

# The National Perspective on Nutrients

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# National Scope of Nutrient Problem



## Streams

- More than 47% of all streams have medium to high levels of phosphorus
- More than 53% of all streams have medium to high levels of nitrogen



## Lakes

- Approximately 5 million lake acres identifies as threatened or impaired for nutrients



## Coastal waters

- Approx. 78% of assessed coastal areas exhibit signs of eutrophication

Over 9,000 TMDLs have been approved for nutrient-related pollutants

# Nutrient Pollution Impacts

*17,000 + waterbodies don't meet state water quality standards because of excess nutrient pollution.*

## Public Health:

- Direct human exposure to cyanobacteria and algal toxins
- Nitrates and nitrites in drinking water
- Potential increase in harmful drinking water disinfection byproducts

## The Environment:

- Direct exposure of fish and wildlife to toxic algae
- Dead zones and hypoxia
- Acid rain
- Air pollution

## The Economy:

- Drinking water costs
- Tourism losses
- Commercial fishing and shellfish losses
- Real estate value losses



# NUTRIENTS: A TOP CAUSE OF IMPAIRMENT

## Rivers and Streams (Miles)

- ▶ 21% Nutrients/organic enrichment/oxygen depletion
- ▶ 16% Pathogens
- ▶ 13% Sediment
- ▶ 9% Temperature
- ▶ 8% Metals, other than Hg

## Lakes and Reservoirs (Acres)

- ▶ 45% Mercury
- ▶ 34% Nutrients/organic enrichment/oxygen depletion
- ▶ 17% PCBs
- ▶ 8% Turbidity
- ▶ 7% Metals, other than Hg

## Bays and Estuaries (Sq. Miles)

- ▶ 21% PCBs
- ▶ 14% Nutrients/organic enrichment/oxygen depletion
- ▶ 12% Mercury
- ▶ 11% Turbidity
- ▶ 8% Dioxins

For purposes of presenting State information in ATTAINS, EPA compiles State reported impairments into national category groups, and as such, EPA defines “nutrient-related” as impairments that fall under the following parent category groups: nutrients, organic enrichment/oxygen depletion, ammonia, algal growth, and noxious aquatic plants.

Disclaimer: Impairment information as of October, 2017. Because data are being migrated to the new ATTAINS system, these numbers may not reflect most current information.

# NUTRIENT OR NUTRIENT-RELATED TMDLS APPROVED OR ESTABLISHED

21 ,648 Mercury

14,168 Pathogens

10,387 Metals, other than Hg

**9,019 Nutrients/organic enrichment/oxygen depletion/algal growth**

4,031 Sediment

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## NUTRIENT RELATED VISION PRIORITIES

Priority Waters for Nutrient TMDLs or Alternative Plans	# States
Identified at least one nutrient impaired waterbody	46
Identified nutrient impaired lakes	26
Identified nutrient impaired rivers or streams	32
Did not identify as priority any nutrient impaired waterbodies	5
Identified nutrient impaired waterbody for protection plan	10
Protection plans for nutrient impaired waterbody accepted by EPA	2
Alternative TMDL addressing nutrient impaired water accepted by EPA	6

# NUTRIENTS IN EPA'S INTEGRATED REPORTING GUIDANCE

## 2014

- ▶ Lack of numeric criteria, assessment methodology, or monitoring data are insufficient reasons not to assess for nitrogen or phosphorus impairment
- ▶ Provided examples of assessment approaches from 6 states
- ▶ Encouraged interpretation of narrative criteria
  - ▶ Conduct visual assessments (e.g, excess plant growth: algae, macrophytes, slime)
  - ▶ Develop targets/thresholds to translate narrative
  - ▶ Use of nutrient-related parameters: DO, pH, chlorophyll-*a*, biota

## 2016

- ▶ Reiterated identification of nutrient impairments remains a priority
- ▶ Encouraged states to share methodologies

# Opportunities for the 303(d) program to address nutrients

- ▶ Interpreting narratives in listing, TMDLs
- ▶ Engage stakeholders with models and other science to understand water quality condition, and identify sources, solutions.
- ▶ Develop WLA, including for stormwater.
- ▶ Develop LA, include reasonable assurance.
- ▶ Promote cooperation.

# This Workshop

- ▶ Plenary and breakout sessions will provide great opportunities to advance the discussion on nutrients, including:
  - ▶ Evaluating the right plan for the circumstance (TMDL, alternatives, protection plans)
  - ▶ Furthering important integration among programs: e.g., standards; permitting; NPS; monitoring/assessment; HABs/drinking water agencies; agriculture departments
  - ▶ Engagement (e.g., importance of communication on WQ data; stakeholder involvement/buy-in on the problem, sources and solutions; citizen science; use of story maps)
  - ▶ Considering potential tools (e.g., role of modeling to correlate algal impairments to N and P target loads)