



**Department of  
Environmental  
Conservation**

# **Nutrient TBELs in New York**

## **Water Quality Driving Policy & Technology**

**November 5, 2019  
ACWA Nutrients Permitting Workshop  
Alexandria, VA  
Steve Wood, E.I.T.  
Assistant Engineer (Environmental)**

# Agenda

- Watershed Distribution of NY
- TBELs vs. WQBELs
- Phosphorus Reduction – Based on Technology
- Nitrogen Reduction – Based on Ammonia
- Nutrient Reduction – Based on TMDL Implementation



# Watersheds of New York

17 Major Drainage Basins

7 in the Great Lakes Basin

2 in Marine Waters



## TBELs

- Set forth in Law/Regulation
- Best Professional Judgement
  - Technology-based
  - Performance-based

## WQBELs

- Set forth in Law/Regulation
- Irrespective of existing technology
- TMDLs

None in amounts that will result in growths of algae, weeds and slimes that will impair the waters for their best usages.



# Phosphorus Reduction From Point Sources

**Effective:** March 1997

**Reissued:**

**TO:** Regional Water Engineers, Bureau Directors, Section Chiefs

**SUBJECT:** Division of Water Technical and Operational Guidance Series **(1.3.3)**  
**SPDES PERMIT DEVELOPMENT FOR POTWS** (Originator: Mr. DiMura)

**PURPOSE**

To provide technical guidance for permit writers in drafting SPDES permits for Publicly Owned Treatment Works (POTWs).

**MEMORANDUM**

**TO:** Regional Water Engineers, Bureau Directors and Section Chiefs

**SUBJECT:** Division of Water Technical and Operational Guidance Series (1.3.6)

PHOSPHORUS REMOVAL REQUIREMENTS FOR WASTEWATER  
DISCHARGES TO LAKES AND LAKE WATERSHEDS

(originator: Jay Bloomfield)

**Date:** 8 December 1988

**PURPOSE**

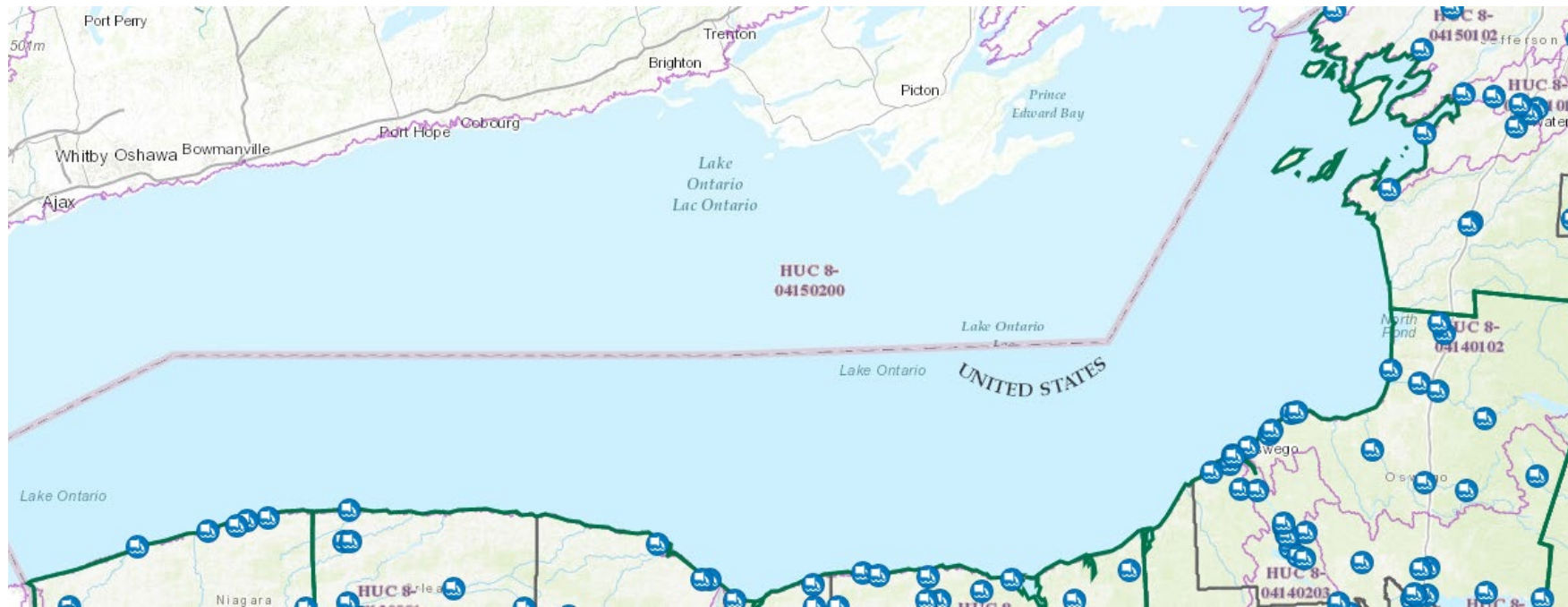
The purpose of this document is to provide guidance, which when followed, should result in the maintenance of the present blend of usage of lakes and other ponded waters in the State. The present uses include potable water supply, warm and cold water fishing opportunities, boating, swimming and aesthetic enjoyment of the lake and shoreline environment. This goal will be accomplished by limiting the amount of phosphorus that can be discharged either directly to a ponded water or anywhere in its watershed. This purpose is consistent with the Department's **Water Quality Antidegradation Policy** (ORGANIZATION AND DELEGATION MEMORANDUM NO. 85-40, 9 September 1985).



STATE OF  
OPPORTUNITY

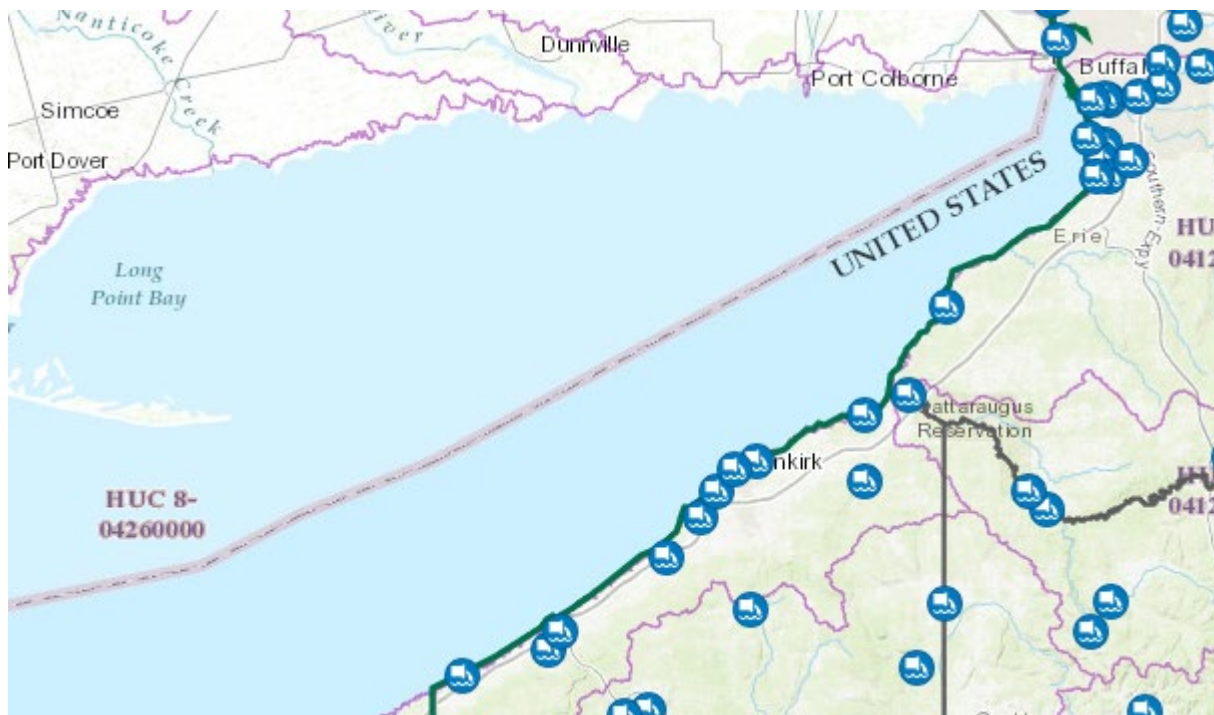
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# Great Lakes Basin – Lake Ontario



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# Great Lakes Basin – Lake Erie



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# Great Lakes Basin “Direct” Dischargers

Great Lakes Water  
Quality Agreement, 1987

TOGS 1.3.3, March 1997

## 30-Day Average Flow (MGD)

<u>Design</u>	<u>Actual</u>	<u>Guidance</u>
≤ 1.0	≤ 1.0	No phosphorus limitations will be imposed.
≤ 1.0	> 1.0	If the Permittee is unable to reduce flows to 1.0 MGD or less, the permit should be modified to limit total phosphorus to 1.0 mg/l on an average 30 day basis. A schedule for achieving compliance with the new phosphorus limit may also be necessary.
> 1.0	≤ 1.0	It is not necessary to limit phosphorus in the permit but the design and construction of the POTW will include provisions for achieving a 30-day average total phosphorus limit of 1.0 mg/l at such time as the discharge exceeds 1.0 MGD on an annual average basis.
> 1.0	> 1.0	The effluent concentration of total phosphorus will be limited to 1.0 mg/l on an average 30 day basis.







# Nutrient Reduction

## From Performance-Based Limitations



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# BPJ Technology – Set by Performance Data

We utilize the USEPA TSD, 1991 statistical methodology to develop a In-95<sup>th</sup> percentile of the existing sample data.

The In-95<sup>th</sup> then becomes the Monthly Average limitation.

Current widespread use for all pollutants at industrial facilities.  
Not much use for POTWs, especially related to nutrients.

Future Technology Limit?

Potentially including a “level of technology” limit (0.5 mg/L) for those POTWs that install or have installed MBRs.



# Nitrogen Reduction

## From Ammonia Limitations



# Ammonia Limit Implementation

- 1985 Criteria for Ammonia
- Assume = 7.5 s.u. & 25C/10C for criteria
  - Lack of reliable ambient data
- Most common standards: 1.5 mg NH<sub>3</sub>/L (s) & 2.2 mg NH<sub>3</sub>/L (w)
- Apply dilution, based on 30Q10 flow
- Typically apply separate season limitations
  - Summer: June 1 – October 31
  - Winter: November 1 – May 31



# Nutrient Reduction

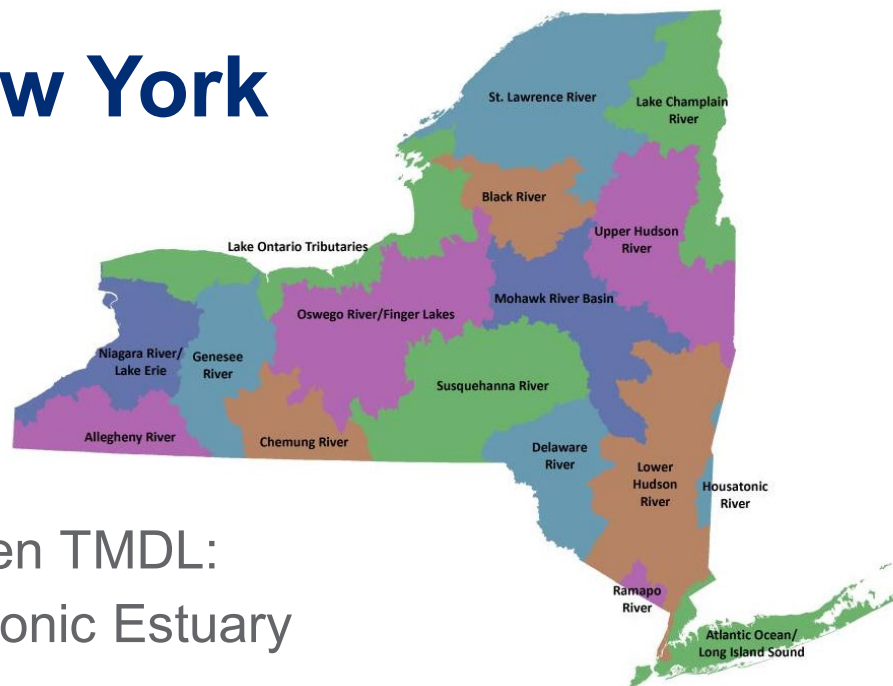
## From TMDLs



# Nutrient TMDLs of New York

## 7 Phosphorus TMDLs in Major Lakes/Rivers:

- Black Creek
- Chautauqua Lake
- Conesus Lake
- Greenwood Lake
- Honeoye Lake
- Lake Champlain
- NYC Watershed Reservoirs
- Onondaga Lake



## 1 Nitrogen TMDL:

- Peconic Estuary

## 1 Dissolved Oxygen TMDL:

- Long Island Sound



eBNR @ Hunt's Point  
200 MGD

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LI TMDL Zone 8 &9 (6 POTWs)

12MRA = 44,325 lbs/day



# Thank You

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