Implementing New Numeric Nutrient Criteria for Lakes

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Nutrient Criteria Implementation Plan

- Sent to EPA as a supplement to our WQS package.
- This presentation will follow the Plan's outline.

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Nutrient Criteria Implementation Plan: Part I – Monitoring and Assessment

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Monitoring Efforts

- Lakes of Missouri Volunteer Program
- Statewide Lake Assessment Program

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Data Requirements for Assessment

- At least four samples collected between May 1 and September 30 under representative conditions
- Each sample must have been analyzed for at least Chl-a, TN, TP, and Secchi depth
- At least three years of samples (years do not have to be consecutive). Data older than seven years will not be considered
- Data collected under a Quality Assurance Project Plan (QAPP)

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Criteria and Screening Thresholds for Assessment

Lake Ecoregion	Chl-a Response Impairment Thresholds (µg/L)	Nutrient Screening Thresholds (µg/L)		
		TP	TN	Chl-a
Plains	30	49	843	18
Ozark Boarder	22	40	733	13
Ozark Highland	15	16	401	6

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Assessment Methodology

- Lake Numeric Nutrient Criteria
- Lake Response Assessment Endpoints

The five response assessment endpoints are:

1. Occurrence of eutrophication-related mortality or morbidity events for fish and other aquatic organisms
2. Epilimnetic excursions from dissolved oxygen or pH criteria
3. Cyanobacteria counts in excess of 100,000 cells/mL
4. Observed shifts in aquatic diversity attributed to eutrophication
5. Excessive levels of mineral turbidity that consistently limit algal productivity during the period of May 1 – September 30

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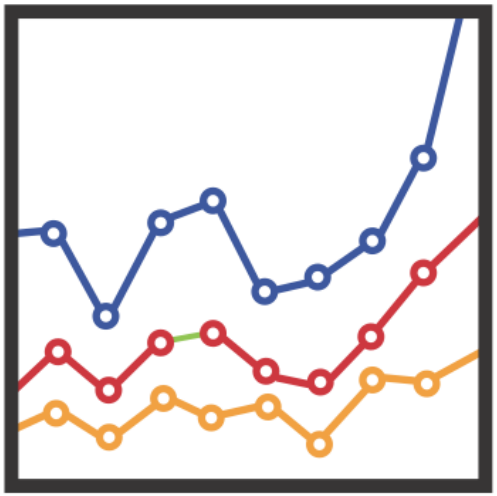
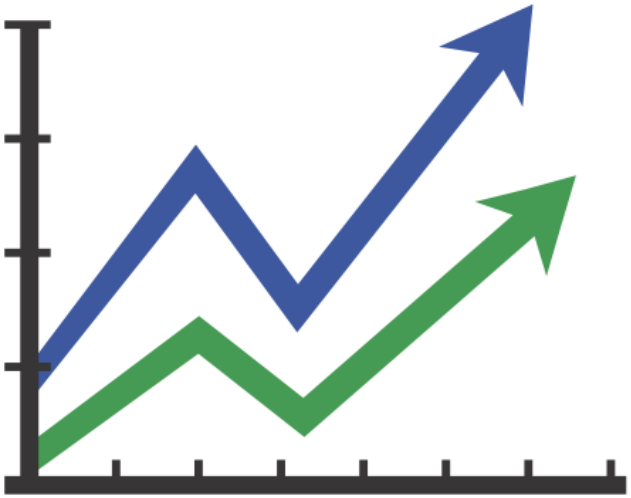
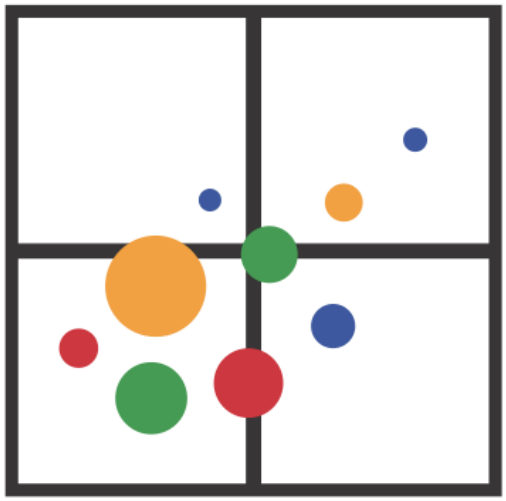
Trend Analysis

- Trends for physiographic regions have been calculated since 1990.
- Individual lake trends will be evaluated for TP, TN, and Chl-a using ≥ 10 years data.







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Total Maximum Daily Load (TMDL)
Development for Nutrient Impaired Waters

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Nutrient Criteria Implementation Plan: Part II – Permit Implementation

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MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0022845
Owner: Address:	City of New Madrid 560 Mott, New Madrid, MO 63869
Continuing Authority: Address:	Same as above Same as above
Facility Name: Facility Address:	New Madrid Wastewater Treatment Facility Levee Road and Highway P Intersection, New Madrid, MO 63869
Legal Description: UTM Coordinates:	See Page 2 See Page 2
Receiving Stream: First Classified Stream and ID:	See Page 2 See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

September 1, 2018
Effective Date

Edward B. Galbraith, Director, Division of Environmental Quality

March 31, 2022
Expiration Date

Chris Wieberg, Director, Water Protection Program

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Three-Phased Approach

1

Data Collection and Analysis

2

3

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Three-Phased Approach

Which Permits?

- ✓ Facility has a design flow > 100,000 GPD
- ✓ Facility that “typically” discharges nutrients [10 CSR 20-7.015]

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1 Data Collection and Analysis

Frequency:

Design Flow in GPD	Sampling Frequency
100,001-1,000,000	Quarterly
1,000,001 and greater	Monthly

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2

Voluntary Plant Optimization and Source Control

- **Voluntary**: If permittee opts out, they move to Phase 3. Phase 1 data will be used to determine reasonable potential.
- Permit will include a special condition to develop and implement a **Plant Optimization Plan** and a **Phosphorus Minimization Plan**.
- Resources (training, fact sheets, templates) will be made available to permittees for these efforts.

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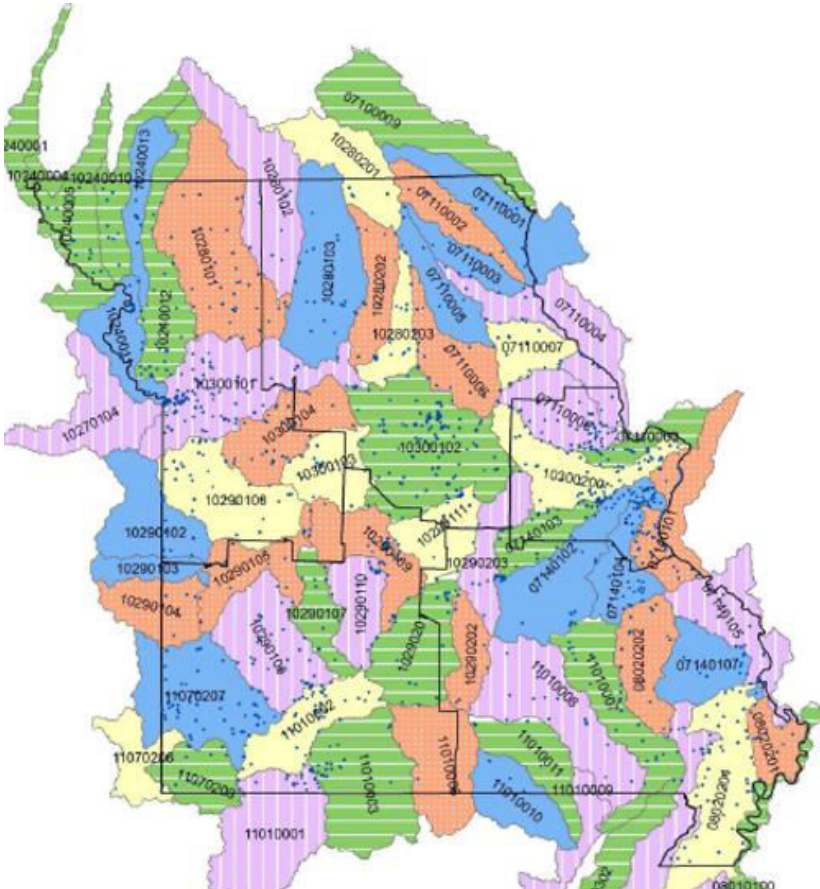
3

Final Effluent Limits

Watershed Modeling

If watershed modeling shows there is reasonable potential, **Total Phosphorus** effluent limits (likely **0.5 mg/L**) will be established in the permit.

Unless modeling shows nitrogen is the limiting pollutant.



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Existing Dischargers to Impaired Lakes

Watershed modeling will determine one of the following:

Discharge *is not* contributing to the impairment:

No limits needed

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New and/or Expanding Discharges

Scenario 1: Requests discharge to a watershed with *unimpaired* lake

- Tier 2 antidegradation review
- Total Phosphorus limits

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New and/or Expanding Discharges

Scenario 2: Requests discharge to a watershed with *impaired* lake

Watershed modeling will determine one of the following:

The new and/or expanding discharge *will not* contribute to the impairment:

Total Phosphorus limits

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Incentives for Early Nutrient Reduction

Permittees may accrue credits for **watershed-based trading**.

- If TMDLs are developed, baselines for WWTFs will be established based on data/information in the absence of early actions.

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Questions?

Link to Nutrient Criteria Implementation Plan: https://dnr.mo.gov/env/wpp/rules/documents/nutrient-implementation-plan-final-072618.pdf


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Nutrient Criteria Implementation Plan

July 27, 2018

Nutrient Criteria Implementation Plan
Missouri Department of Natural Resources, Water Protection Program