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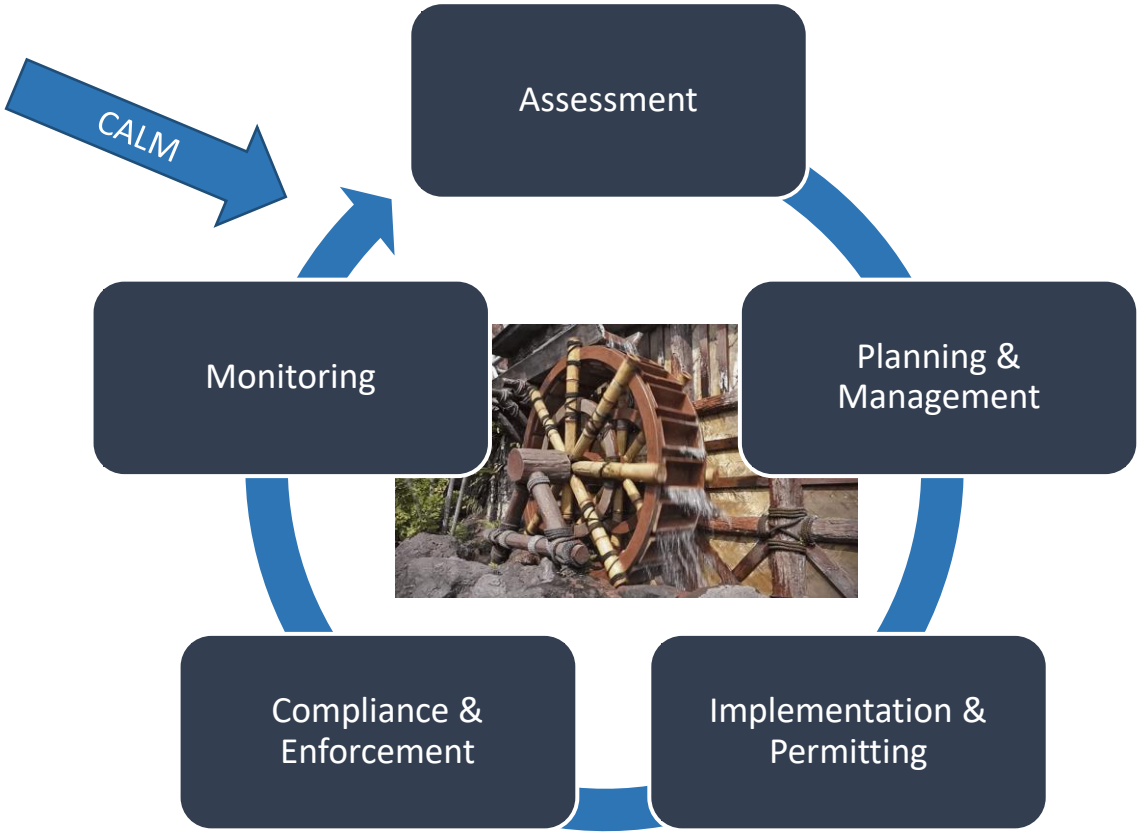
What is the NYSDEC CALM?

What Does it Mean for NY Lakes?

Alene Onion
April 30, 2022



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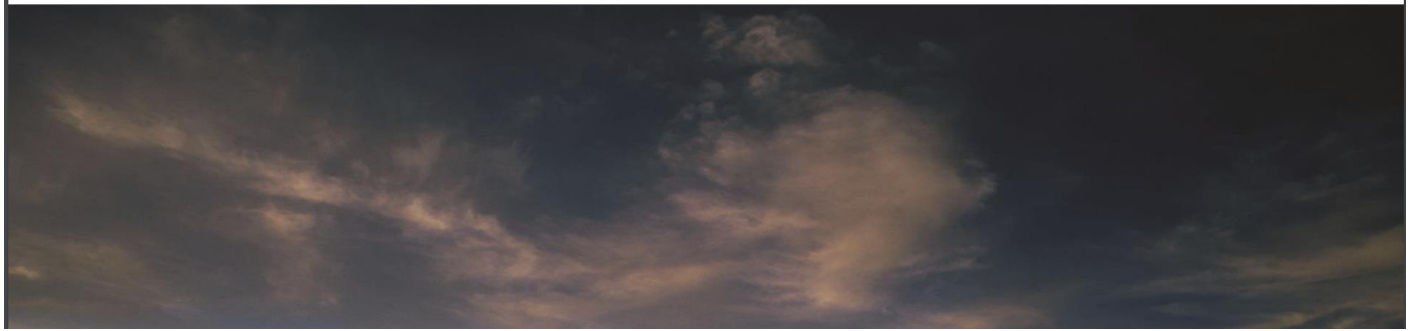
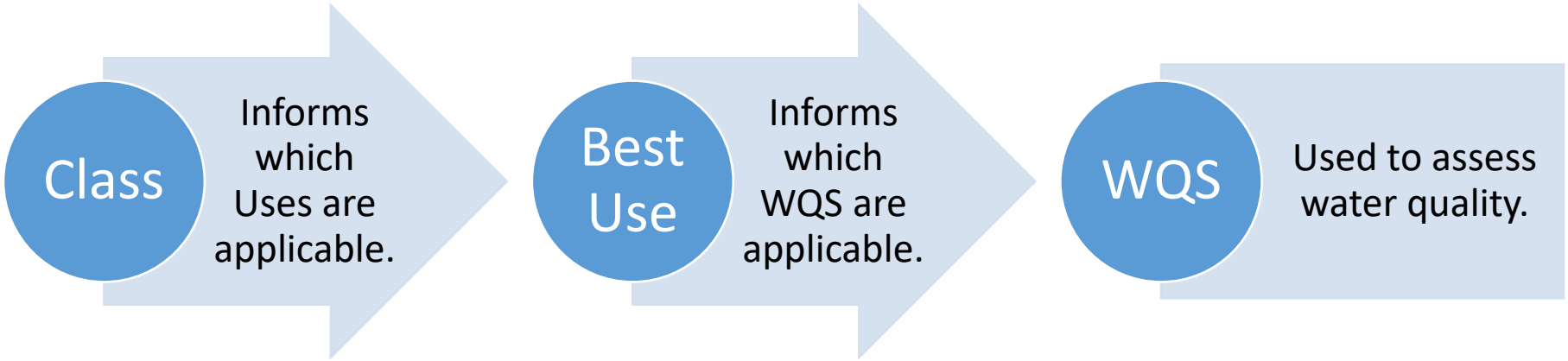
CONSOLIDATED ASSESSMENT AND LISTING METHODOLOGY

May 2021

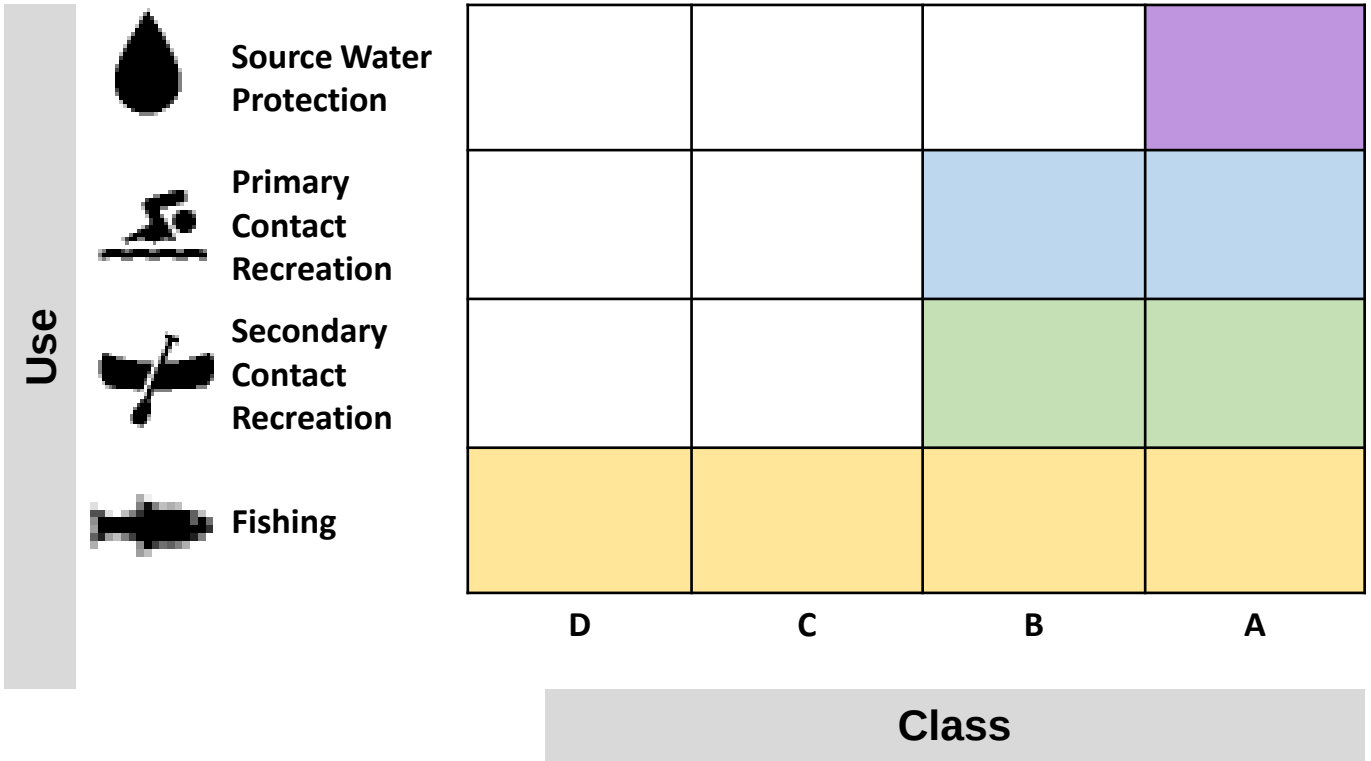


Rules and Regulations

Rules and Regulations



Relationship: Class and Use



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WQS

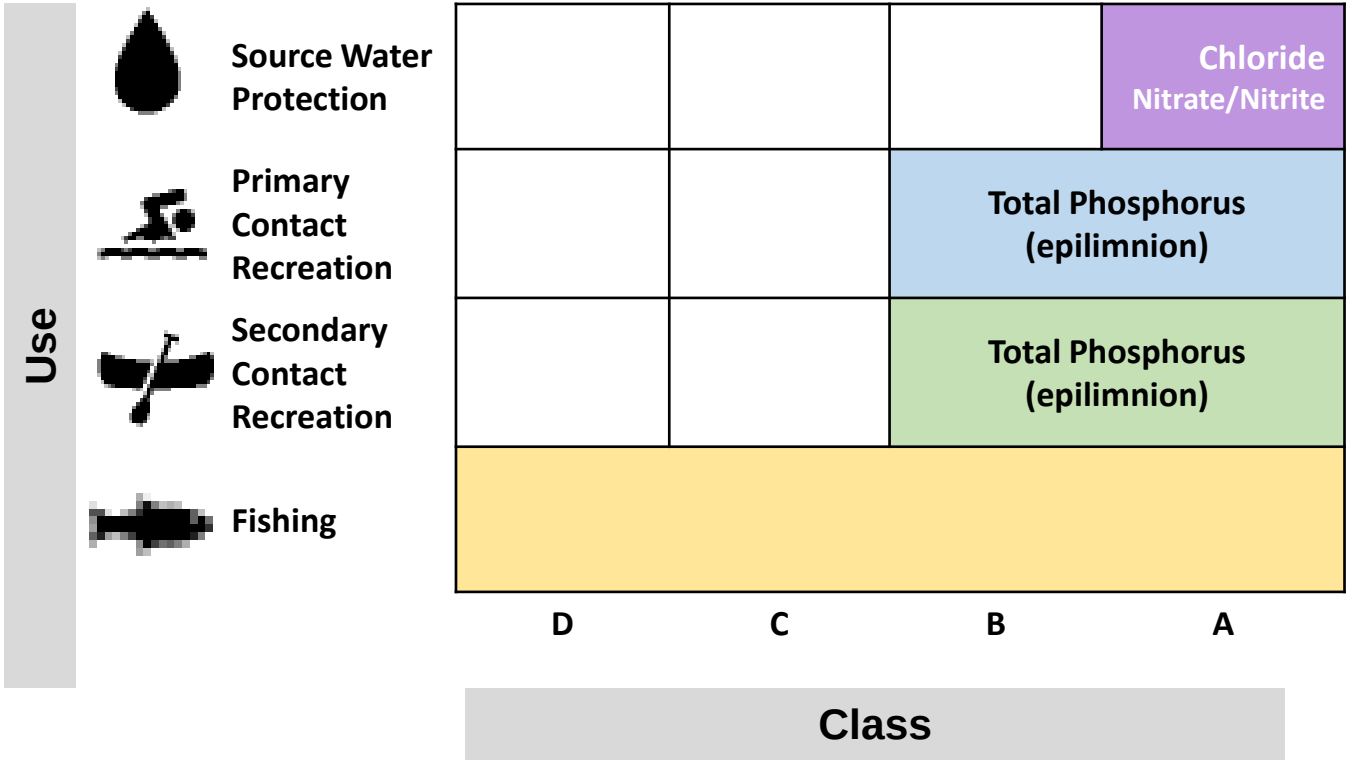
- Water quality standard (WQS) are the numeric or narrative criteria used to assess attainment.

> 703.3 Water quality standards for pH, dissolved oxygen, dissolved solids, odor, color and turbidity.

Standards for specific classes are provided in this section.

Parameter	***Classes***	***Standard***
pH	AA, A, B, C, AA-Special, A-Special, GA	Shall not be less than 6.5 nor more than 8.5.
	D	Shall not be less than 6.0 nor more than 9.5.
	SA, SB, SC, I, SD	The normal range shall not be extended by more than one-tenth (0.1) of a pH unit.
Dissolved oxygen (DO)	A-Special	In rivers and upper waters of lakes, not less than 6.0 mg/L at any time. In hypolimnetic waters, it should not be less than necessary for the support of fishlife, particularly cold water species.
	AA, A, B, C, AA-Special	For trout spawning waters (TS) the DO concentration shall not be less than 7.0 mg/L from other than natural conditions. For trout waters (T), the minimum daily average shall not be less than 6.0

CSLAP WQS



CSLAP Parameters Contextualizing Lake Ecology

- Chlorophyll a / Secchi
- Color
- Calcium
- Other Nutrients
- Temperature
- ph

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LCI WQS

Use

- Source Water Protection
- Primary Contact Recreation
- Secondary Contact Recreation
- Fishing

			DO, ph, arsenic (T), copper (T), iron, magnesium, manganese, nickel (T), fluoride, sulfate, ammonia, nitrate, nitrate-nitrite, nitrite, total_dissolved_solids, chloride
		DO, ph, total_dissolved_solids, TP	
		DO, ph, total_dissolved_solids, TP	
DO, ph, aluminum (D), arsenic (D), copper (D), nickel (D), zinc (D), fluoride, ammonia, nitrite, total_dissolved_solids			
D	C	B	A

Class

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How many samples are enough?

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Environmental Policy & Regulation

Use of power analysis to determine the number of samples needed to assess water quality in lakes and flowing waters

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Abstract

The Clean Water Act requires states to develop methods for assessing water quality. Assessment methods serve as decision-making procedures for including waterbodies on the Section 303(d) List of Impaired Waters. We used 17 years of ambient water quality data to explore statistical analyses for assessment methods that represent New York's waterbodies. Power analyses were performed to determine how many samples are needed to evaluate exceedances of water quality criteria using one-sample *t*-tests in lakes and flowing waters. Results suggest six samples for lakes and eight samples for flowing waters are needed to obtain at least 80% power, which is fewer samples than most other types of statistical assessment methodologies. This smaller number was possible because the power analysis was applied to the actual variability found in monitoring data to calculate the effect size as opposed to more conservative statistical estimates based on random data. Water quality criteria can have different analysis requirements such as single samples or means above the threshold, so we compared how many impairments would occur in the dataset if the six or eight samples were assessed as two single exceedances or a mean above the water quality criteria. Because the power analysis gives no indication of the time frame of when samples should be collected, the intra- and interannual variability of the data was assessed to determine

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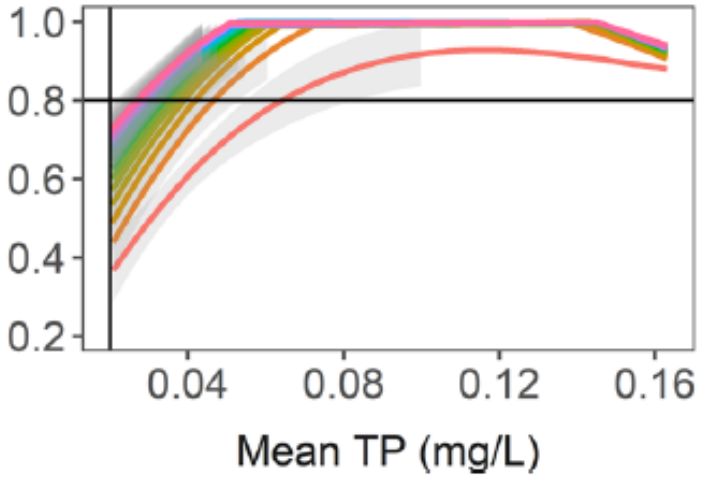
Power:
the probability that the lake has an average value above (or below) the water quality threshold

Power Goal:
EPA 2002 recommended minimum 80% power



Conclusion:
Minimum 6 samples over 2 years necessary to significantly differentiate the sample mean from the water quality threshold at 80% power.

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Data Sources

Data Sources

- NYSDEC
  - Routine Integrated Basin Studies (lakes and streams)
  - Routine Network (lakes and streams)
  - CSLAP
- External data contributors

WI/PWL Factsheets

WI/PWL Factsheet

OWASCO LAKE

(SEGMENT ID 0706-0009)

Waterbody Segment Assessment Factsheet Based on the 2021 CALM

Revised: December 07, 2021

IMPAIRED SEGMENT (IR CATEGORY 5)

Introduction

This is the most recent water quality assessment information for this waterbody segment. The assessment is based on water quality data that meet the quality assurance requirements of DEC's Division of Water. An outline of the process used to assess the quality of New York State waters is described in the DEC's Consolidated Assessment and Listing Methodology (CALM). The CALM describes the assessment and listing process to improve the consistency of assessment and listing decisions.

WATERBODY INFORMATION

- **Water Index Number:** Ont 66-12-43-P212
- **Classification:** AA(T)
- **Waterbody Type:** Lake/Reservoir
- **Size:** 6796.9 Acres
- **Drainage Basin:** Oswego-Seneca-Oneida
- **Hydrologic Unit Code:** 0414020113
- **County:** Cayuga
- **Segment Description:** Entire lake

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WI/PWL Factsheet

Assessment of Best Use

Background

New York State waterbodies are classified to reflect their best use(s) and the assessment of a waterbody is based on the ability of waters to support them. This section lists whether this waterbody segment supports its best use(s). View DEC's CALM for more information about the terms used below.

Best Use	Use Assessment	Use Assessment Confirmation	Pollutant(s)	Integrated Reporting Category	303(d) Year
Fishing	Impaired	Unconfirmed	pH	IR3	N/A for Assessment Category
Secondary Contact Recreation	Impaired	Confirmed	Fecal Coliform	IR5	1998; 2018
Primary Contact Recreation	Impaired	Confirmed	Fecal Coliform	IR5	1998; 2018
Source of Water Supply	Impaired	Unconfirmed	Iron; pH	IR3	N/A for Assessment Category
Shellfishing	N/A for Waterbody Class	—	—	—	—
EPA Appended Listing	N/A for Waterbody Class	—	—	—	—

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WI/PWL Factsheet

Water Quality Monitoring Data Used

Background

Water quality monitoring data are collected by DEC's Division of Water and community partners. While data are evaluated to assess whether best use(s) are supported, they may not be reflected in the final assessment of best use(s) presented above. The process for conducting assessments of best use(s) is explained in DEC's CALM.

The following data sources were evaluated to update this assessment.

Pollutant(s)	Data Source	Years
Fecal Coliform	Historical Data Source	—
Iron	Division of Water's Lake Monitoring and Assessment Section	2012
pH	Division of Water's Lake Monitoring and Assessment Section	2012

For more information, or to sign-up for email updates from NYSDEC, visit our website:
https://www.dec.ny.gov/chemical/36730.html

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WI/PWL Factsheet

Supplemental Indicator Information

Background

Supplemental indicators are additional water quality information that are used for assessments. Supplemental indicator(s) used for this assessment are provided below.

Total Maximum Daily Load (TMDL) Information

For more information about Total Maximum Daily Loads (TMDLs), please visit DEC's Clean Water Plans webpage.

Source	Pollutant(s)	TMDL Name
Non-Point Source	Mercury	Northeast Regional Mercury 2007
Point Source	N/A to Waterbody	—
Point Source and Non-Point Source	N/A to Waterbody	—
Unspecified	N/A to Waterbody	—

For more information, or to sign-up for email updates from NYSDEC, visit our website:
https://www.dec.ny.gov/chemical/36730.html

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Section will only appear if a TMDL exists.

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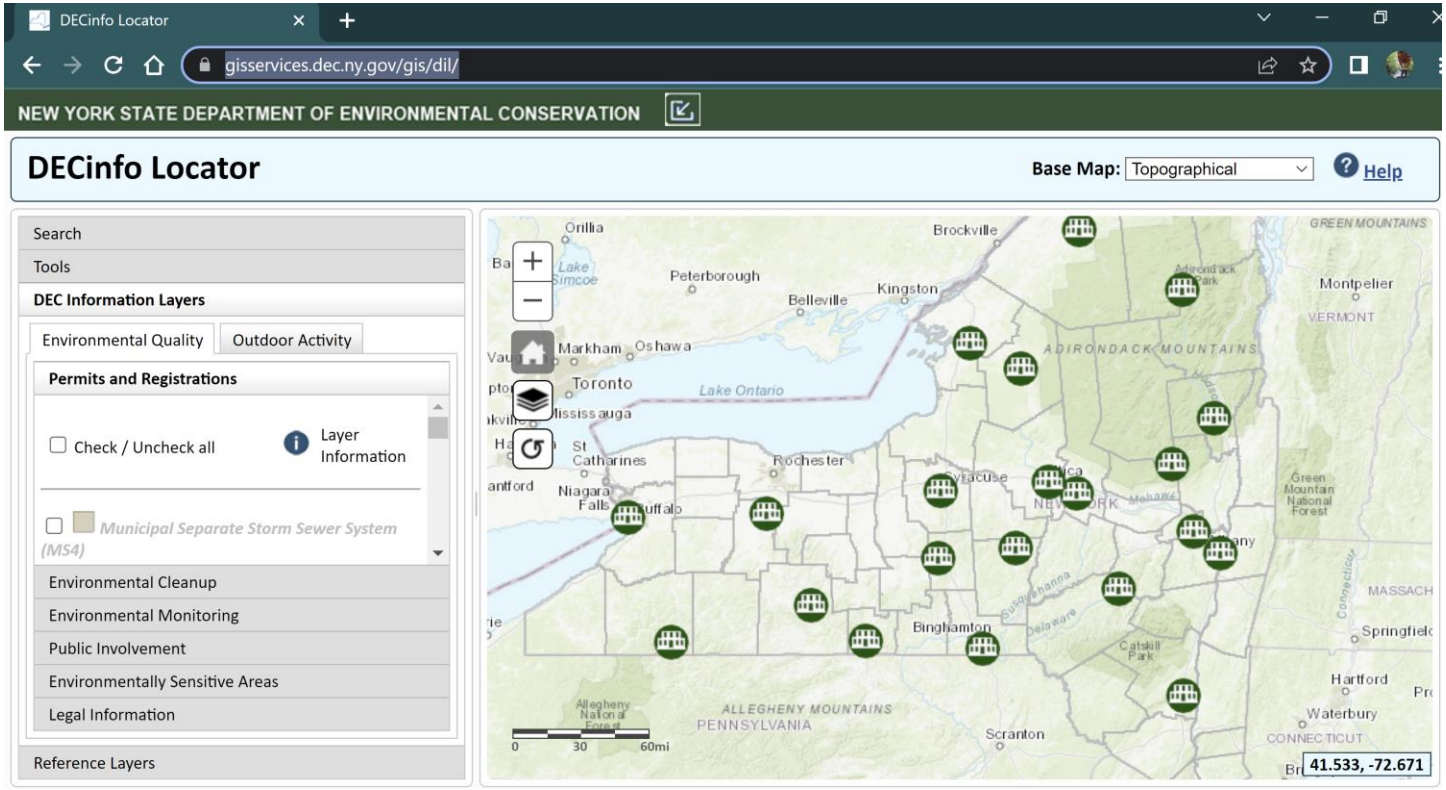
Info Locator Demonstration



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Clean Water Plans

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Clean water plans

- Watershed-based approach to that outlines a strategy to improve water quality.
- TMDLs, 9E Plans
- These plans document the:
  - Pollutant sources and loads
  - Allowable pollutant level
  - Actions will improve water quality

Information needed to develop Clean Water Plans

- Land uses in watershed (e.g. Urban, Forest, Agricultural, Wetland)
- Water quality sampling data
- Number of residential on-site septic systems / wastewater treatment plants
- Rainfall data
- Land topography and soils data
- Lake and tributary characteristics

9E Plans v. TMDLs

Feature	9E Plan	TMDL
Waterbody Impairment	Not Required	Required
Pollutant sources	Focused on nonpoint sources	Focused on all sources (both point and nonpoint)
Public comment period	Not Required (public participation required throughout plan development)	Required
Implementation	Required	Optional*
Approval	NYS DEC	EPA
Funding	Eligible for state & federal	Eligible for state & federal

*optional for EPA approval – DEC always includes an implementation section in TMDLs

Funding for Planning: NPG Grants

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NPG Overview

- Eligible Applicants:
  - ✓ Municipalities
  - ✓ Soil and Water Conservation Districts
- Match of 10%

NPG Supports Planning:

- Funds to produce project planning reports
- Prepare projects for construction and implementation funding

Additional Funding Sources

- Department of State Local Waterfront Revitalization Program (LWRP)
- Clean Water Act Section 604(b)
- Great Lakes Restoration Initiative (GLRI)

Funding for Implementation: WQIP

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WQIP Overview

- Eligible Applicants:
  - ✓ Municipalities
  - ✓ Soil and Water Conservation Districts
  - ✓ Not-for profit corporations (for two project types)
- Match ranges from 25% to 60%
- May submit up to 5 different applications

WQIP Supports Restoration:

- Municipal Wastewater Treatment Improvement
  - High Priority Projects
  - General Wastewater Treatment Improvement
- Non-Agricultural Nonpoint Source
- Aquatic Connectivity Restoration
- Marine District Habitat Restoration

WQIP Supports Protection

- Land Acquisition for Source Water Protection
- Protected Storage for Road Salt

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Additional Funding for Implementation:

- Agricultural Nonpoint Source Abatement and Control Program (AgNPS)
- Environmental Facilities Corporation Green Innovation Grant Program (GIGP)
- NYSERDA Cleaner Greener Communities Program
- Great Lakes Restoration Initiative (GLRI)

Conclusions

- Consolidated Assessment and Listing Methodology
  - Published methodology to determine whether your lake meets water quality standards adopted in New York Codes of Rules and Regulations
  - Reports posted publicly on the DECinfo Locator
- Funding and support available for Clean Water Planning and Implementation

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