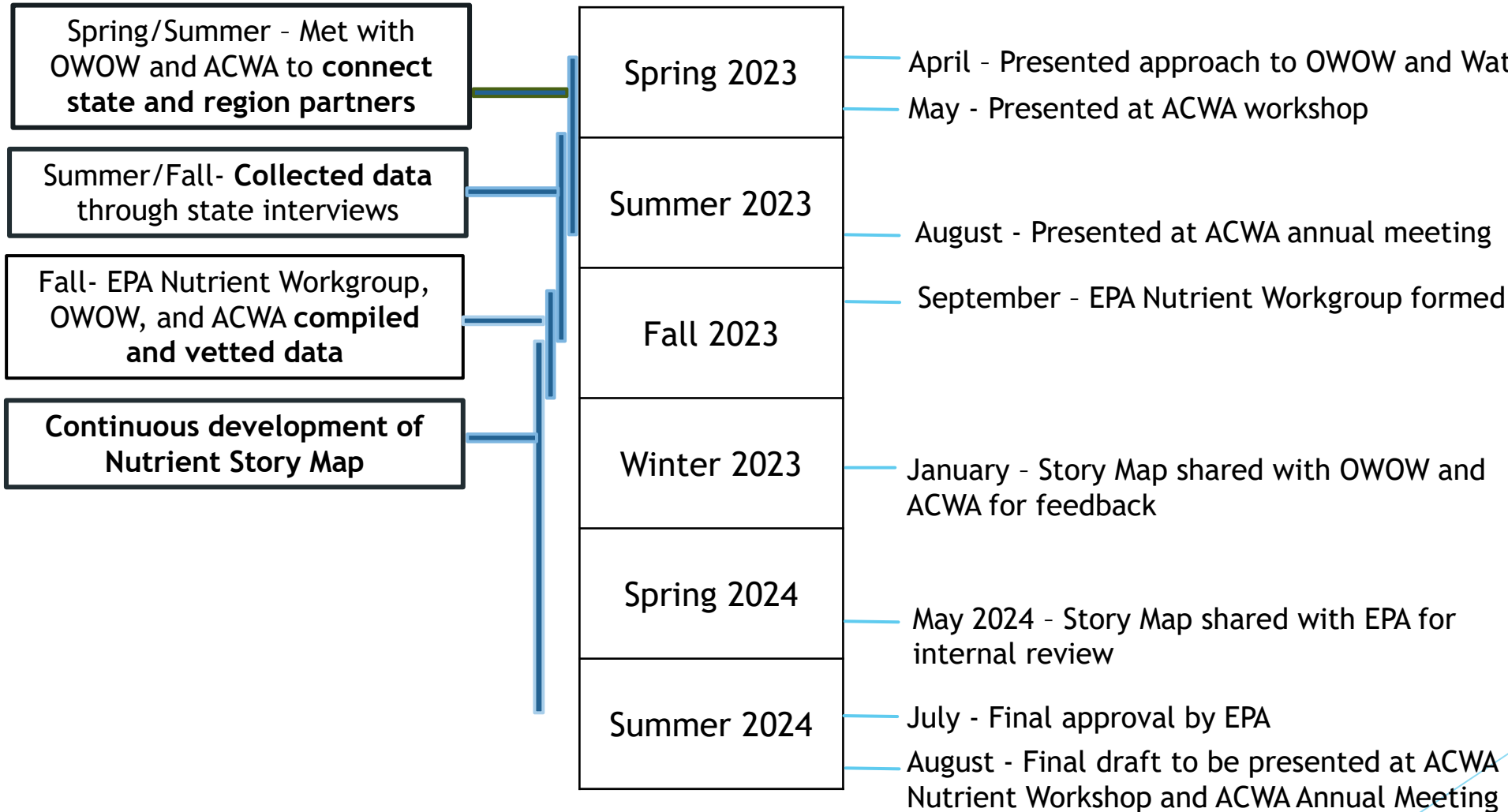
# Nutrient Engagement Update

ACWA Annual Meeting

Jaime Gaggero, Amanda Reed (R7)

8/22/24

## Nutrients Engagement Timeline



### Priorities

- Collaborate with ACWA to take state input into account
- Engage with states to understand programs; memorialize responses
- Collaborate with regional contacts to vet process and state data
- Transform findings into a Story Map that can be presented to the public

### Acronyms

OWOW - Office of Wetlands, Oceans and Watersheds

ACWA - Association of Clean Water Administrators

# Public Story Map:

Purpose - summarize EPA / State Engagement

Not a Nutrient State of the State - summarize how States are leveraging CWA authorities and programs to target and reduce nutrients.

Geographic representation of States highlighted



Vision: Interactive, polished, visual document to tell the Story of EPA / State engagement

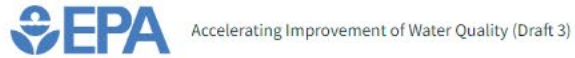


Follow the Clean Water Act  
Structure: WQS - 303d - TMDLs -  
Permitting - NPS - Funding - Targeting



Highlighting specific States - States that have success stories in program areas

# Story Map Draft:



## Accelerating Improvement of Water Quality (Draft 3)

Nutrient Reduction Efforts Across the United States

EPA  
August 1, 2024

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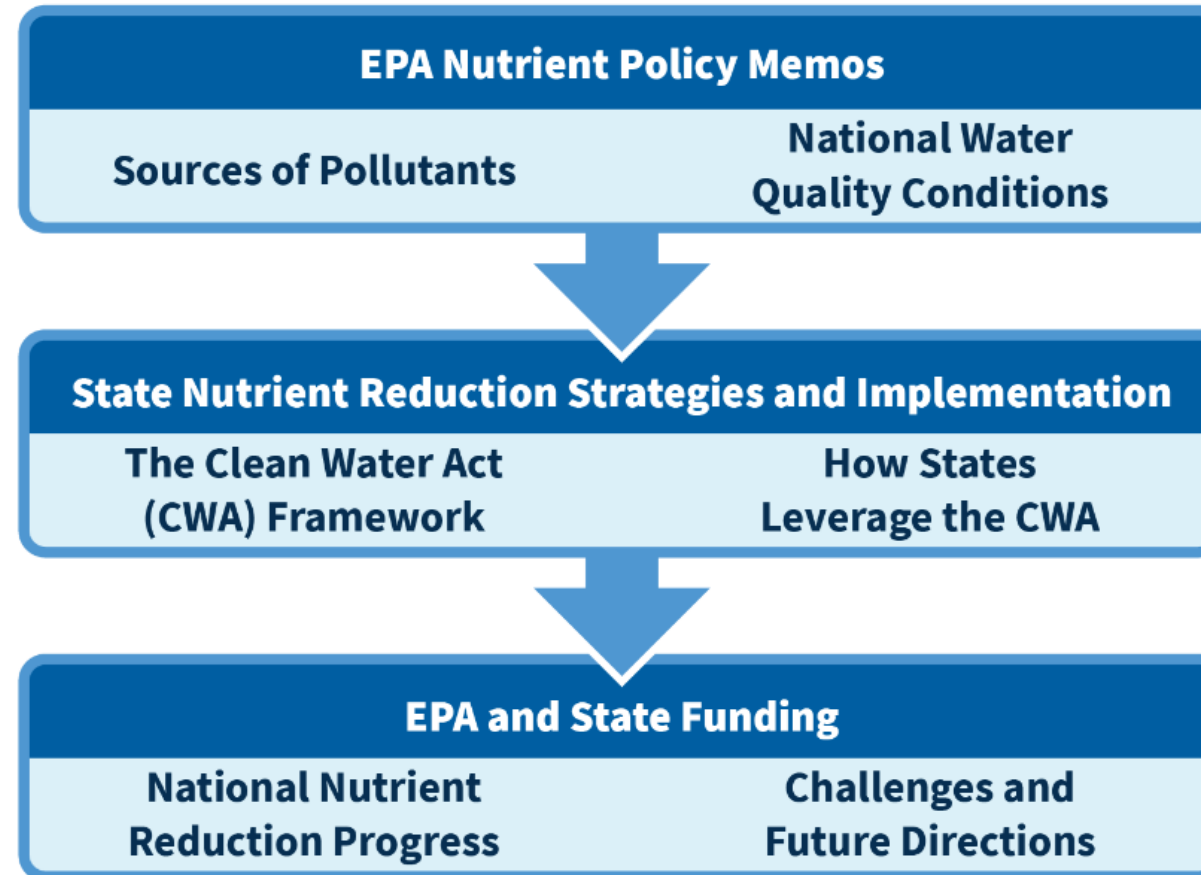
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This Story Map is intended to summarize and highlight state efforts to reduce nutrients. Key findings from state and the EPA discussions presented through the following sections:



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# State Nutrient Reduction Strategies and Efforts

When states identify waters polluted by nutrients, there are many things they can do to reduce nutrients. Some states have developed a Nutrient Reduction Strategy, a written comprehensive, formal plan or framework aimed at identifying significant contributions of nitrogen and phosphorus and minimizing those impacts to surface waters. While other states have not written a strategy but have more generally prioritized multiple federal and state program efforts toward actions to reduce nutrient pollution.

*28 States have developed and published a Nutrient Reduction Strategy*

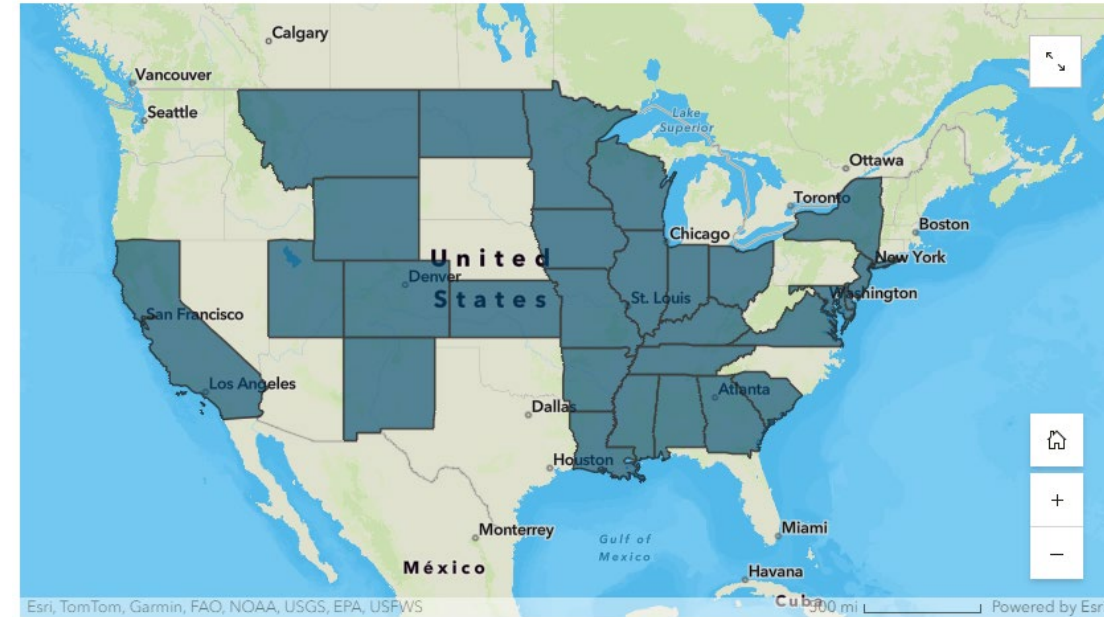
Many states update their strategies routinely, with 57% of states with a strategy completing reviews every 1 to 5 years and the remainder being updated every 5-10 years.

## State Nutrient Reduction Strategy Highlight: Iowa, Mississippi

Additionally, all 28 states with a Nutrient Reduction Strategy include measurable and quantifiable milestones to track progress.

States without a Nutrient Reduction Strategy typically use a holistic watershed approach, utilizing multiple programs, partnerships, and funding sources to address nutrient concerns.

## State Holistic Watershed Planning Highlights: Vermont, North Carolina



States with a Nutrient Reduction Strategy



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# Numeric Nutrient Criteria

Some states have successfully developed at least partial numeric nutrient criteria for nitrogen and/or phosphorus in lakes and streams.



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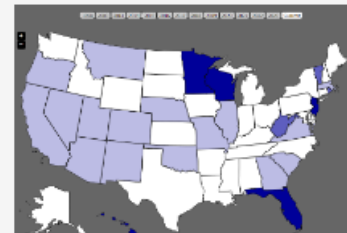
*20 states have adopted numeric nutrient criteria for one or more lakes and 14 states have adopted numeric nutrient criteria for one or more streams.*

The EPA houses a website that tracks, records and displays state progress on adopting numeric nutrient criteria where you can learn more about your state and others:

## See state numeric nutrient criteria:

<https://www.epa.gov/nutrientpollution/state-progress-toward-adopting-numeric-nutrient-water-quality-criteria-nitrogen>

<https://www.epa.gov>

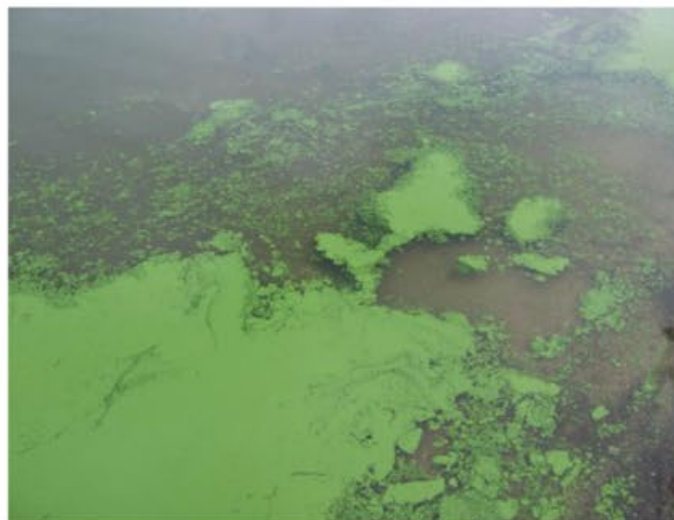


### State Numeric Nutrient Criteria Highlights: Minnesota

## Narrative Nutrient Criteria

Typically, all states have some form of a narrative water quality description that relates to excess nutrients. Many states have also adopted narrative nutrient criteria to determine whether a waterbody is impaired. Chlorophyll a, cyanobacteria and cyanotoxins can all be used as indirect indicators of the overall health of a waterbody. For example, in Massachusetts the nutrient narrative states:

**Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses.**



Algal bloom in Lake Binder, Iowa. Photo: Dr. Jennifer Graham, USGS.

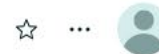
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# State Strategies and CWA Efforts Highlights:



Accelerating Improvement of Water Quality (Draft 3)



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## Nutrient Reduction Strategies: Iowa

Innovative Approach Spotlight



## Nutrient Reduction Efforts: Mississippi

Innovative Approach Spotlight



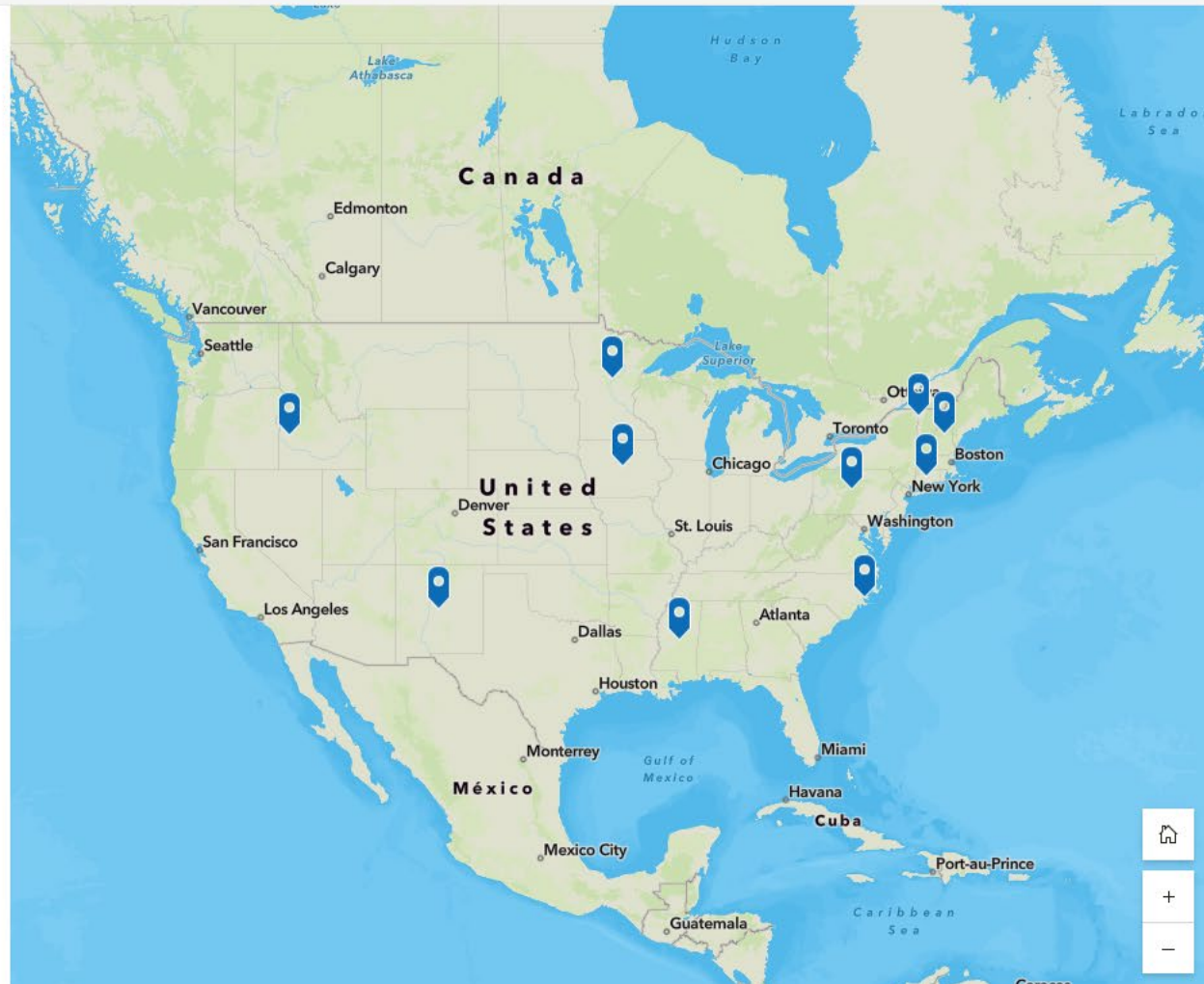
## Holistic Watershed Planning: Lake Champlain, Vermont

Innovative Approach Spotlight



## Holistic Watershed Planning: Neuse River, North Carolina

Innovative Approach Spotlight







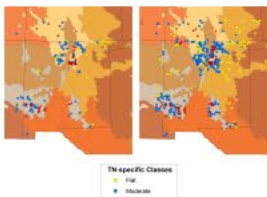
### Numeric Nutrient Criteria: Minnesota

Innovative Approach Spotlight



### Narrative Nutrient Criteria: Connecticut

Innovative Approach Spotlight



### Nutrient 303(d) Assessment and Listings: New Mexico

Innovative Approach Spotlight



### Nutrient 303(d) Assessment and Listings: Pennsylvania

Innovative Approach Spotlight



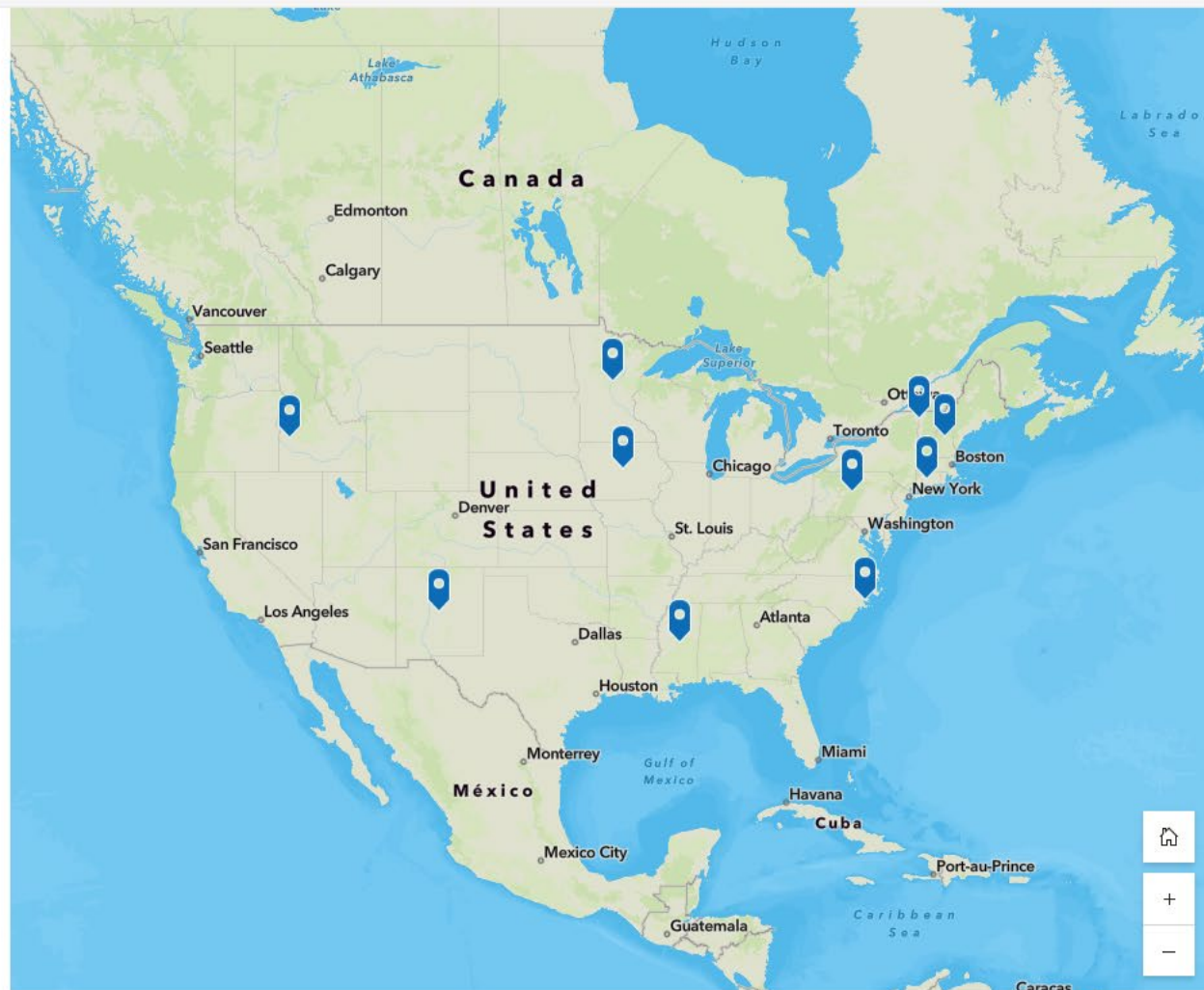
### Nutrient TMDL Development: Boise River, Idaho

Innovative Approach Spotlight



### Nutrient TMDL Development: New Hampshire

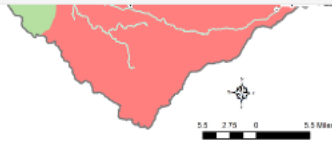
Innovative Approach Spotlight







Boise River and Subwatersheds



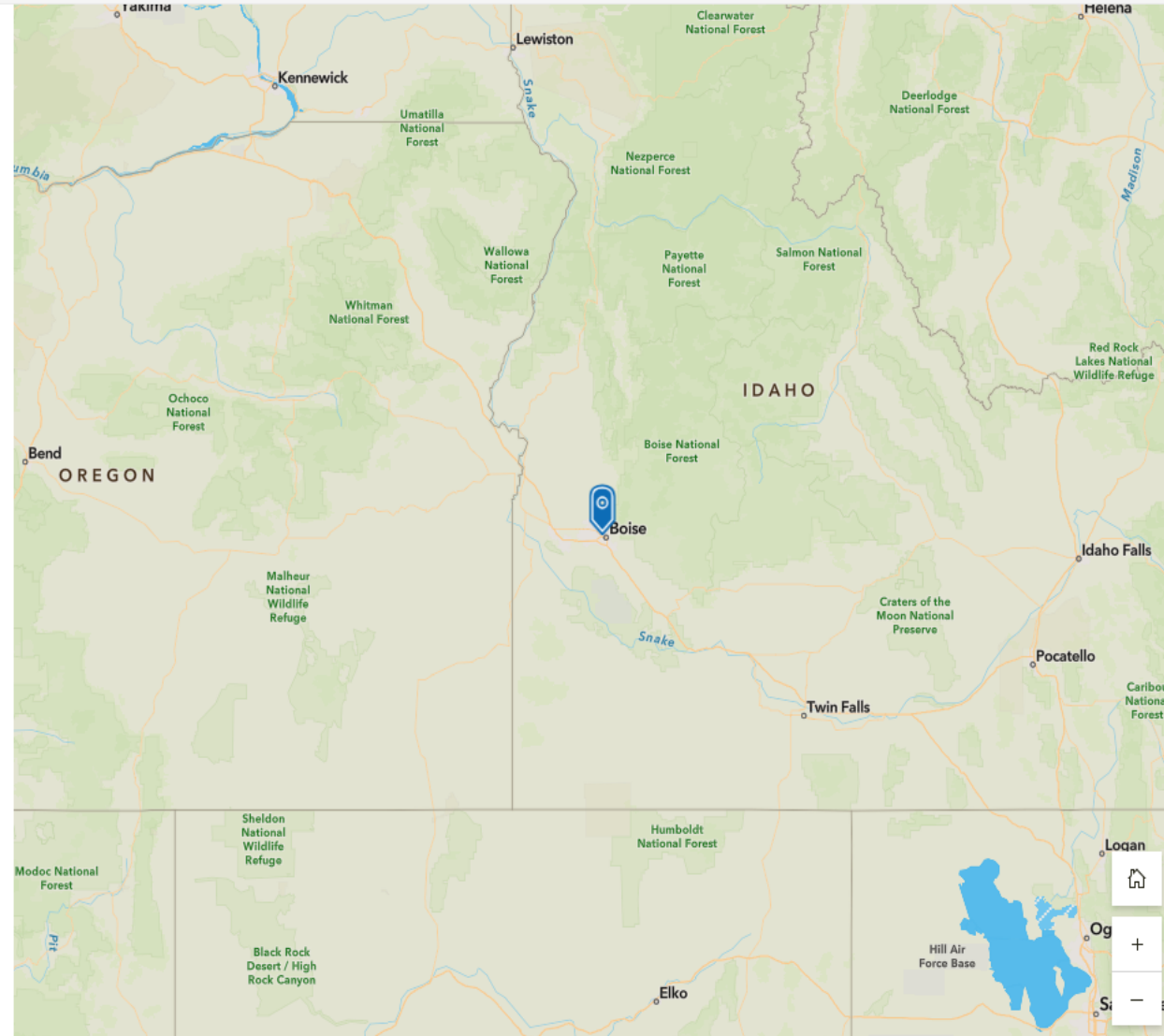
## Nutrient TMDL Development: Boise River, Idaho

### Innovative Approach Spotlight

The Boise River flows 64 miles in a northwest direction from the outlet of Lucky Peak Dam east of Boise to its mouth at the confluence with Snake River near Parma, Idaho. The lower reaches of the Boise River from Middleton to the confluence of the Snake River are impaired for phosphorus. Multiple sources of phosphorus have been identified in the watershed including POTWs, stormwater, agriculture, ground water return flows and tributaries.

In 2015 the [Idaho Department of Environmental Quality \(IDEQ\) developed the Lower Boise River Total Phosphorus \(TP\) TMDL](#). The TMDL was written to address nuisance aquatic growth within the Boise River and to meet the lower Boise's allocation for the Snake River-Hells Canyon Total Phosphorus TMDL.

The TMDL established two targets: the first was a year-round instream target to address benthic chlorophyll-a in the Boise River, and the second target was based on meeting the Snake River-Hells Canyon TP TMDL portion of the mouth of the Boise River.



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  - ▶ Nutrients in Wastewater and Stormwater
  - ▶ Nonpoint Source Pollution

# Stormwater Protection

To prevent harmful pollutants from being washed or dumped into MS4s, certain operators are required to obtain NPDES permits and develop stormwater management programs (SWMPs). The SWMP describes the stormwater control practices that will be implemented consistent with permit requirements to minimize the discharge of pollutants from the sewer system.

National Map of Regulated MS4s

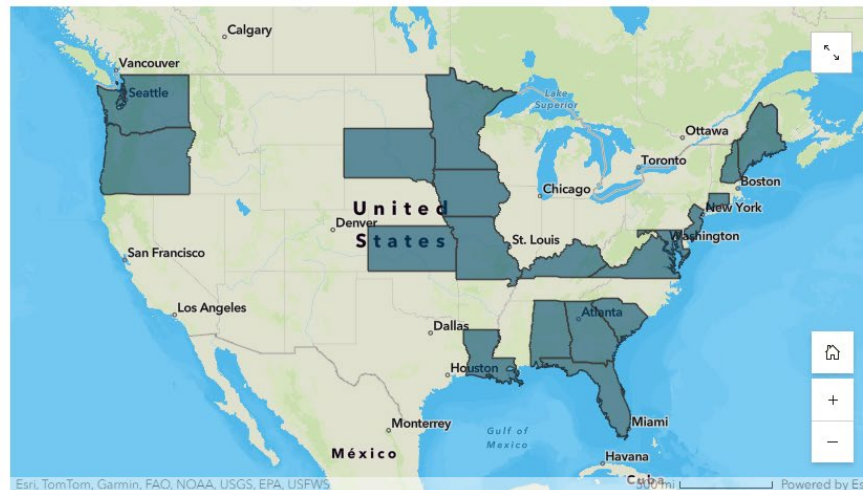


[View a larger version of this map](#)

Through nutrient engagement conversations, states shared with the EPA different efforts they are using to address nutrients in their SWMPs/MS4s.

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*44% of states are addressing nutrients through stormwater projects.*



States addressing nutrients through Stormwater

We need more info from States!

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# EPA and State Funding

## EPA Funding

As previously described, some EPA programs provide funds for base operations of state water pollution control programs including water quality management program grants, the water quality planning set-aside from the CWSRF, and Section 319 nonpoint source pollution control grants. Additionally, the Bipartisan Infrastructure Law included additional funding for existing programs as well as providing funding for programs such as Gulf Hypoxia.

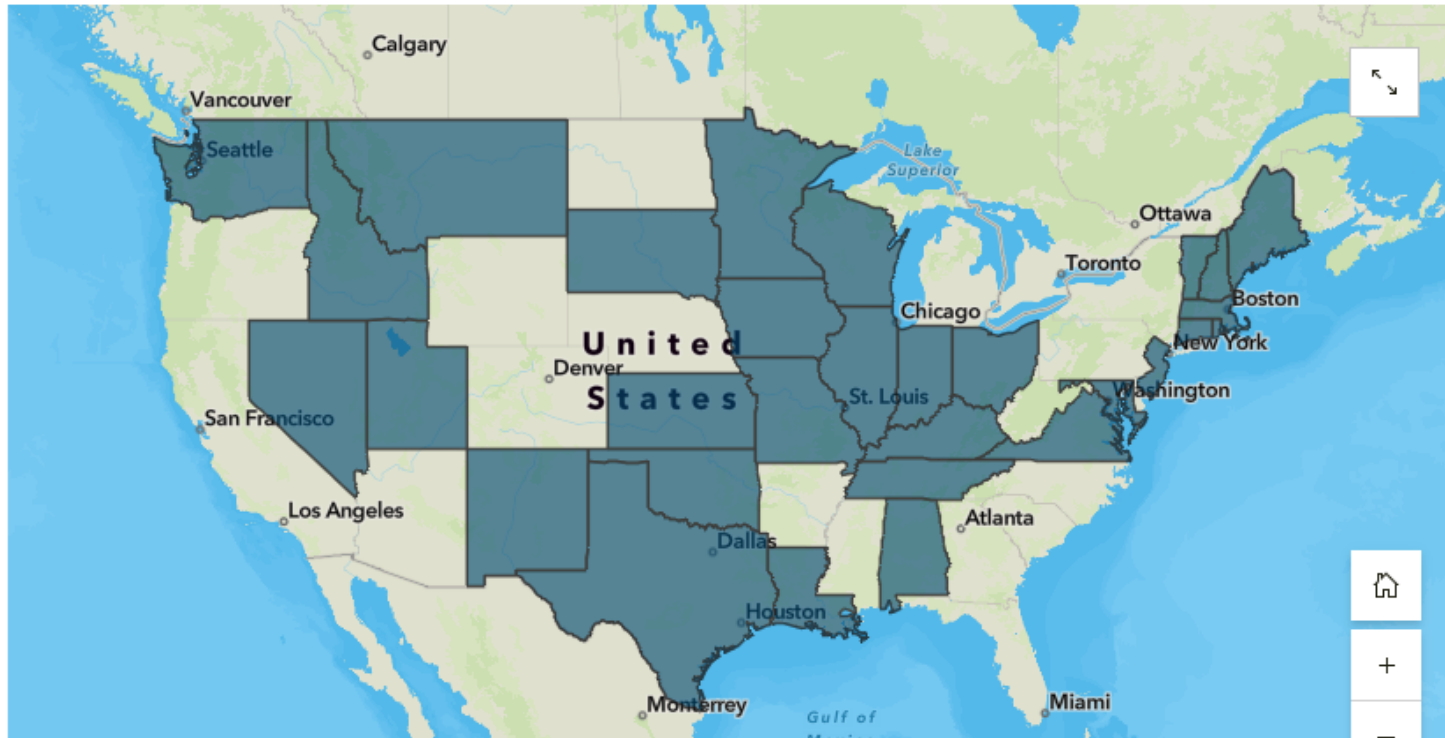
*More than 50% of states are using the CWA Section 319 Nonpoint Source Program to focus on nutrient reductions, 36% utilize the regulatory program Section 404, 34% are tapping into available 303d and TMDL program resources to monitor, assess, and complete mitigation plans for nutrient issues.*



## State Funding

Some states have resources to support nutrient reduction above and beyond federally funded CWA programs coming from a variety of sources such as sales tax through legislative action.

*30 states fund their water quality management programs with additional state resources.*



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# State CWA Implementation Highlights:



Accelerating Improvement of Water Quality (Draft 3)



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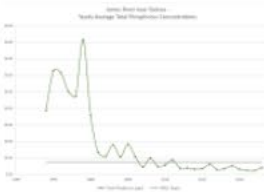
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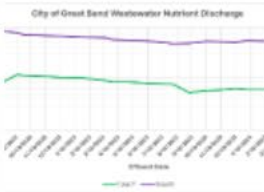
## Nutrient Monitoring in NPDES Permits: San Francisco Bay, California

Innovative Approach Spotlight



## Nutrient Monitoring in NPDES Permits: Missouri

Innovative Approach Spotlight



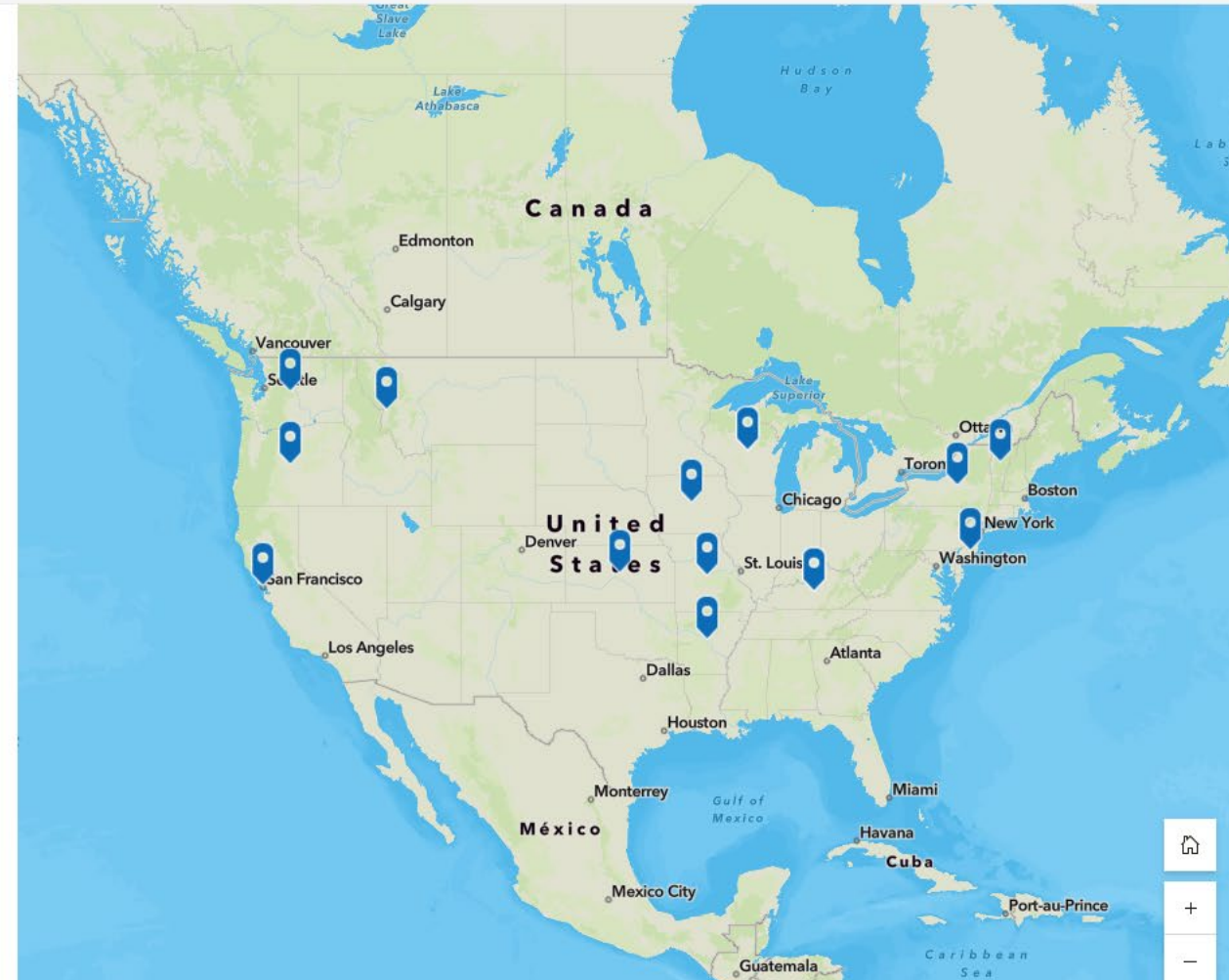
## Nutrient Monitoring in NPDES using Narrative Criteria: Kansas

Innovative Approach Spotlight



## CWSRF for Stormwater Projects: New Jersey

Innovative Approach Spotlight



# State CWA Implementation Highlights:



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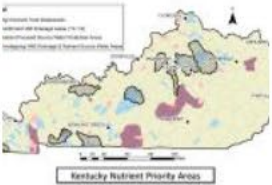
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## CWSRF for Stormwater Projects: Wisconsin

Innovative Approach Spotlight



## NPS for Nutrient Reduction: Kentucky

Innovative Approach Spotlight



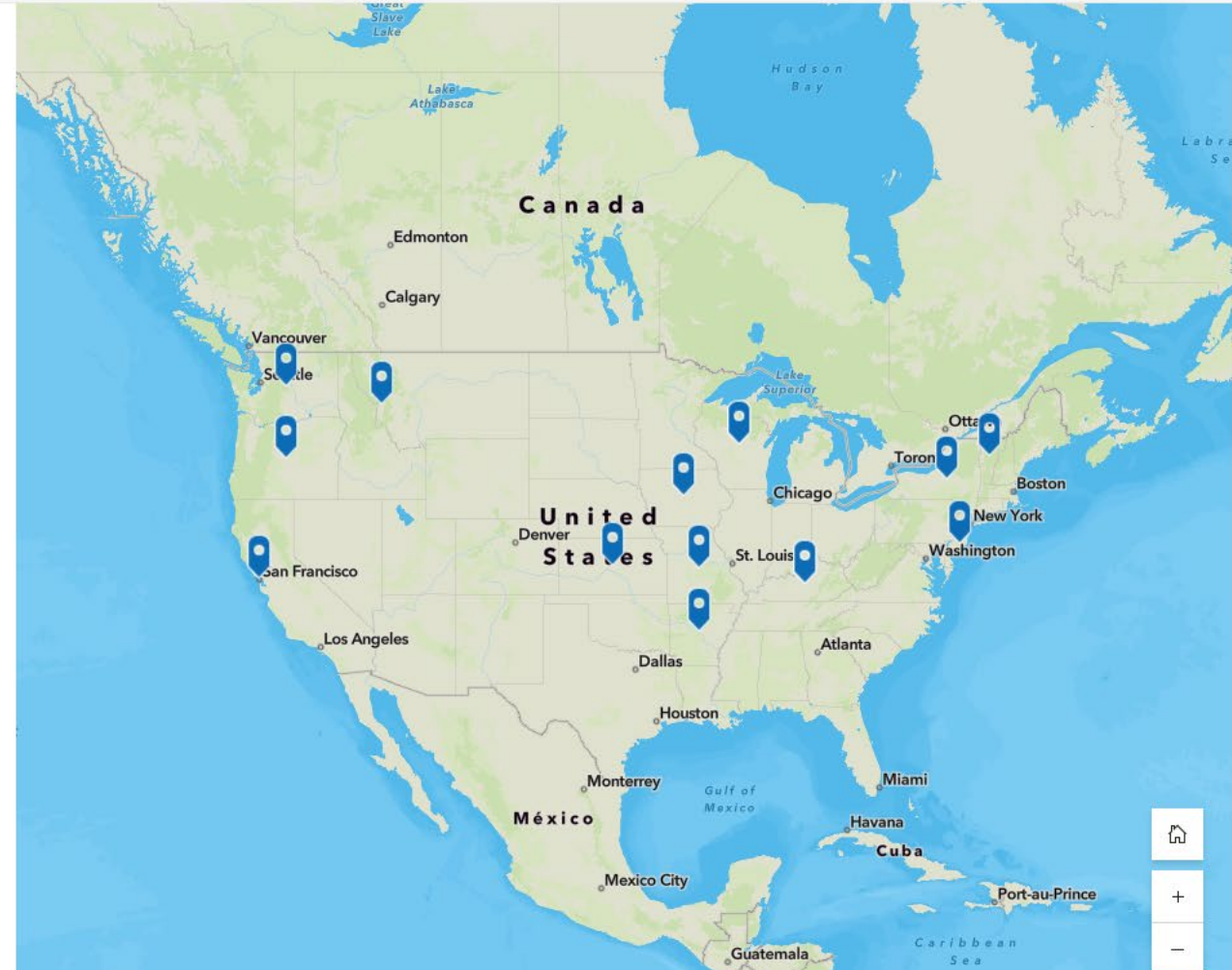
## NPS for Nutrient Reduction: New York

Innovative Approach Spotlight



## NPS for Nutrient Reduction: Bitterroot River, Montana

Innovative Approach Spotlight





# State CWA Implementation Highlights:



## CWSRF for NPS: Washington

Innovative Approach Spotlight



## CWSRF for NPS: Arkansas

Innovative Approach Spotlight



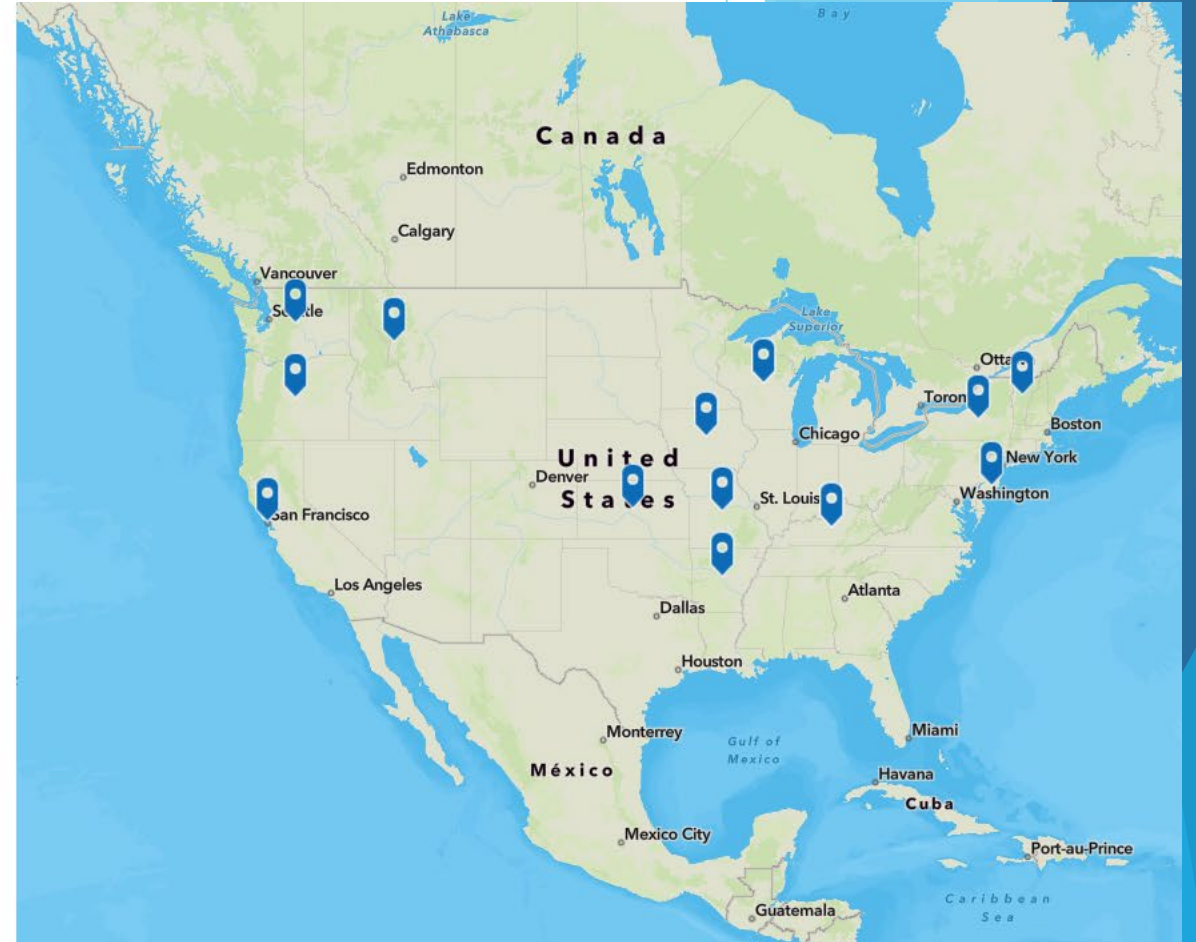
## CWSRF for NPS: Iowa

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## CWSRF for NPS: Oregon

Innovative Approach Spotlight



# State CWA Implementation Highlights:



## State Funding for Nutrient Reduction Support: Kentucky

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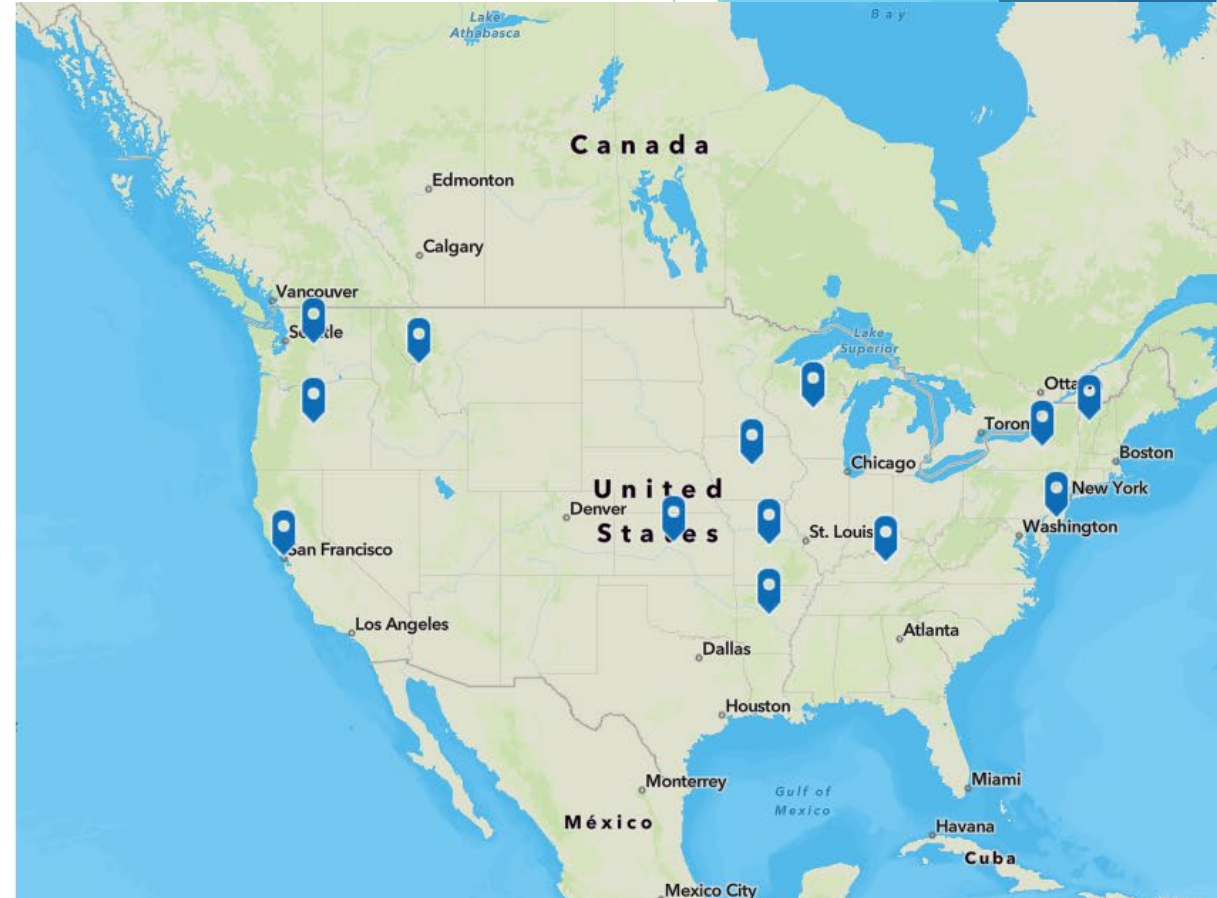
## State Funding for Nutrient Reduction: Vermont

Innovative Approach Spotlight



## State Funding for Nutrient Reduction: Wisconsin

Innovative Approach Spotlight





# State Funding for Nutrient Reduction: Vermont



Accelerating Improvement of Water Quality (Draft 3)



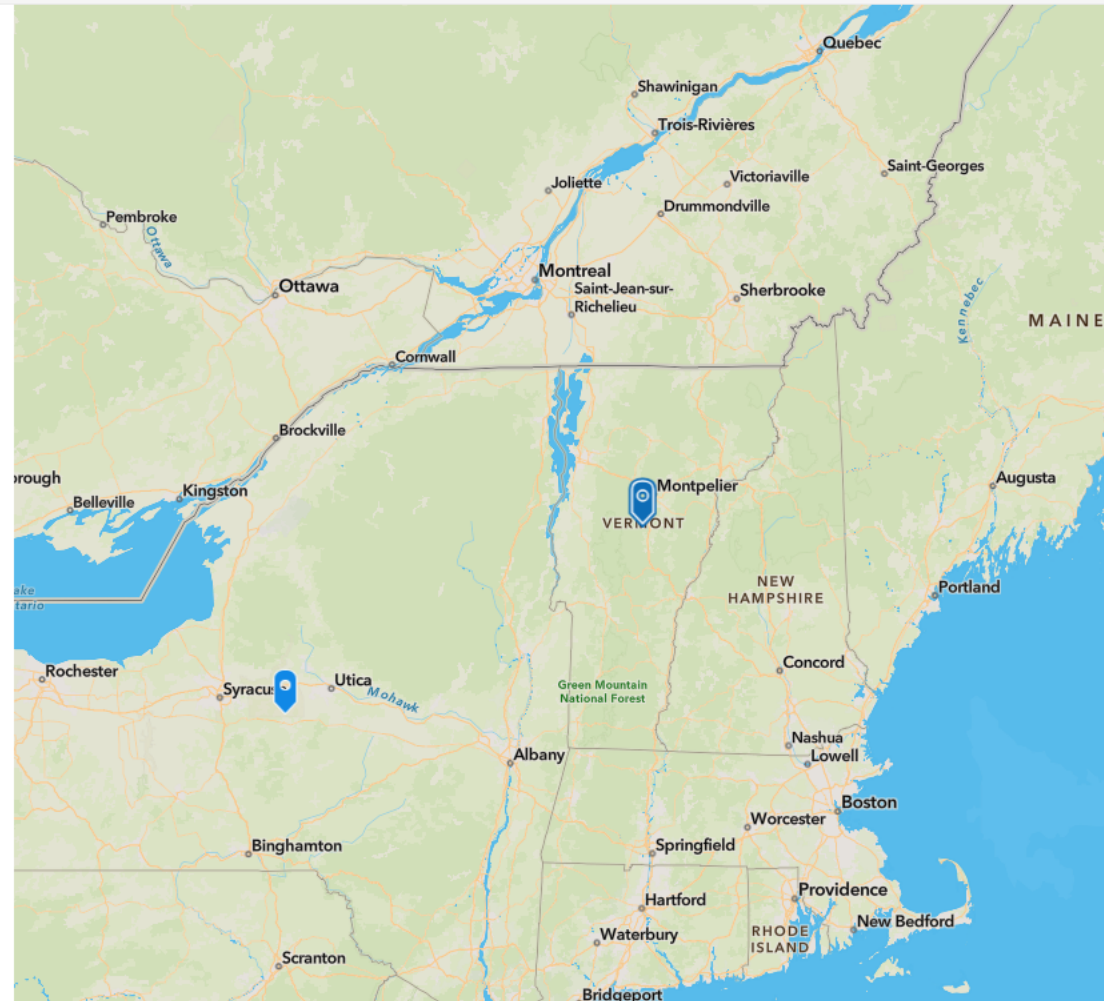
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maintenance of non-regulatory clean water projects to meet non-regulatory phosphorus reduction targets with funding provided through the Water Quality Restoration Formula Grant Program. Grants are awarded annually to each CWSP.

Water Quality Enhancement Grant Program: This was established to protect high quality waters, maintain or improve water quality, restore degraded or stressed waters, create resilient watersheds and communities, and support the public's use and enjoyment of the state's waters. This was achieved in SFY 2023 through administration of a set of sub-initiatives such as: Dam Removal Design and Implementation Block Grant, Woody Riparian Buffer Block Grant, River Corridor Easements, Multi-Sector Assessments, Enhancement Development, Design & Implementation Block Grant, and Regional Conservation Partnership Program (RCPP) Wetland Incentives.

## Impact

Vermont has provided \$225M in nonpoint source project funding for the [SFY 16-23 period](#). From 2016 to 2023, some examples of outputs from state-funded projects include: 141,317 acres of agricultural conservation practices have been implemented, 749 structural agricultural practices have been installed, 1,915 linear feet of lakeshore have been restored, 1,195 acres of wetland have been conserved and restored, and 26,582 acres of land have been conserved with natural resource protections.



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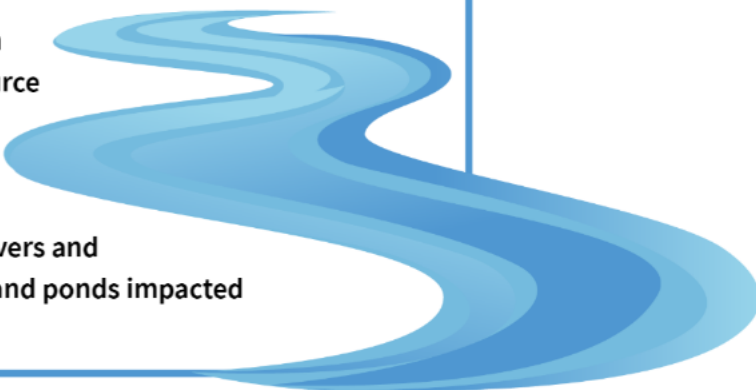
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## Results

### Nationwide Results and Progress

One program that tracks progress nationwide is the CWA section 319 program, which includes grants that fund “on-the-ground” conservation practices focused on nutrient reductions from various sources. This program has recorded achievements of annual average nitrogen and phosphorus reductions of 5,695,159 lbs, and 1,605,648 lbs, per year respectively.



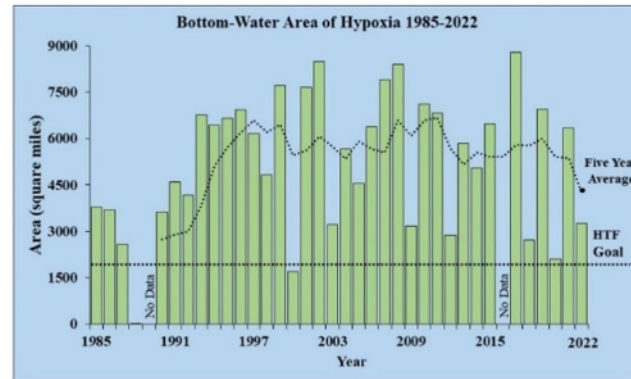
Since 2005, CWA section 319 projects have improved **2,600 miles** of streams and rivers and **200,000 acres** of lakes and ponds, as shown in the EPA’s Nonpoint Source Success Stories series (U.S. EPA 2024), including 2,400 miles of streams and rivers and 150,000 acres of lakes and ponds impacted by nutrient pollution.

## Regional Results and Progress

Regionally, long-term trend results are gathered from various ongoing efforts. For example, the Chesapeake Bay watershed has a TMDL in place for nutrients and sediment (Chesapeake Progress 2024). From 1985 to 2021, two major tributaries to the Chesapeake Bay, the Susquehanna River and the Mattaponi River, showed improving trends in nitrogen loads, but no trends in phosphorus loads. The Patuxent River, Potomac River, and the James River all showed improving trends in both nitrogen and phosphorus, while the Rappahannock River showed an improving trend in nitrogen and a degrading trend in phosphorus. Despite these mixed results, as of 2021, implemented management actions have reduced annual nitrogen and phosphorus loads by 77.6 million and 2.95 million pounds, respectively. The overall trend indicates that implementation efforts are helping to achieve nutrient reductions.

In 2008, the Mississippi River Basin subcommittee estimated that a 45% reduction in total nitrogen and a 45% reduction in total phosphorous would be needed to reach the goal of reducing the size of the hypoxic (low-oxygen) zone in the northern Gulf of Mexico to an annual 5-year average of less than 1,930.5 square miles (5,000 km<sup>2</sup>).

[In 2015, the Hypoxia Task Force \(HTF\) set an interim target of 20% reductions by 2025, with 45% reductions by 2035.](#) State Nutrient Reduction Strategies were developed to support state-level implementation frameworks and goals to achieve



Long-term measured size of hypoxic zone (green bars) and the 5-year average measured size (LUMNCON/LSU/NOAA in U.S. EPA 2023a). The

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investments of states, territories, tribes, the EPA, other federal agencies, municipalities, and industrial and agricultural sectors. The nation faces a continuing challenge to further scale up work to reduce nutrient pollution.

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## Challenges

Throughout regional discussions states expressed data gap concerns, various needs for Support and Technical Assistance from the EPA and support in identifying nutrient impaired waters.

### Gaps in Data

*30% stated lack of funding as a challenge in obtaining enough data. 33% stated lack of data needed to make more water quality decisions. 30% cited lack of monitoring sites for specific waterbodies and/or lack of existing data for specific waterbodies.*



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## EPA Goals Moving Forward

The EPA, state and Tribal National Aquatic Resource Surveys have shown some national and regional improvement for key indicators of nutrient pollution (NARS Data: EPA 2021, EPA 2022). Additionally, we have seen many success stories in which streams rivers and lakes have been restored or protected from degradation. Despite this progress, nutrient pollution continues to be a widespread and continuing problem and we continue to struggle to scale our efforts to the magnitude of the problem.

Compounding these challenges are the continued impact of legacy nutrients from past practices, including nitrates in ground waters and phosphorus in lake-bottom sediments and soils eroding into ditches and streambanks.

Across the country, states and tribes are identifying and prioritizing impaired waters for action while trying to protect waters from degradation. The EPA and its state and Tribal partners are committed to pressing forward, building on past successes and investing in innovation and research to support states and tribes to ensure future progress in nutrient reduction efforts.

The EPA's and state engagement has identified priority goals for state work on nutrient pollution over the next three to five years as well as state needs for EPA assistance including:

- Provide continued support for states updating and implementing their nutrient reduction strategies.
- Provide continued support to states regarding data needs, resources, and training.

The EPA and states are working toward these goals as they develop plans for using available EPA grant and technical assistance resources to make further progress. Both states and EPA continue to build their

# Next Steps:

- ▶ Goal: State Review of Stats, Maps and Highlights
- ▶ EPA Approved draft presented to and shared with ACWA for feedback. Emailed out through ACWA 8-8-24
- ▶ Modify based on feedback. Comments due September 6, 2024.
  - ▶ Requesting review of state statistics.
  - ▶ Requesting review of state maps.
  - ▶ Requesting review of state highlights - state contact has already reviewed and provided edits (comments incorporated).
  - ▶ Is your state currently addressing nutrients through stormwater projects?
  - ▶ Not requesting line item edit comments - copy editor will review in future.
  - ▶ Not requesting organization/flow/design comments, limited capacity to change design, flow or add text, etc.
  - ▶ Office hours available for state specific data review.
- ▶ Publish Fall of 2024