MID-OHIO REGIONAL
MORPC
PLANNING COMMISSION

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NOTICE OF A MEETING
SUSTAINING SCIOTO BOARD
MID-OHIO REGIONAL PLANNING COMMISSION

REMOTE MEETING

April 28, 2021, 2:30 pm – 4:00 pm

AGENDA

2:30pm	**Welcome** *Kristen Atha, Chair*
2:35 – 3:10 pm	Featured Presentation **-** *Paul Gledhill, Ohio EPA*
3:10 - 3:25 pm	**Agricultural and Rural Communities Outreach Team –** *Jessica d'Ambrosio, Ag&Rural Working Team Chair*
3:25 - 3:35 pm	**Update on Precipitation Data for Water Infrastructure Planning Forum-** *Brooke White, MORPC*
3:35 – 3:55 pm	**Board member updates**
3:55 – 4:00 pm	**Next Steps** – *Kristen Atha , Chair*
4:00 pm	**Adjourn**

Please notify Lynn Kaufman at 614-233-4189 or LKaufman@morpc.org to confirm your attendance for this meeting or if you require special assistance.

The next Sustaining Scioto Board Meeting
will be on June 23, 2021, 2:30 pm – Location to be determined

SUSTAINING SCIOTO BOARD MEETING

April 28, 2021

MID-OHIO REGIONAL
MORPC
PLANNING COMMISSION

Featured Presentation

Paul Gledhill,

Ohio EPA

Tracking Nutrients to Guide Management: Nutrient Mass Balance for Ohio Watersheds

Paul Gledhill

Division of Surface Water

Modeling, Assessment and TMDL & Lake Erie sections

April 28, 2021 – MORPC - Sustaining Scioto Board

Ohio Environmental Protection Agency

Objectives of Nutrient Mass Balance Project

Guide Ohio EPA policy & management

- Relative loads (by watershed)
- Load sources (Combined sewer overflows vs. nonpoint sources vs. wastewater)

Ohio Environmental Protection Agency

Objectives of Nutrient Mass Balance Project

Support national programs –

- Lake Erie algae reduction goals, Annex 4
- Gulf of Mexico Hypoxia (Dead Zone) Task Force

Ohio Environmental Protection Agency

Objectives of Nutrient Mass Balance Project

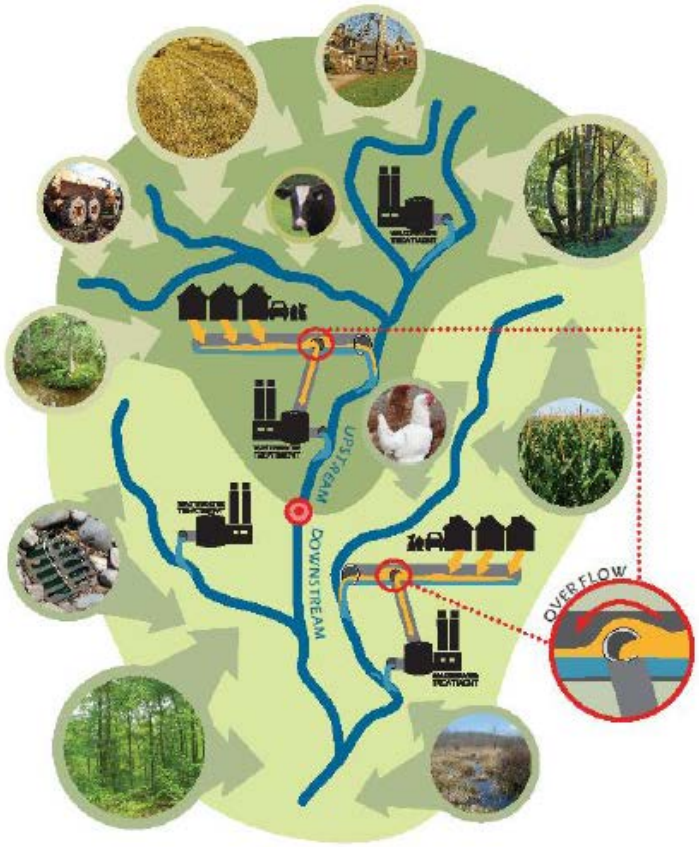
From HB 64, statutory obligation 6111.03 (U) requires Agency:

- Total load, load sources
- Report every 2 years

Ohio Environmental Protection Agency

Ohio Environmental Protection Agency

Nutrient Mass Balance Study for Ohio's Major Rivers



Report available at:

https://epa.ohio.gov/Portals/35/documents/Nutrient-Mass-Balance-Study-2020.pdf

Division of Surface Water

Modeling, Assessment and TMDL Section

December 24, 2020

Ohio Environmental Protection Agency

Far-field vs. Near-field Impacts

- **Far-field: i.e. Lake Erie or Gulf of Mexico**
  - Annual NMB most informative
  - Most load delivered in high flows
  - Increasing importance of nonpoint sources
- **Near-field: i.e. Streams**
  - Annual NMB less informative
  - Lower Flow Index Period (May-Oct)
  - Shifting responsibility…point sources

Ohio Environmental Protection Agency

Study Area

Lake Erie Basin

Ohio River Basin

- 11 watersheds
- 29,600 mi^2 (in Ohio)
- 66% Ohio's land area

Ohio Environmental Protection Agency

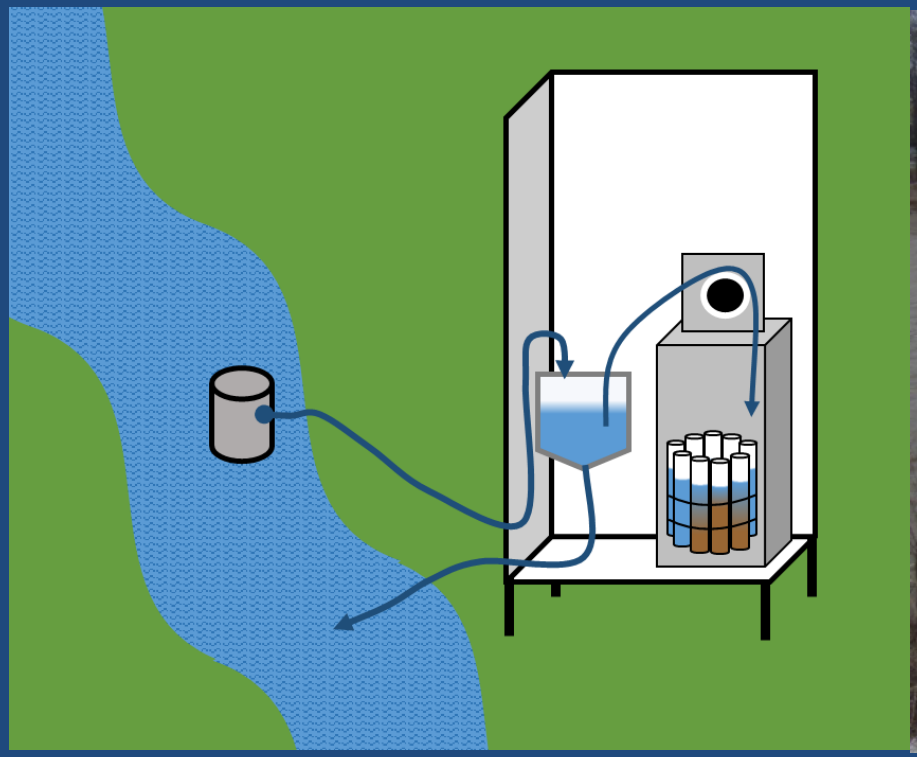
Data Analysis Period

Loads calculated for ‘water years’
(Oct. 1 to Sept. 30 basis)

- Most recent complete data available was water year 2019
- Designated “wy13” - “wy19”
- Matches related efforts in reporting
  e.g., GLWQA - Annex 4, NCWQR, USGS

Ohio Environmental Protection Agency

Pour Point Nutrient Load Monitoring

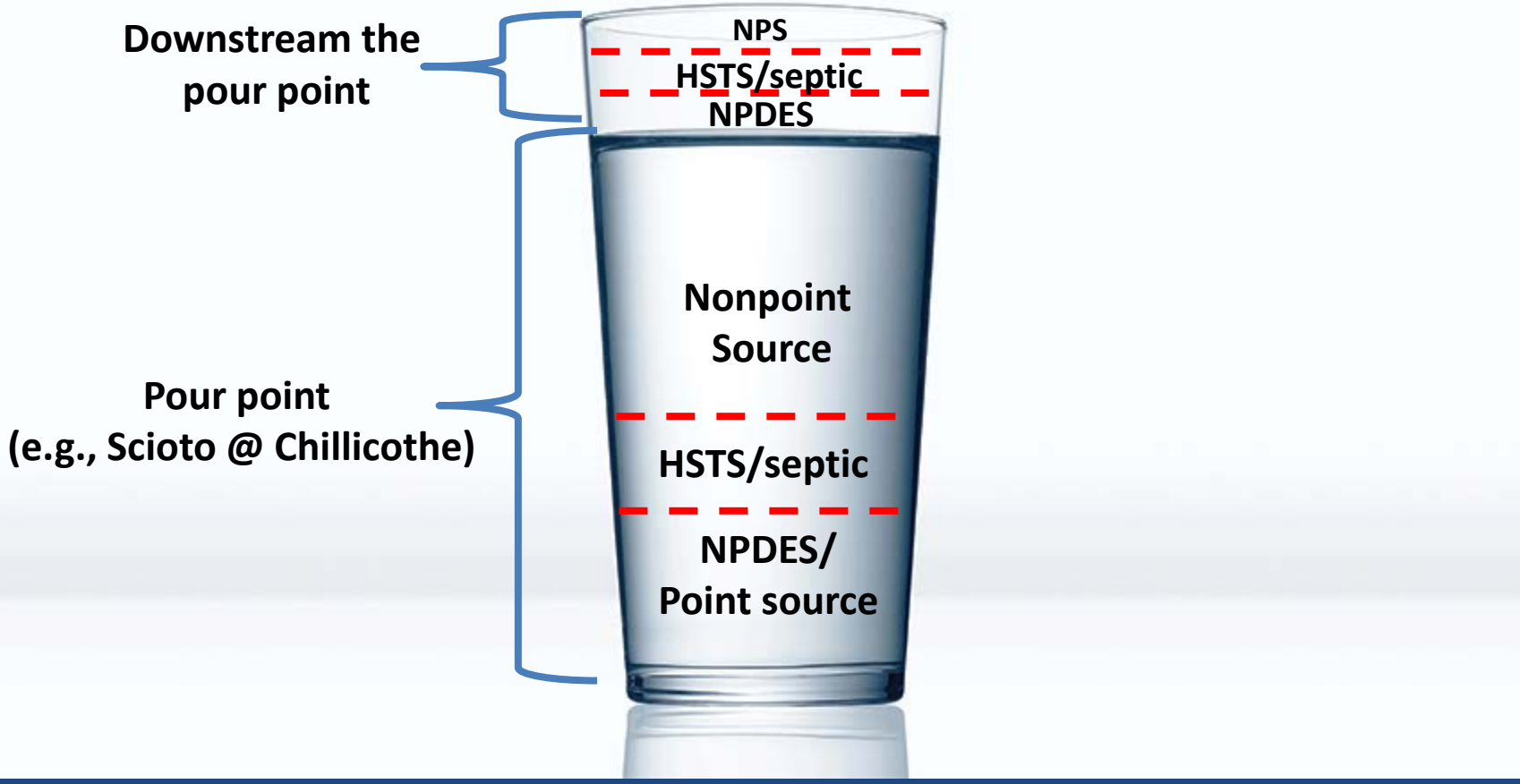


Schematic of water quality monitoring at USGS gages

The stream gage and water quality sampling station at the Sandusky River near Fremont, Ohio (Site # 4198000)

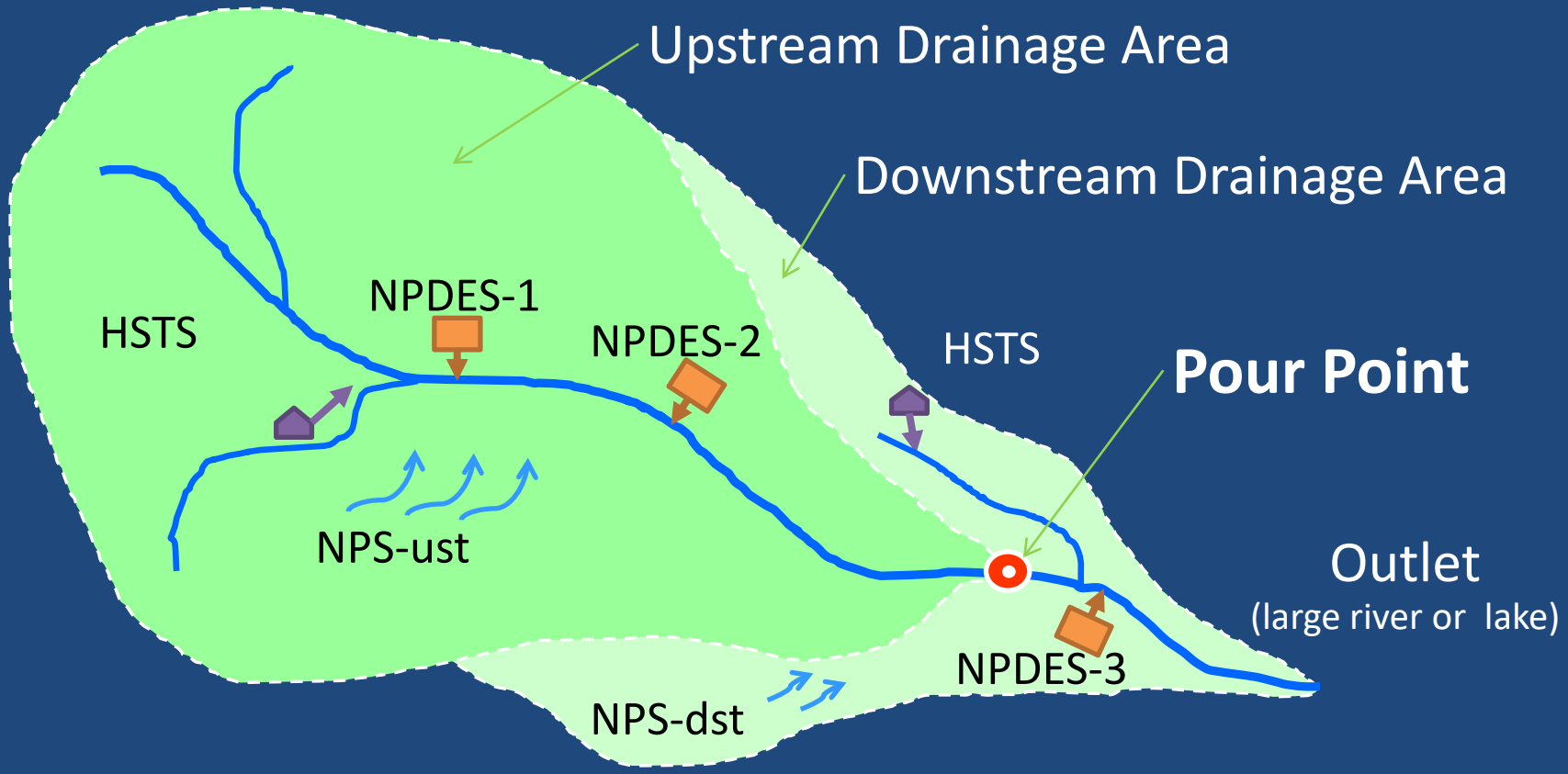
Ohio Environmental Protection Agency

Mass Balance Concept



Ohio Environmental Protection Agency

Watershed Schematic for Calculation



$$\textbf{Pour Point: } Total_{ust} = PS + HSTS + NPS_{ust}$$

$$\textbf{Total Load} = \textbf{Pour Point} + PS_{dst} + HSTS_{dst} + NPS_{dst}$$

Ohio Environmental Protection Agency

Calculation: Point Sources

- **NPDES (National Pollution Discharge Elimination System)**
  - Municipal NPDES
    - Use reported data from DMR (discharge monitoring reports)
  - CSOs (all wet weather) includes bypass flows
    - Actual reporting data or LTCP if under-represented
    - CSO concentration fixed (0.73 mg/L for TP and 20 mg/L for TN)
    - SSOs not report flow (only occurrence) – not considered (small)
  - Industrial facilities
    - Use reported data (DMR)
    - If no nutrient monitoring, assume *de minimis* contribution

Ohio Environmental Protection Agency

Calculation: HSTS

Household sewage treatment systems (HSTS)

- Population using HSTS (2010 U.S. Census)
- Nutrient yield (lb/person/year): from literature
- Differentiated by regional 2012 survey (ODH, 2013)
  - direct discharge vs. onsite

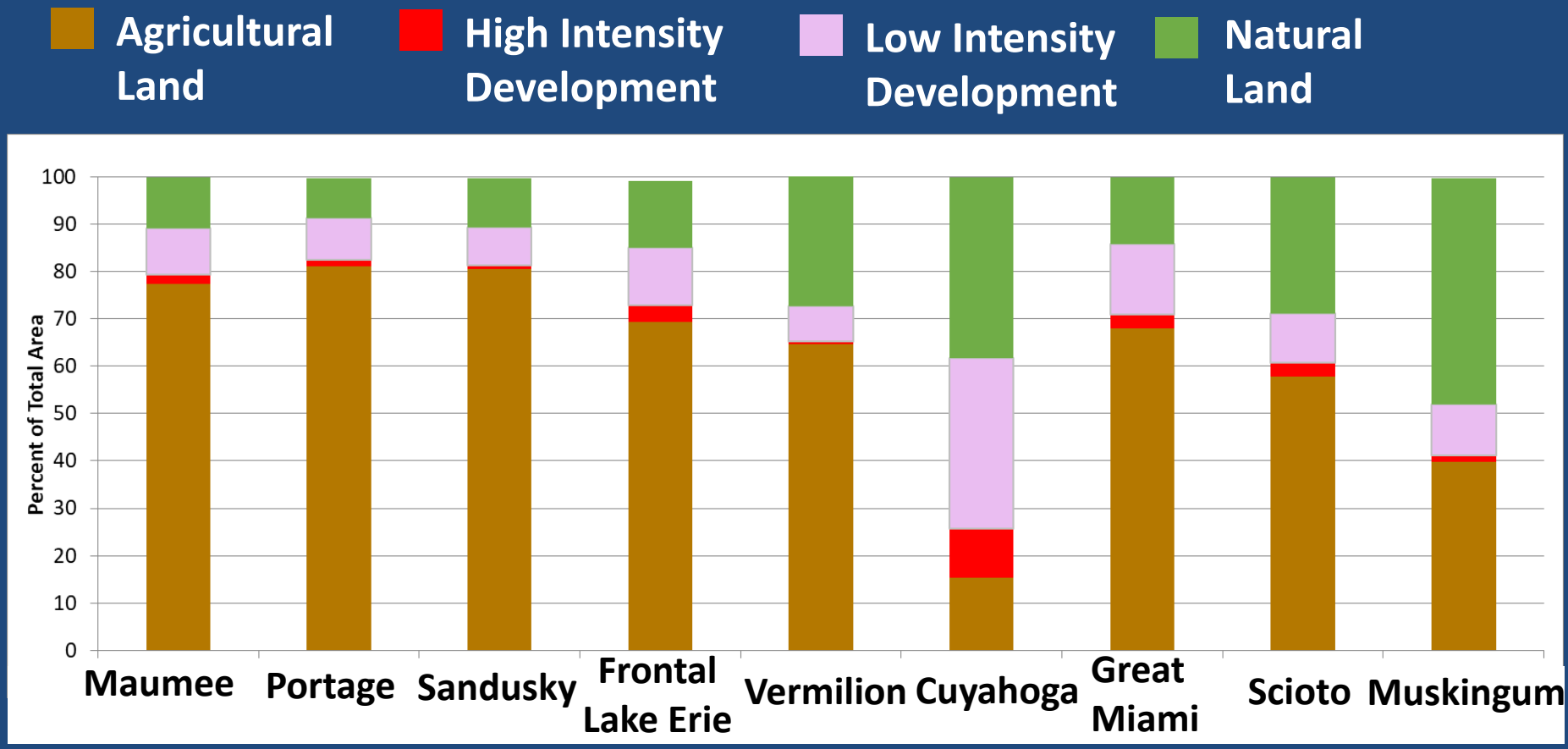
Ohio Environmental Protection Agency

Calculation: NPS

- **Nonpoint source**
  - NPS upstream of pour point
  - NPS downstream of pour point
- Not differentiated between sources

Ohio Environmental Protection Agency

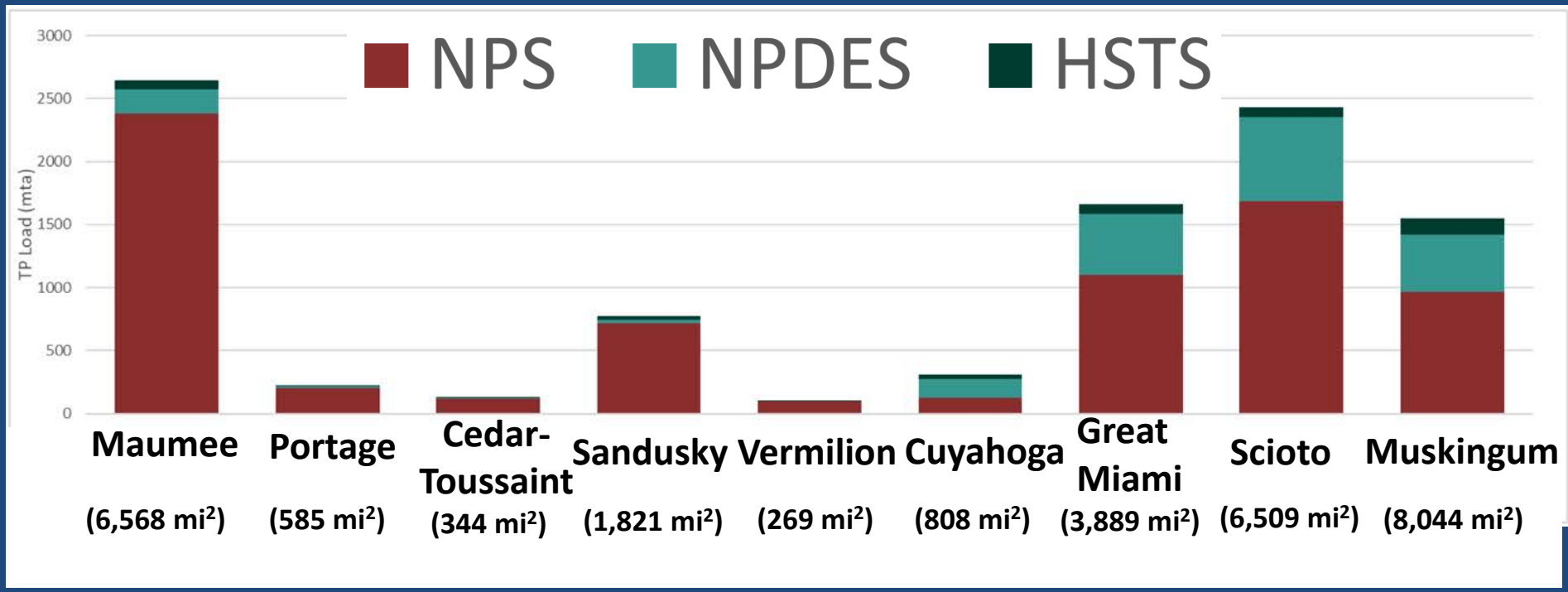
Land Use



Ohio Environmental Protection Agency

Total P: Load

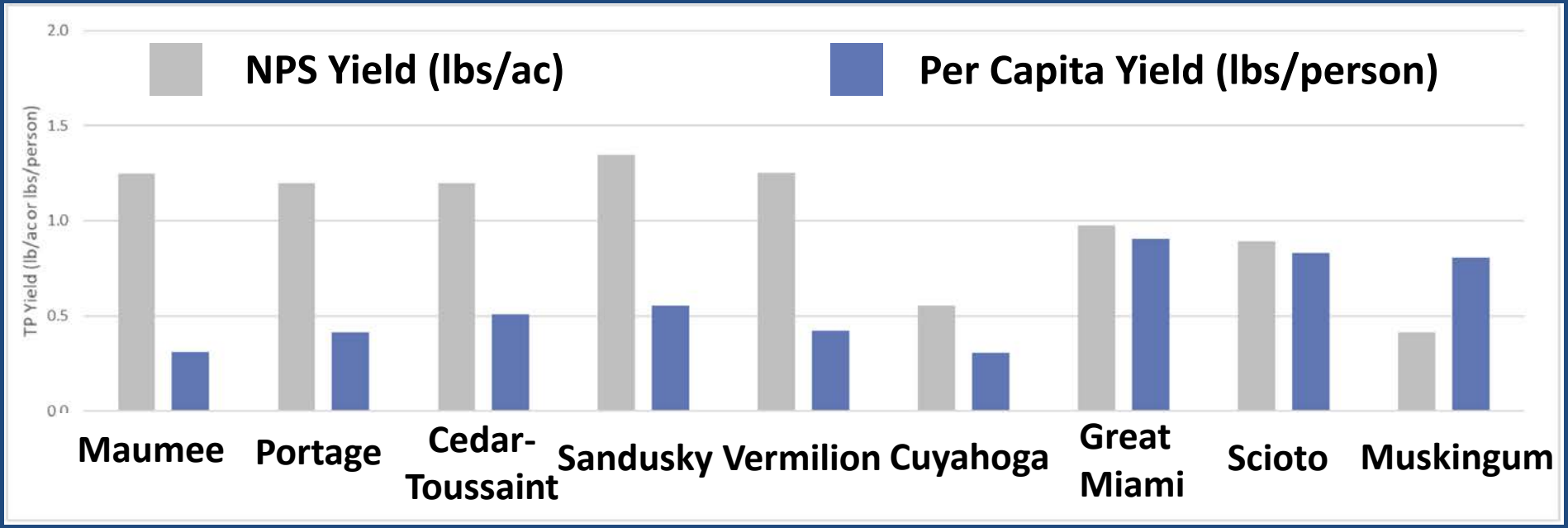
Average 2015-2019; metric tones per year



Ohio Environmental Protection Agency

Total P: Yield

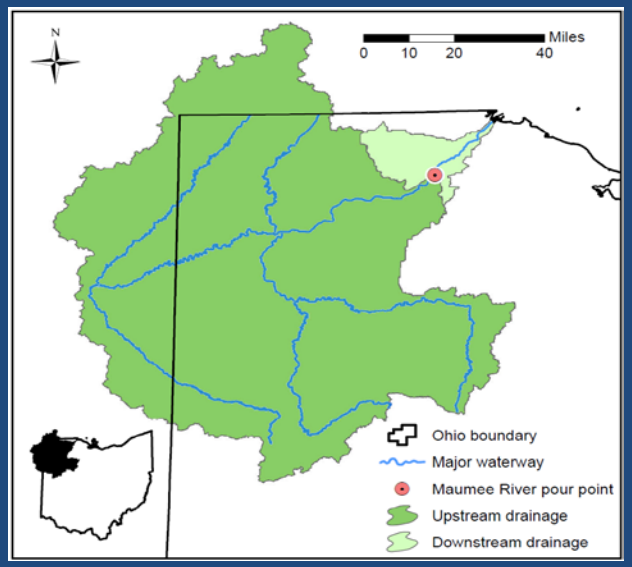
Average 2015-2019

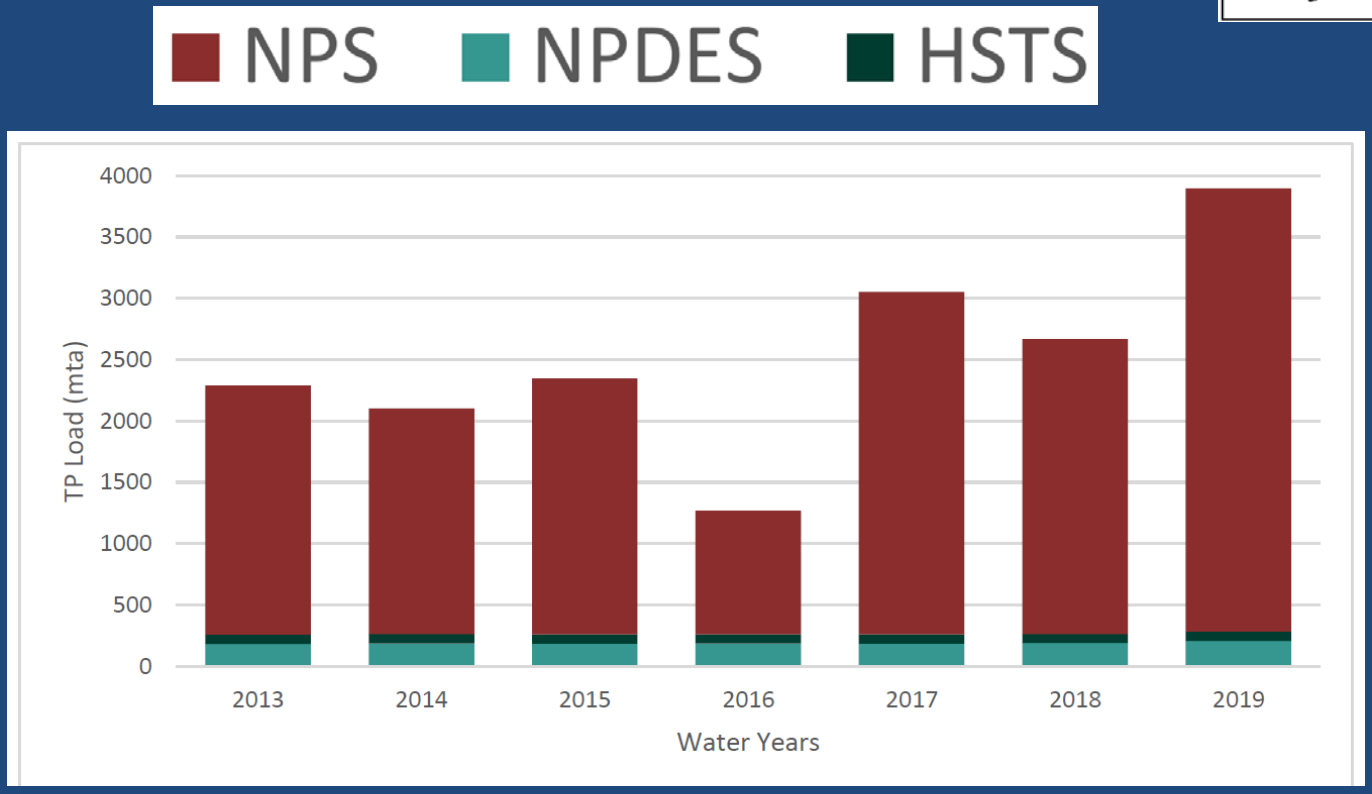


Ohio Environmental Protection Agency

Loading Breakdown - Maumee

Total P – by Water Year

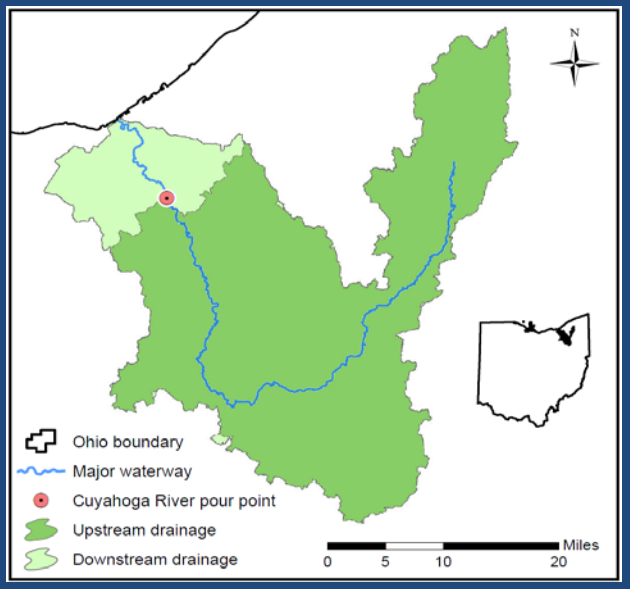


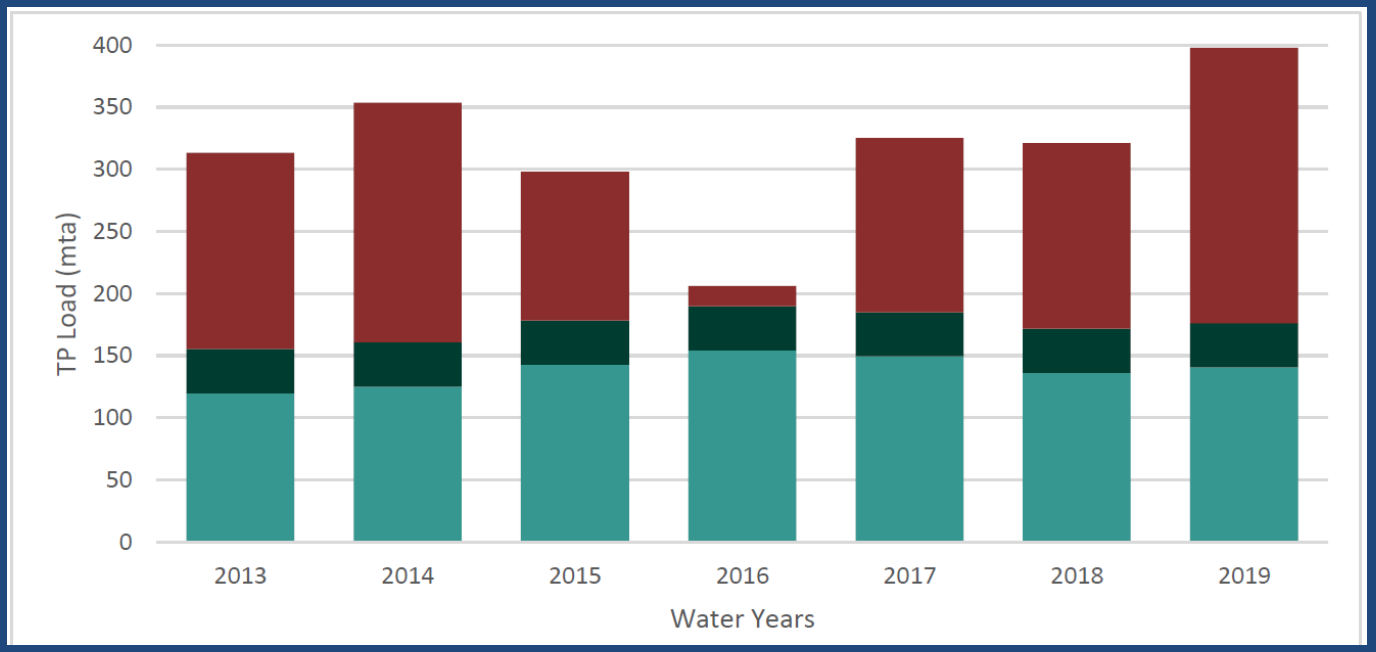


Ohio Environmental Protection Agency

Loading Breakdown - Cuyahoga

Total P – by Water Year

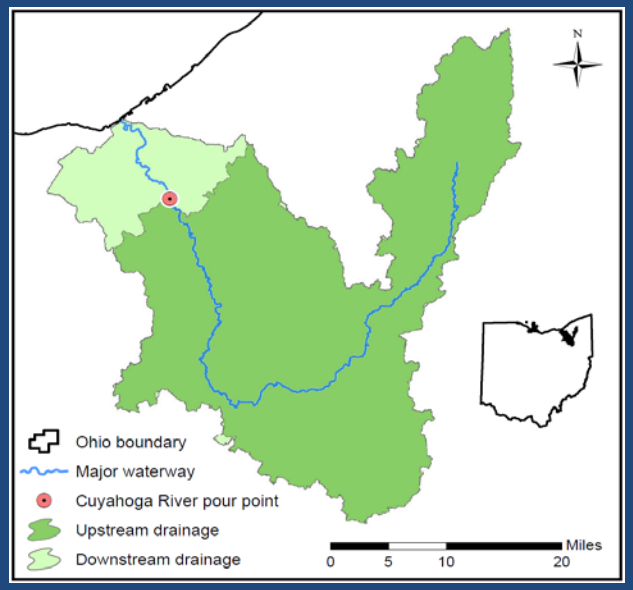


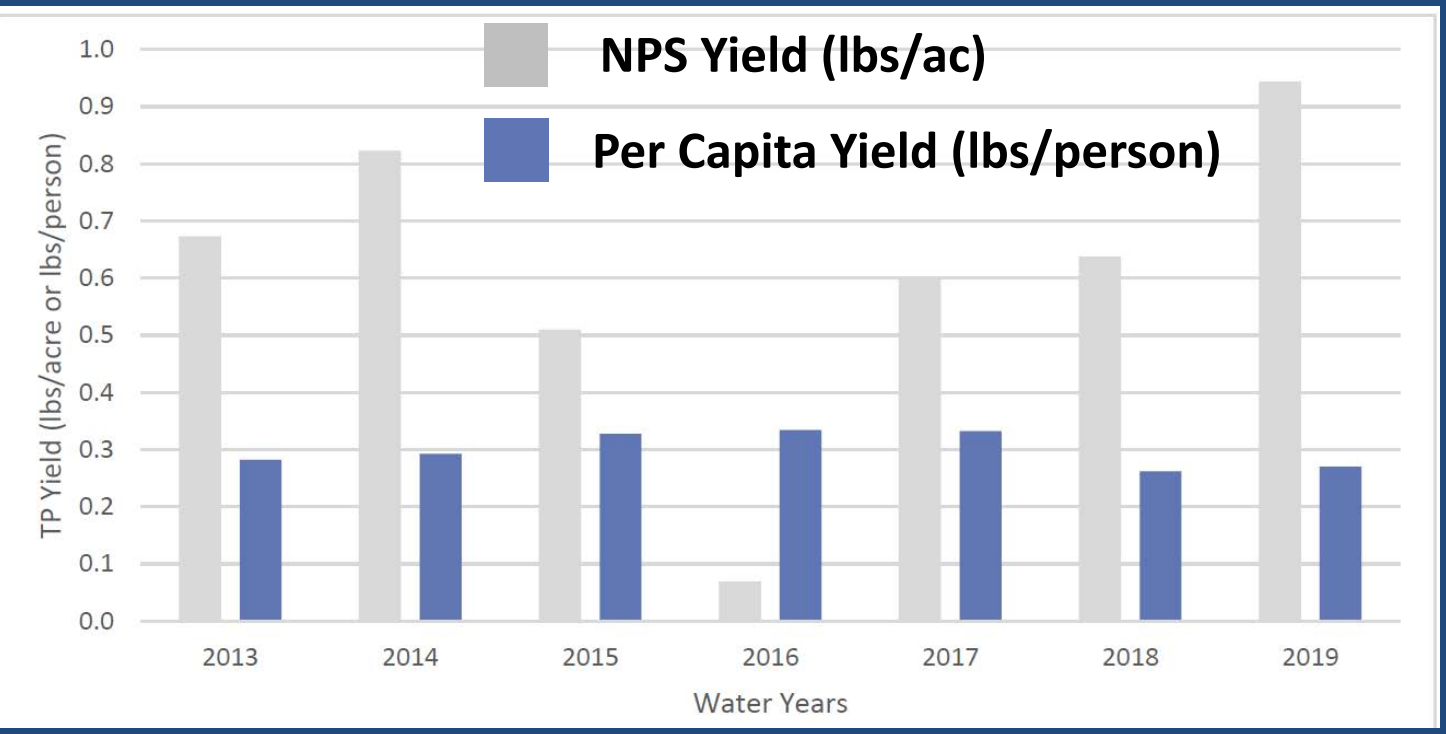


Ohio Environmental Protection Agency

Loading Breakdown - Cuyahoga

Total P – by Water Year

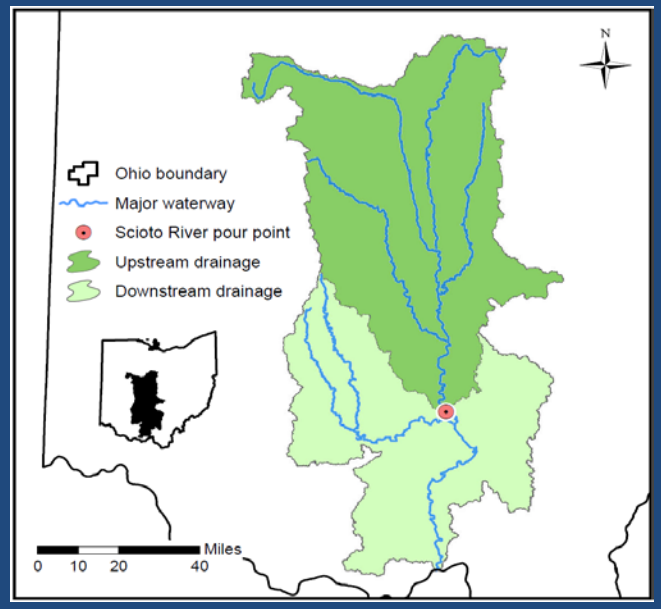


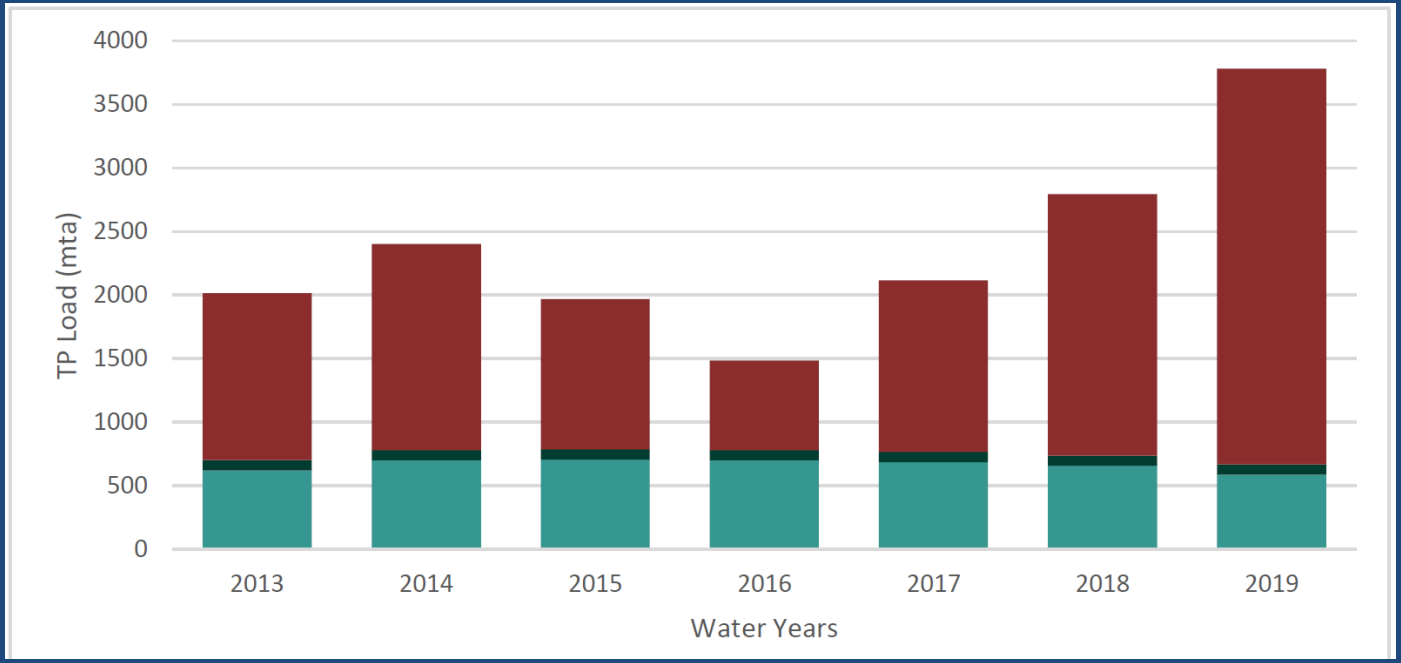


Ohio Environmental Protection Agency

Loading Breakdown - Scioto

Total P – by Water Year

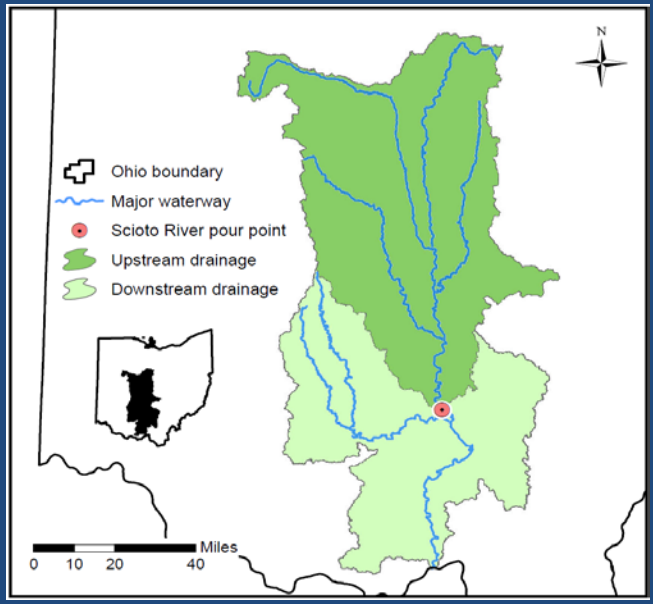


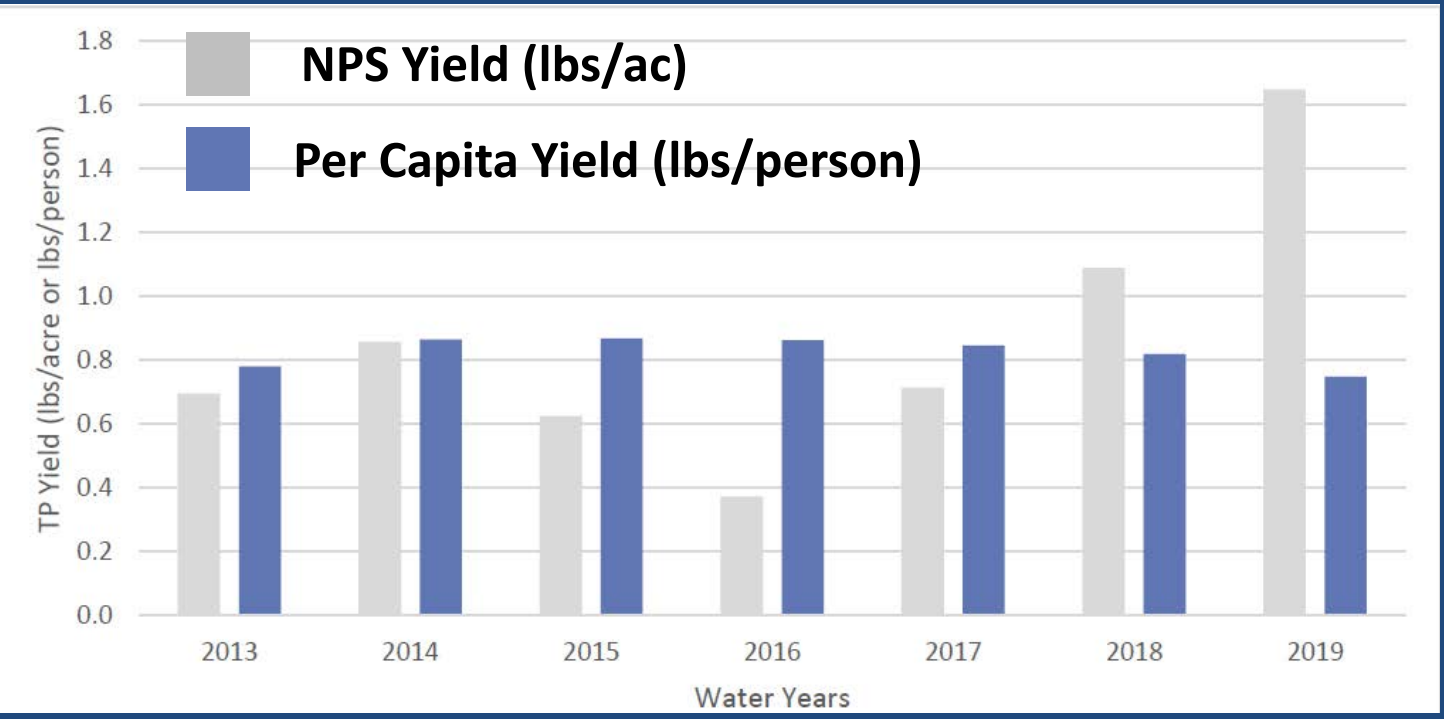


Ohio Environmental Protection Agency

Loading Breakdown - Scioto

Total P Yields– by Water Year

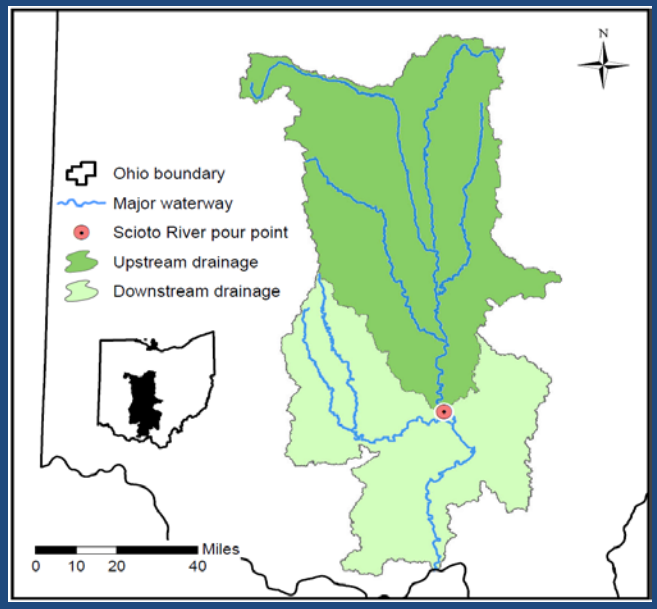




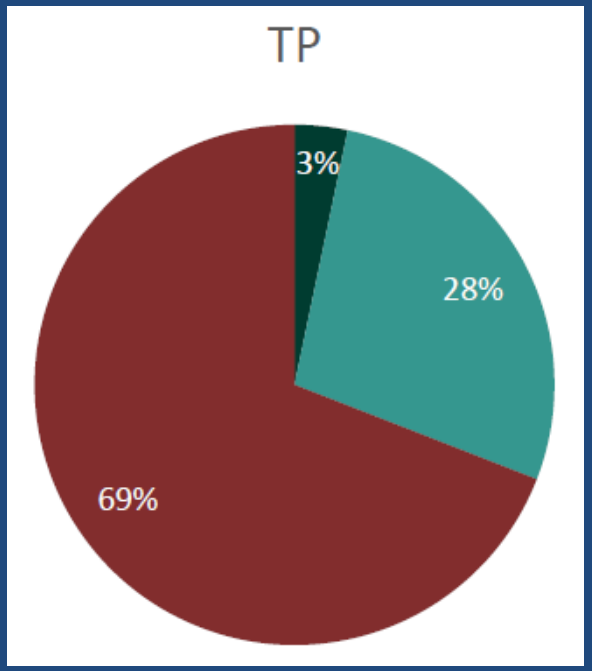
Ohio Environmental Protection Agency

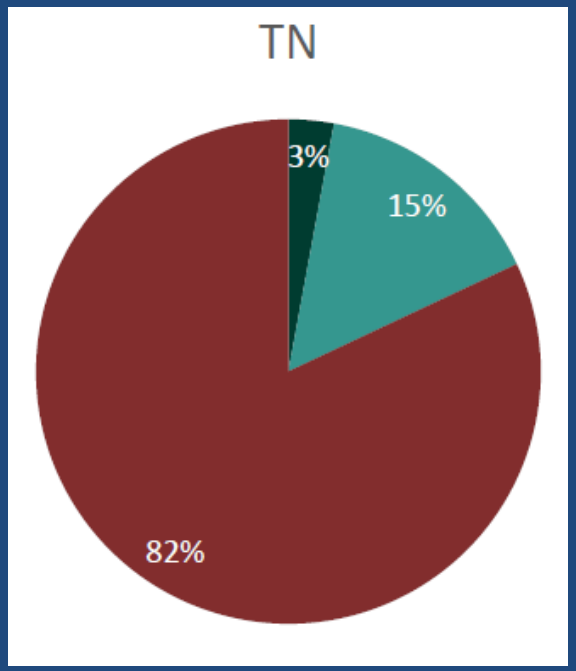
Loading Breakdown - Scioto

Proportions of Total P and Total N
Average of 5 years



NPS NPDES HSTS

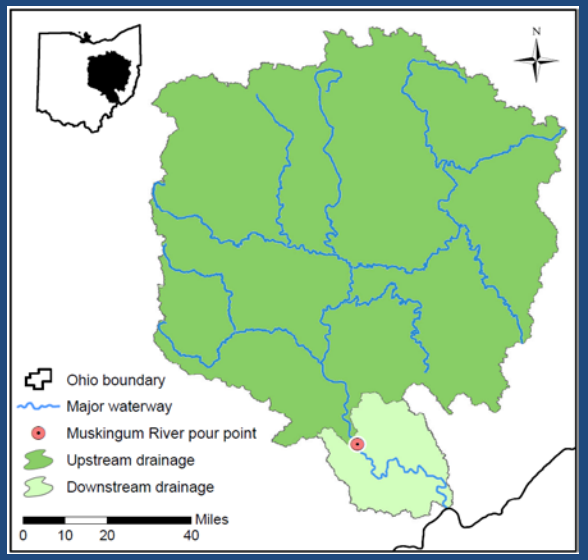


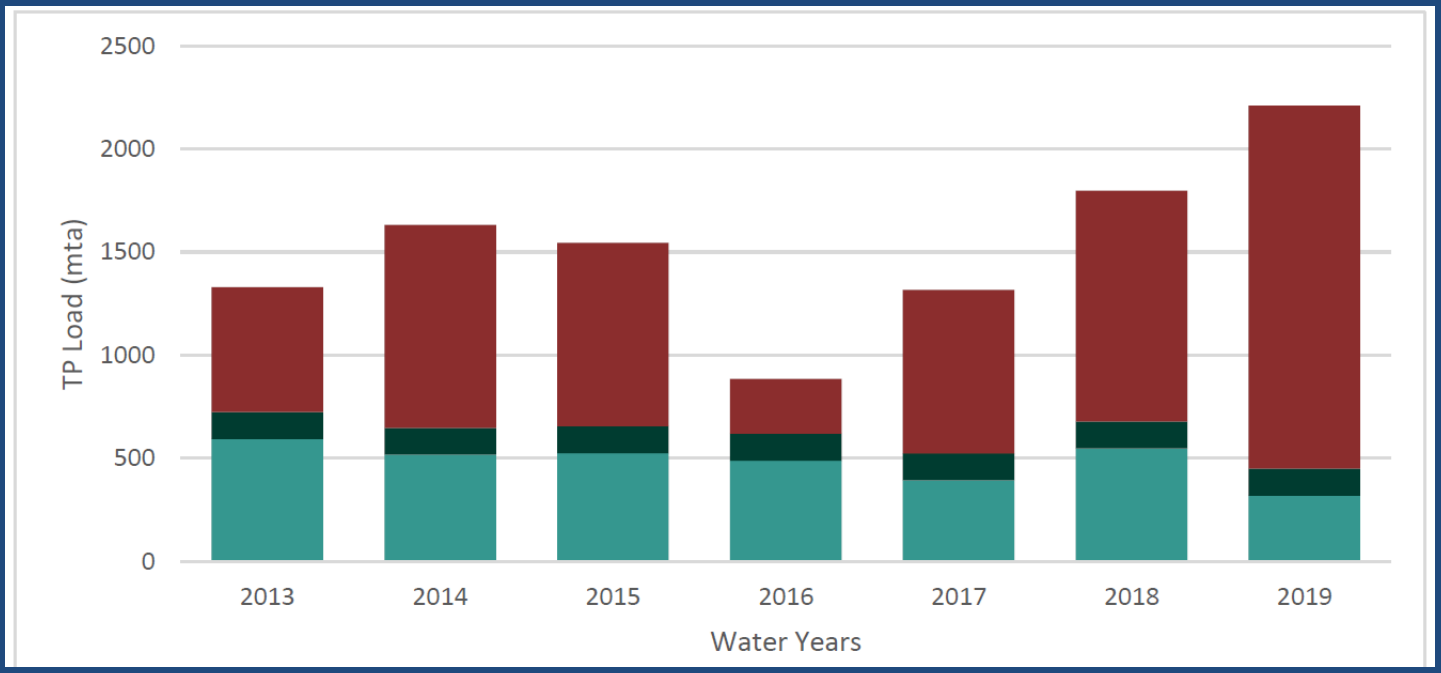


Ohio Environmental Protection Agency

Loading Breakdown - Muskingum

Total P – by Water Year

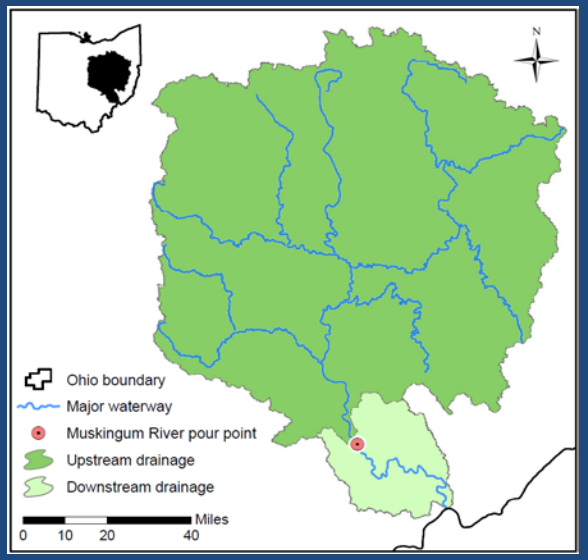


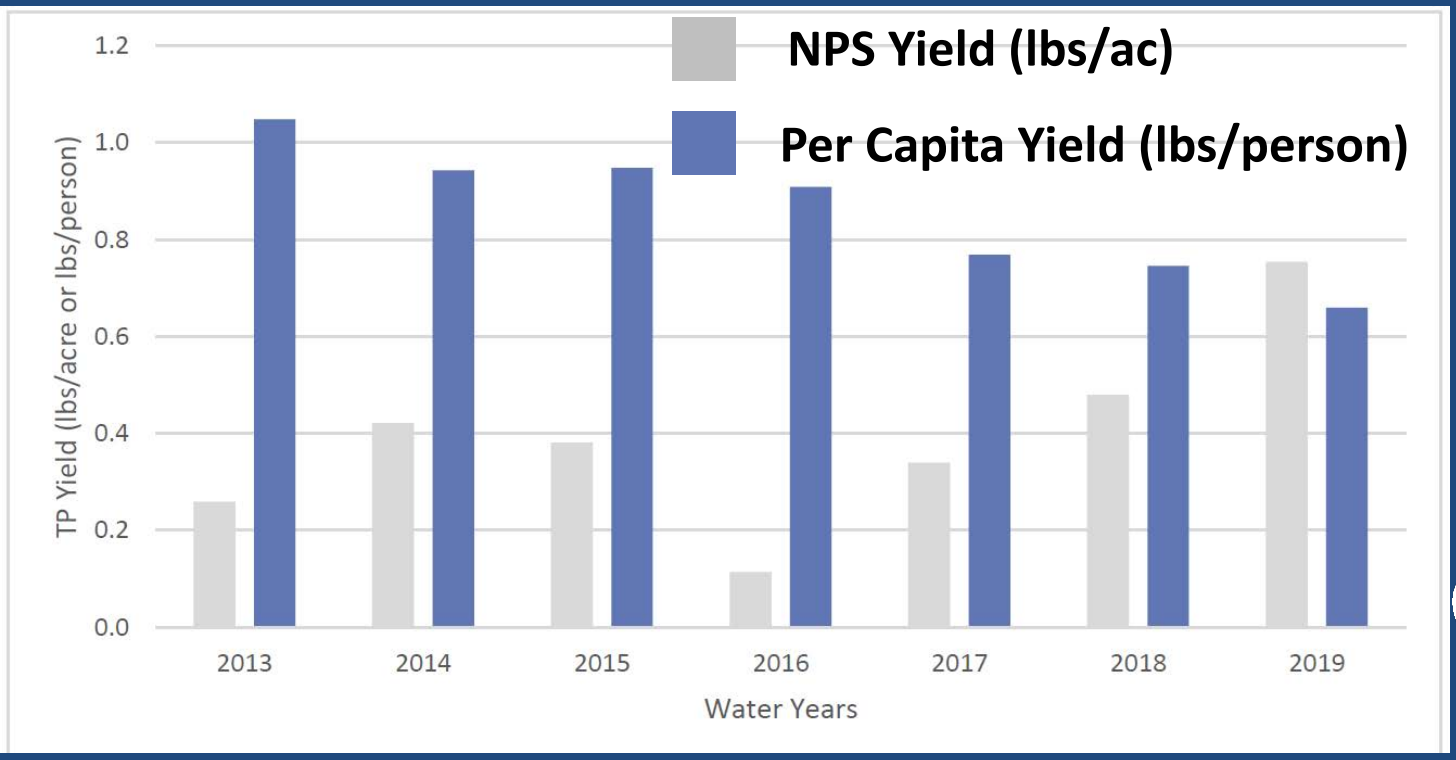


Ohio Environmental Protection Agency

Loading Breakdown - Muskingum

Total P – by Water Year Yields

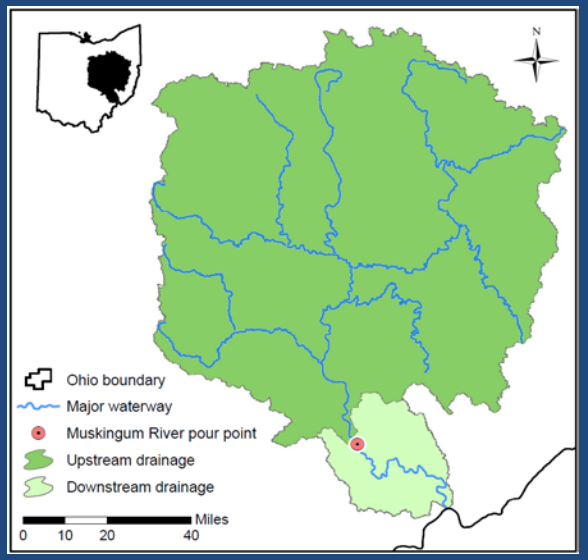




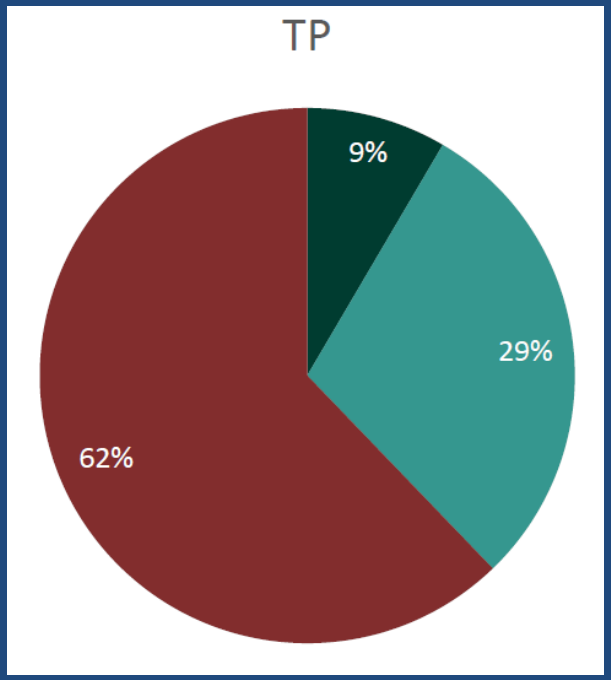
Ohio Environmental Protection Agency

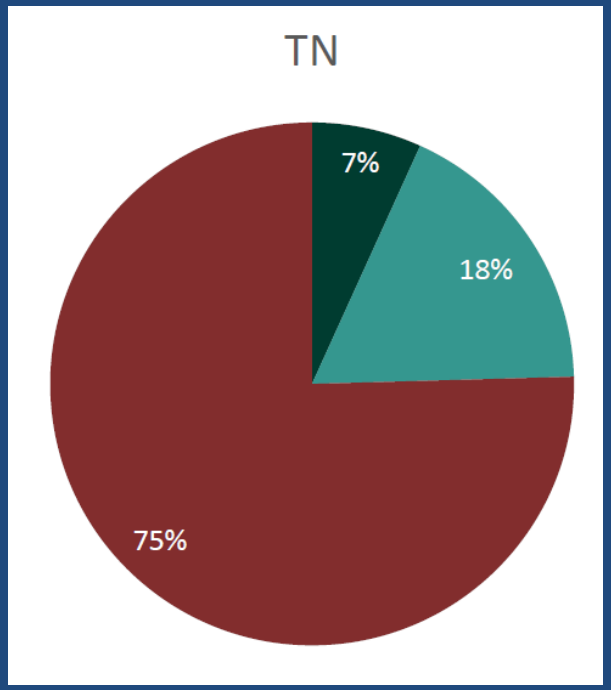
Loading Breakdown - Muskingum

Proportions of Total P and Total N
Average of 5 years



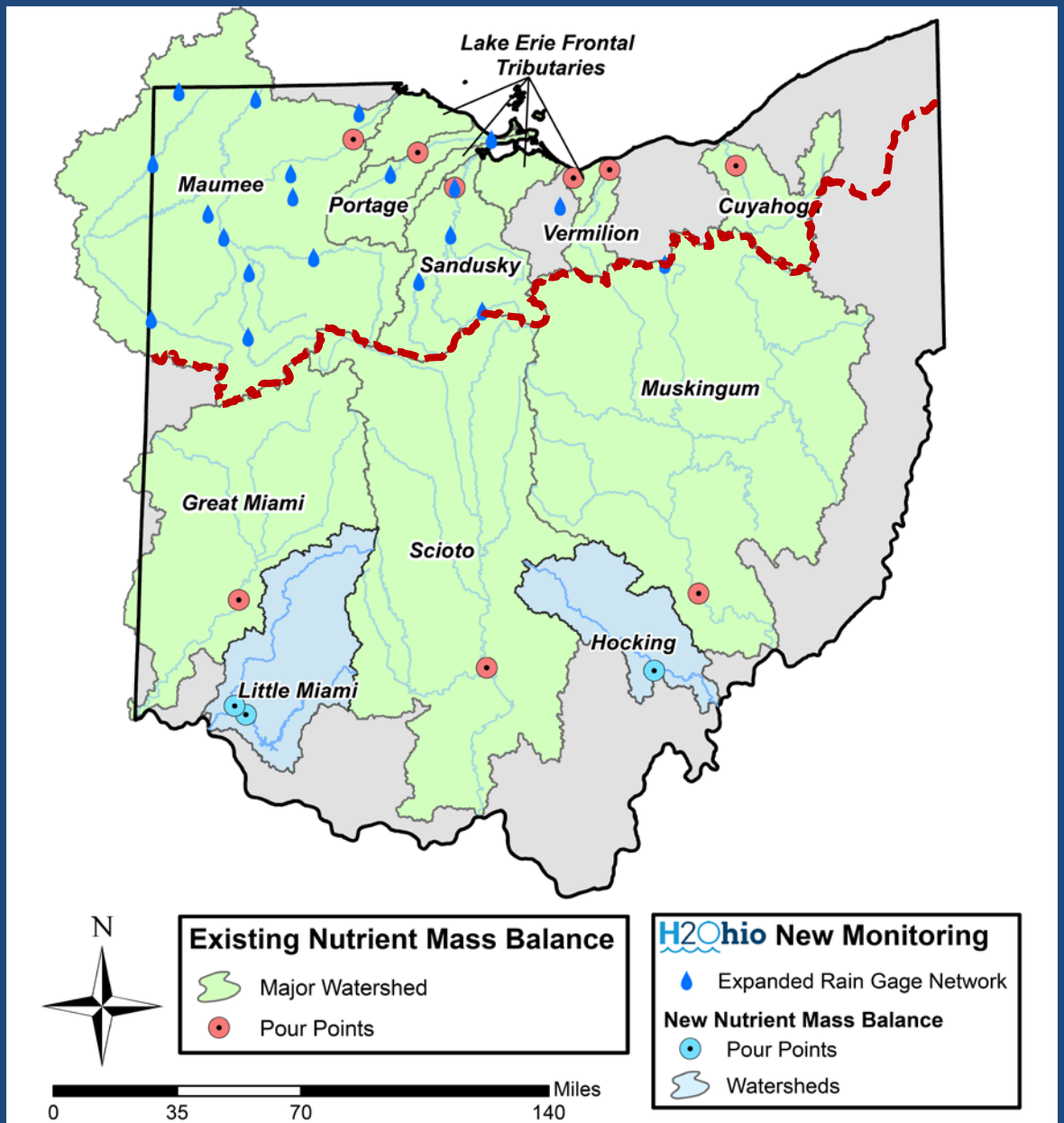
NPS NPDES HSTS





Ohio Environmental Protection Agency

New Ohio River Basin Watersheds



- Little Miami and Hocking river basins
- Data collection started in 2020

Ohio Environmental Protection Agency

Future Work

Refine NPS load estimates

- Separate urban stormwater component
- Differentiate agricultural loads by nutrient source

Ohio Environmental Protection Agency

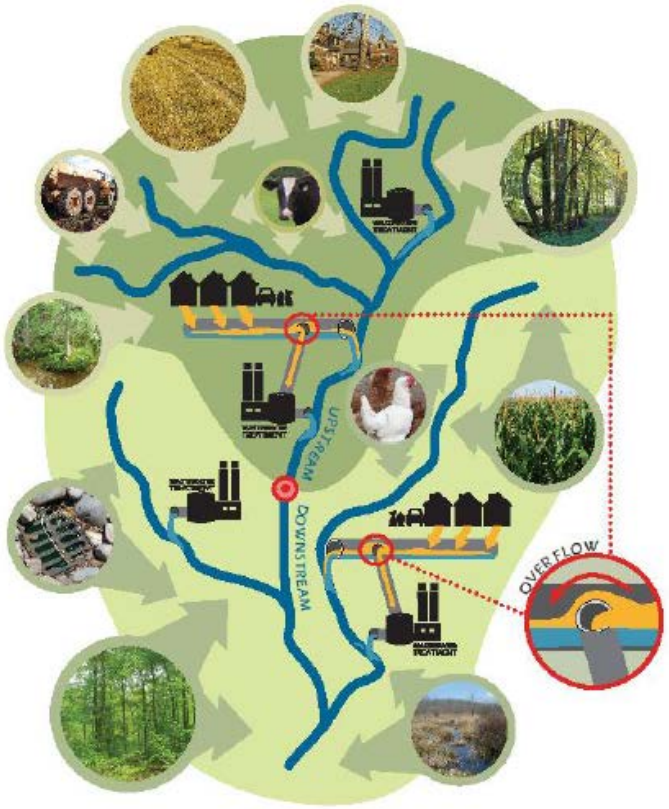
Closing Note

While the report was not intended to make recommendations about how to achieve nutrient reductions, the information within could and should inform the Agency and others about the most effective ways of achieving reductions.

Ohio Environmental Protection Agency

Ohio Environmental Protection Agency

Nutrient Mass Balance Study for Ohio's Major Rivers



Questions?

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Ohio Environmental Protection Agency

Agricultural and Rural Outreach Working Team

Jessica D’Ambrosio, Chair

Updated Precipitation Data for Infrastructure

The City of Columbus is committed to protecting its citizens and local businesses from localized flooding through the design and construction of adequately sized public and private stormwater infrastructure. As stormwater infrastructure is sized based on rainfall amounts and distribution, it is important that the rainfall design criteria used in local stormwater regulations reflect current climate trends. The rainfall criteria used in the City's stormwater regulations were derived from the National Oceanic and Atmospheric Administration (NOAA) in 2004 which raises questions about its efficacy especially when compared to the increase in number and severity of storms experienced within our region over the past several years. In an effort to ensure that future stormwater infrastructure is appropriately sized to control localized flooding, the City would like for MORPC to consider this topic as an item of discussion with the Sustaining the Scioto Committee to determine if there is general interest from the Committee and Central Ohio communities in supporting an update to NOAA's Atlas 14 Volume 2 rainfall study.

Potential 2021 Forum

Focus

use of up to date or projected precipitation to inform water infrastructure planning

Attendees

Local government engineers, etc. from across the region

Local speakers

water infrastructure planning practices in the region

External speakers

example best practices from across the U.S.
US EPA

Is there work in this topic area to propose to OWDA in June?

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