Nutrient Loading and Monitoring for Lake Erie

Update for Domestic Action Plan Stakeholder Meeting
August 18, 2017
Nutrient Mass Balance Study for Ohio’s Major Rivers

Report available at:

http://www.epa.state.oh.us/dsw/wqs/NutrientReduction.aspx#146065085-nutrient-mass-balance

Division of Surface Water Modeling, Assessment and TMDL Section

December 30, 2016
Study Area Covered

- 7 major watersheds
- 26,000 sq. mi. (in Ohio)
- 63% of Ohio’s land area
Total Load = PS + HSTS + NPS_{upst} + NPS_{dst}
wy13 Loading Breakdown - Maumee Watershed

Total P

- 87% Non point Source
- 9% HSTS
- 4% NPDES Sources

- Major WWTP
- Class 2
- Class 3
- Class 4
- Class 5
- Industrial
- CSO

[Map of the Maumee Watershed with various waterways and drainage areas highlighted]
wy13 Loading Breakdown - Cuyahoga Watershed

- **Non point Source**: 60%
- **HSTS**: 29%
- **NPDES Sources**: 11%
- **CSO**: 6%
- **Class 4**: 29%
- **Class 5**: 11%
- **Industrial**: 6%
- **Major WWTP**: 60%

The map illustrates the regional distribution of loading sources and their relative contributions.
Land Use

Percent of Total Area

- Natural
- Low intensity development
- High intensity development
- Agricultural

Ohio Environmental Protection Agency
2018 Report

• Add Huron watershed to mass balance calculations

• Refine HSTS estimates – possible pilot area where county level statistics are used, some refinement of sewerage areas to estimate population

• Conduct mass balance for large tributaries to the Maumee

• Continue developing protocol to use lower frequency water quality data for annual loads
Lake and Tributary Monitoring
Lake Erie Monitoring Highlights

• Continue to sample water quality at fixed shoreline and nearshore stations
• Central Basin Hypoxia - field profiles nearshore to offshore
• Plan is posted at: http://epa.ohio.gov/dsw/lakeerie/index.aspx#125073721-nearshore-monitoring
## Monitoring Priorities for Annex 4

<table>
<thead>
<tr>
<th>Location</th>
<th>Monitoring Details</th>
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</thead>
<tbody>
<tr>
<td>Maumee</td>
<td>gage, frequent nutrient monitoring</td>
</tr>
<tr>
<td>Portage</td>
<td>gage, frequent nutrient monitoring</td>
</tr>
<tr>
<td>Toussaint</td>
<td>no gage or monitoring</td>
</tr>
<tr>
<td>Sandusky</td>
<td>gage, frequent nutrient monitoring</td>
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<tr>
<td>Huron</td>
<td>gage, frequent nutrient monitoring starting 2017</td>
</tr>
<tr>
<td>Vermilion</td>
<td>gage, monthly nutrient monitoring, surrogates</td>
</tr>
<tr>
<td>Cuyahoga</td>
<td>gage, frequent nutrient monitoring</td>
</tr>
<tr>
<td>Grand River</td>
<td>gage, frequent nutrient monitoring starting 2017</td>
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