



**Lake George
Park Commission**

Septic Systems Around Lake George

Inspections and New Standards

November 22, 2022

Photo courtesy of Carl Heilman



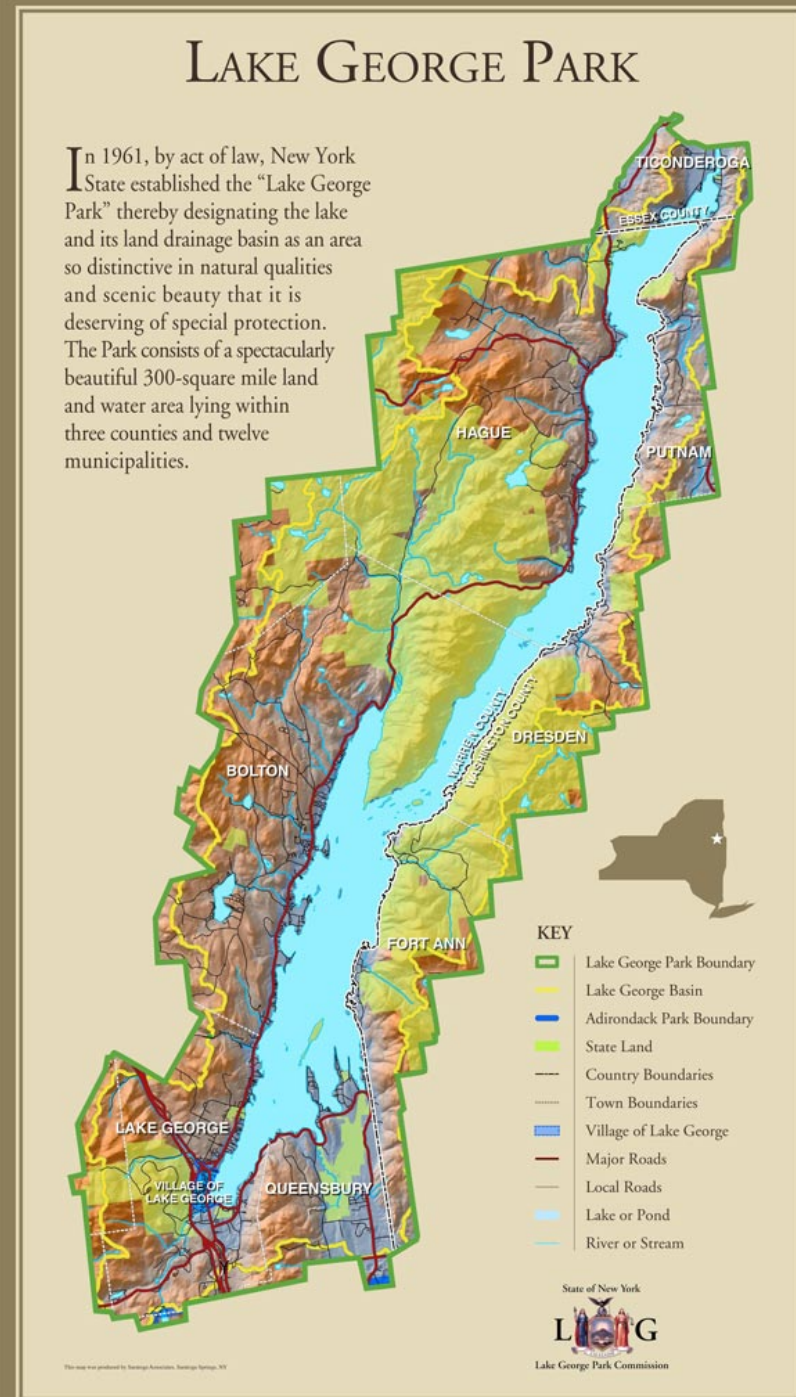
**NYS Lake George Park Commission
Public Informational Meeting**

Proposed Septic Inspection Program
Thursday, August 4, 2022, 5:00 p.m.
The meeting will be held via
teleconference on Zoom, visit
lgpc.ny.gov for meeting link.

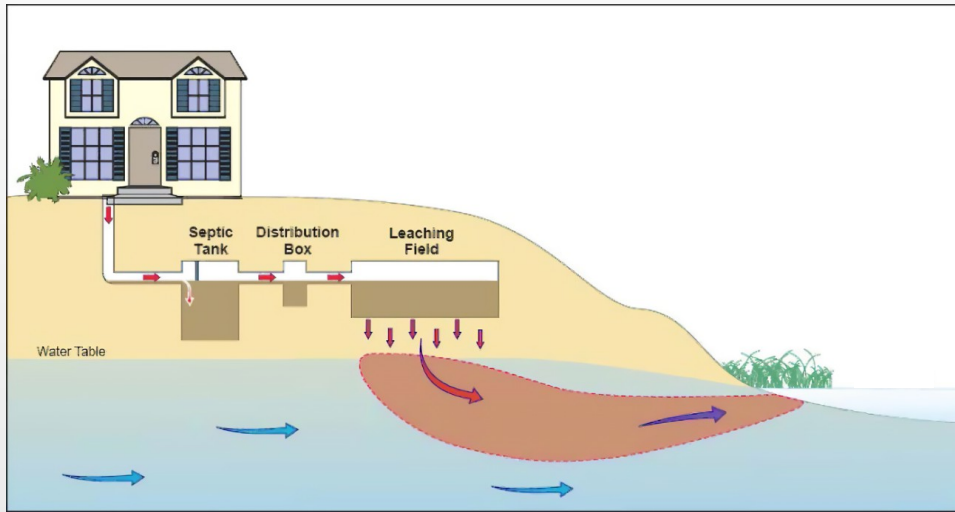
Please join our online informational session regarding the Commission's proposed septic inspection program for property owners within 500 feet of Lake George and 100 feet of streams around the lake. There will be a presentation and Q&A about this effort to help protect Lake George.

What is the Lake George Park Commission?

The Lake George Park Commission is a NYS agency established to oversee and manage the unique resources of the "Lake George Park" especially the lake's superior water quality



Septic Systems and Lake Water Quality



Discharge from improperly maintained septic systems can impact lake water quality

System age, maintenance, soil type, depth to bedrock or water table can affect the functioning of a system



Septic Systems and Public Health



Improperly designed, constructed or maintained septic systems can be a threat to public health (e-coli, fecal coliform bacteria, nitrogen impacts, etc)

LGPC Regulatory Authority (ECL 43)

“In consultation with DEC, DOH and each municipality within the park, the commission shall... adopt rules and regulations for the discharge of wastewater to ensure optimum protection of ground and surface waters within the Park.” (43-0112)

And to...

“Study, monitor and inspect for pollution from any source within the park and to enforce the provisions of this article and any regulations promulgated pursuant thereto” (43-0107)

First Steps – Partners and Expertise

To begin a review of septic systems and potential impacts to Lake George, in June of 2021 the Commission formed an ad-hoc committee of five LGPC Commissioners plus regional experts, including:

1. Tom Snow, Professional Engineer, NYS DEC, Director of NYC Watershed Program
2. Kevin Kenyon, Professional Engineer, NYS Department of Health Glens Falls Office
3. Tom Jarrett, Professional Engineer, Jarrett Engineering
4. Kathy Flacke Muncil, Proprietor of Fort William Henry Resort, business leader
5. Samuel Hall, Chairman, Washington County Board of Supervisors
6. Susan Wilson, Deputy Supervisor, Town of Bolton
7. Walt Lender, Executive Director, Lake George Association
8. Chris Navitsky, Professional Engineer, Lake George Waterkeeper
9. Dan Barusch, Director of Planning and Zoning, Town of Lake George
10. Claudia Braymer, Warren County Supervisor from Glens Falls Ward 3
11. Ethan Gaddy, Planner, Warren County Planning
12. John Graham, Code Enforcement Administrator, Washington County
13. Tom Cunningham, Ticonderoga Town Board
14. Hannah Neilly, Project Coordinator, Essex County Office of Community Resources

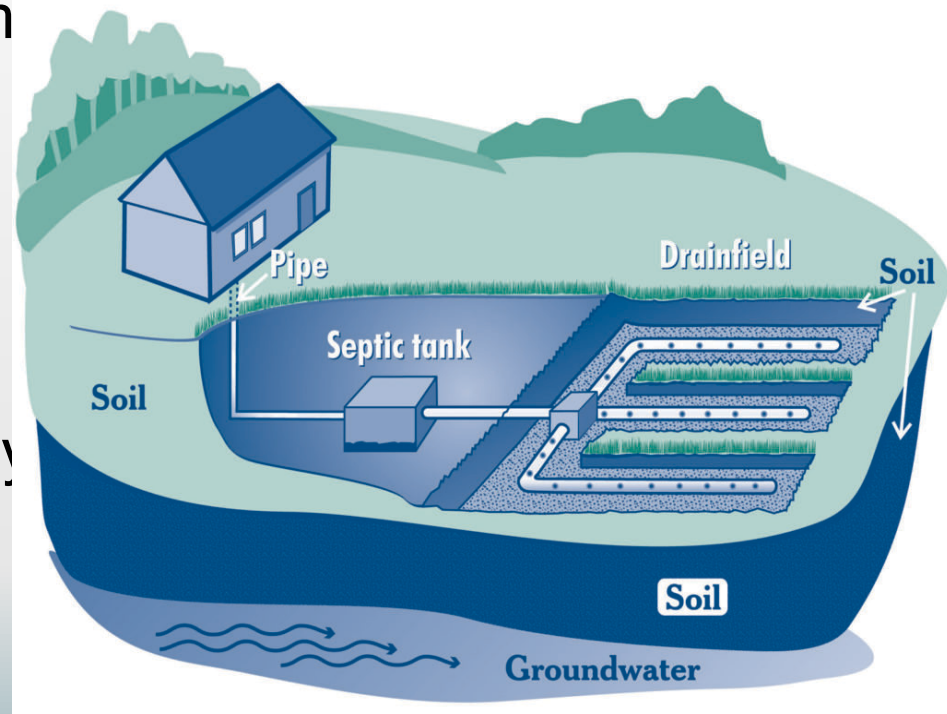
Committee met monthly, 1st Thursday of each month at 2pm, via Zoom

ALWAYS OPEN TO THE PUBLIC



To Begin, Three Key Items

1. Literature Review – What do we know about septic system impacts to lakes
2. Other Programs – Research other lakes who have implemented septic system inspection programs, and why
3. Data Analyses – Status of septic systems around Lake George



1. Literature Review: Chazen Companies

(Sean Doty, P.E.
and Chris Round,
V.P. Planning)



Proud to be Employee Owned

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Literature Review: Impacts of Onsite Wastewater Treatment Systems on Water Quality

75 Fort George Road
Lake George
Warren County, New York

Issued: 10/1/2021

Prepared for:

Lake George Park Commission
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Prepared by:

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Chazen Project No. 92122.00





Environmental Health - Toxic Substances

Science Features

Phosphorus Doesn't Migrate in Ground Water? Better Think Again!

U.S. Geological Survey (USGS) scientists have been studying the long-term migration of phosphorus in a subsurface plume of treated sewage at the Toxic Substances Hydrology Program's research site located in Cape Cod, Massachusetts. The ground-water contamination resulted from 60 years of disposal of treated sewage to infiltration ponds at the Massachusetts Military Reservation. Phosphorus is a common constituent of agricultural fertilizers, manure, and organic wastes in sewage and industrial effluent. Excess phosphorus in lakes is a common cause of eutrophication. The observed extent of the phosphorus plume and the interaction of the plume with Ashumet Pond, a glacial kettle pond, has challenged scientists to re-evaluate their understanding of the mobility of phosphorus in ground water and of interactions between ground water and surface water.



Treated wastewater from Joint Base Cape Cod was discharged to rapid-infiltration disposal beds from 1936 to 1995. The disposal formed a groundwater contamination plume that extends more than 10 kilometers in the Cape Cod sand and gravel glacial outwash aquifer. Photo credit: Denis R. LeBlanc, USGS



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Frequently Asked Questions

- Phosphorus Mobility** - In the past, ground-water scientists thought that phosphorus in ground water migrated little and hence was of minimal ecological concern. Years of monitoring data on phosphorus concentrations in the plume of treated sewage on Cape Cod has shown that phosphorus does migrate in ground water, raising concerns that phosphorus-containing ground water discharging into Ashumet Pond may accelerate the eutrophication of the pond. USGS scientists are using their new understanding of the migration of phosphorus in ground water to predict the phosphorus load to Ashumet Pond from the sewage plume.



Contents lists available at ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

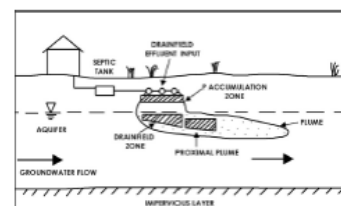
Review of phosphorus attenuation in groundwater plumes from 24 septic systems

William D. Robertson^{a,*}, Dale R. Van Stempvoort^b, Sherry L. Schiff^a^a University of Waterloo, Waterloo, Ontario N2L 3G1, Canada^b Environment and Climate Change Canada, Burlington, ON, Canada

HIGHLIGHTS

- Phosphorus retention averaged 97% at sites located on non calcareous sediments and 69% at sites where the sediments were calcareous.
- Secondary mineral coatings containing P were present in most of the drainfield sediments, indicating that mineral precipitation was the likely cause of the P attenuation.

GRAPHICAL ABSTRACT



ARTICLE INFO

Article history:
Received 7 April 2019
Received in revised form 17 June 2019
Accepted 13 July 2019
Available online 16 July 2019

Editor: José Virgilio Cruz

Keywords:
Wastewater
Contamination
Eutrophication

ABSTRACT

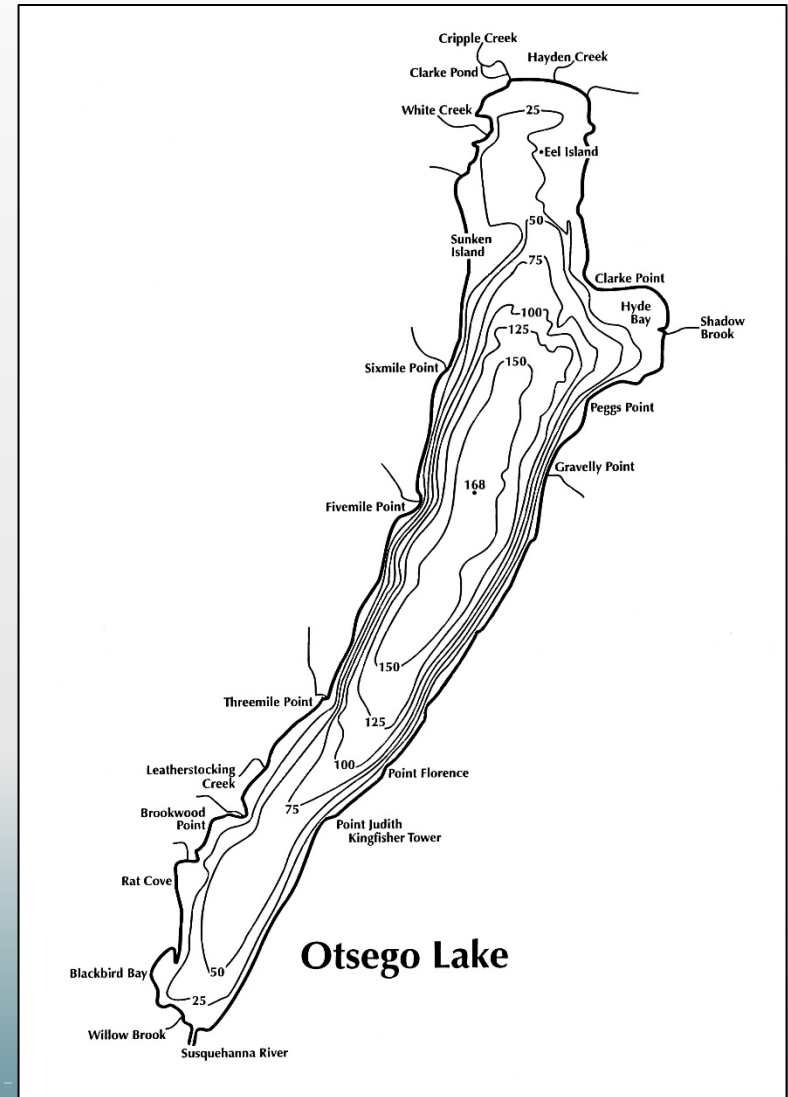
This study reviews phosphorus (P) concentrations in groundwater plumes from 24 on-site wastewater treatment systems (septic systems) in Ontario, Canada. Site investigations were undertaken over a 30-year period from 1988 to 2018 at locations throughout the province that encompass a variety of domestic wastewater types and geologic terrain. The review focuses on P behaviour in the drainfield sediments and in the proximal plume zones, within 10 m of the drainfields, where plume conditions were generally at steady state. At these sites, mean soluble reactive phosphorus (SRP) values in the septic tank effluent ranged from 1.8 to 13.8 mg/L and averaged 8.4 mg/L. Phosphorus removal in the drainfields averaged 90% at sites where sediments were non calcareous (13 sites) and 65% at sites where sediments were calcareous (11 sites). Removal considering both the drainfields and proximal plume zones, averaged 97% at the non-calcareous sites and 69% at the calcareous sites, independent of the site age or loading rate. At 17 of the 24 sites, mean SRP concentrations in the proximal groundwater plumes (within 10 m) declined to ≤ 1 mg/L, which is a common treatment level for P at sewage treatment plants. Zones of P accumulation were present in almost all of the drainfields, where sand grains exhibited distinct secondary coatings containing P, demonstrating that mineral precipitation was likely the dominant cause of the P retention observed at these sites.

This review confirms the often robust capacity for phosphorus removal in properly functioning septic systems. At the majority of these sites (17/24), P retention meets or exceeds removal that would normally be achieved during conventional sewage treatment. This challenges the necessity of avoiding septic system use in favor of communal sewer systems, when limiting phosphorus loading to nearby water courses is a principal or major concern.

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2. Other Septic Inspection Programs

- ▶ Several other lakes in NYS have been inspecting septic systems for upwards of 20 years
- ▶ Programs vary in funding, cost and logistics, but the intent and outcomes are the same: protecting public health and the lake



- • • • •

Program	Program Manager/Contact Information	Program Description	How Funded?	Why Created?	Inspection Fee?
Keuka, NY	Colby Petersen, Manager (315) 536-5188 colby@ycsoilwater.com	The law provides local authority for both new and replacement construction of septic systems, as well as the Zone 1 (200 feet of lake or waterbody) and Real Property Transfer Inspection Program. Watershed Manager oversee the program and provide technical expertise on the designs \approvals of systems. Expert knowledge in engineering, soils, regulatory procedures, program management and municipal affairs.	Fees and Dedicated Funds from Each Town	Tourism and tax base. The municipalities also recognized that there was no uniformity in regulations and enforcement.	\$50
Canandaigua, NY	Tyler Ohle, Title: Canandaigua Lake Watershed Inspector (585) 396-9716 Tyler.Ohle@ontswcd.com	Canandaigua Lake Watershed Inspection Program - Administered through Ontario SWCD. Built on a model law that has been passed by all towns. Paid by water purveyors beginning in 1950s. Inspector reviews and approves systems. Assists with soil and erosion inspection. Ensures no failure based on DOH definition Within 200 ft of lake, inspection every 5 years.	Fees and Water Purveyors	2014 Canandaigua Lake Watershed Management Plan recognized untreated wastewater as a source of nutrient. Regulatory boards created in response to outbreaks of waterborne diseases.	\$175
Cayuga, NY	Cayuga SWCD (315) 252-4171 x4 cayugaswcd@cayugaswcd.org	Cayuga County Code - Inspection at Property Transfer and Regular Intervals Based on Distance from Lake and Town	Fees	To eliminate potential health hazards and protect surface and ground water by ensuring that septic systems located within Cayuga County operate satisfactorily.	\$150
Otsego, NY	Amy Wyant, OCCA Executive Director: (607)-547-4488 director@occainfo.org	Village of Cooperstown Law Beginning in 2005 - Require 5 Year Inspections in proximity to aquatic resources.	Initial Funding by OCCA and the Clark Foundation Fees	SUNY Oneonta began monitoring nutrient levels near septic systems in the lake and noticed it could be substantial in 2004.	\$50
Honeyoye (Ontario County), NY	Tad Gerace (585) 396-1450 tad.gerace@ontswcd.com	All Ontario outside of Canandaigua Watershed. Non regulatory - towns adopt if they choose. Most inspections done for deed transfer, sometimes from change of use or capacity. SWCD or OTN inspector on-site. Some towns have continued regulations as needed (e.g. Rental Properties inspected every 3 Years in Geneva). SWCD Inspection provides the homeowner with an unbiased, neutral assessment of their septic system	Fees, Other SWCD OH	To protect the water quality of Honeyoye Lake and surrounding ecological resources.	\$175

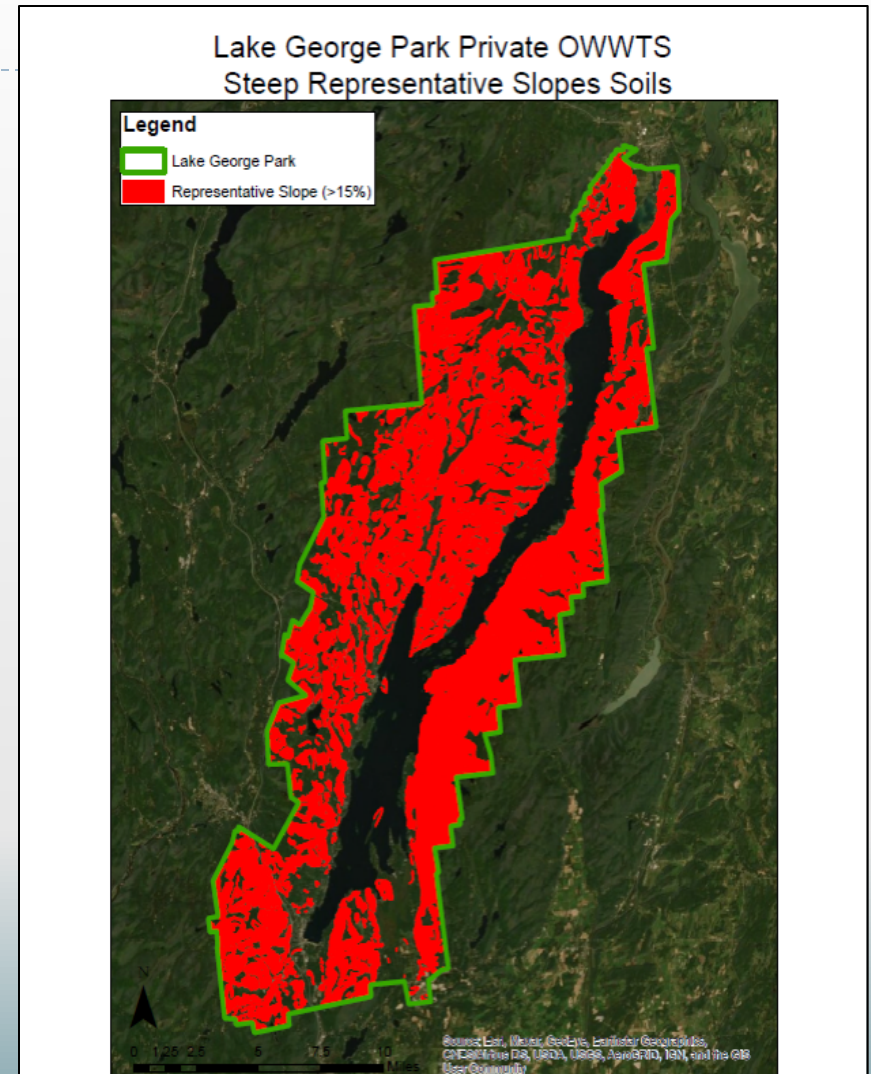
3. Data Analyses

Researching

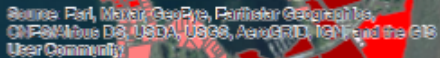
Using all available data to help determine the age, location and number of septic systems surrounding Lake George and throughout the watershed.

Analyzing

Analyzing geologic limitations on septic system effectiveness (soils, bedrock, etc)



Parcel Scoring

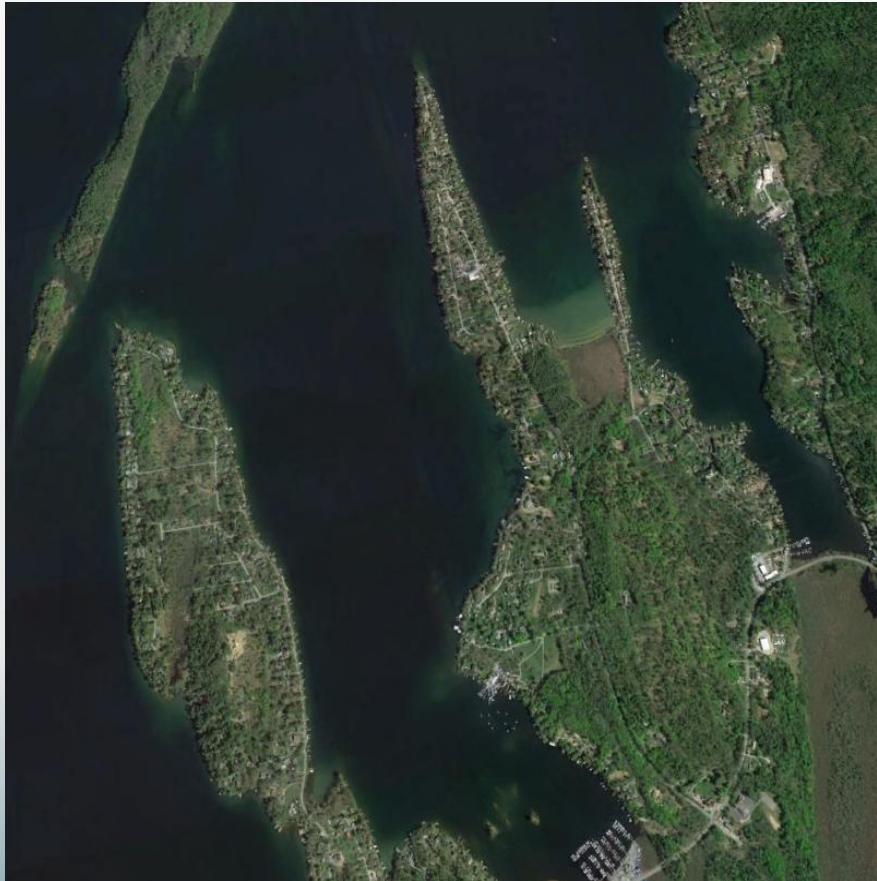


Analysis and Key Findings

- ▶ 5,950 (69%) of occupied parcels in the LG Park use septic systems (31% on public sewer)
- ▶ 2,700 (45%) of these septic systems are located within 500' of the Lake and 100' of streams
- ▶ 84% of septic systems are located on parcels that have one or more 'limiting factors', i.e. shallow to bedrock or water, steep slope, bad soils, etc
- ▶ The average age of homes in the LG Park is 50 years old



Town of Queensbury Septic Inspections



- ▶ Inspections on property transfer since 2019, more than 200 to date
- ▶ 65% of inspected properties had some level of correction required
- ▶ 17% required more significant repair or replacement



Analyze Information and Making a Decision



Analyzing all of the factors relating to septic systems around Lake George, the Ad-Hoc Committee unanimously recommended to the full Commission to advance a robust septic system inspection program for properties in proximity to Lake George and tributaries

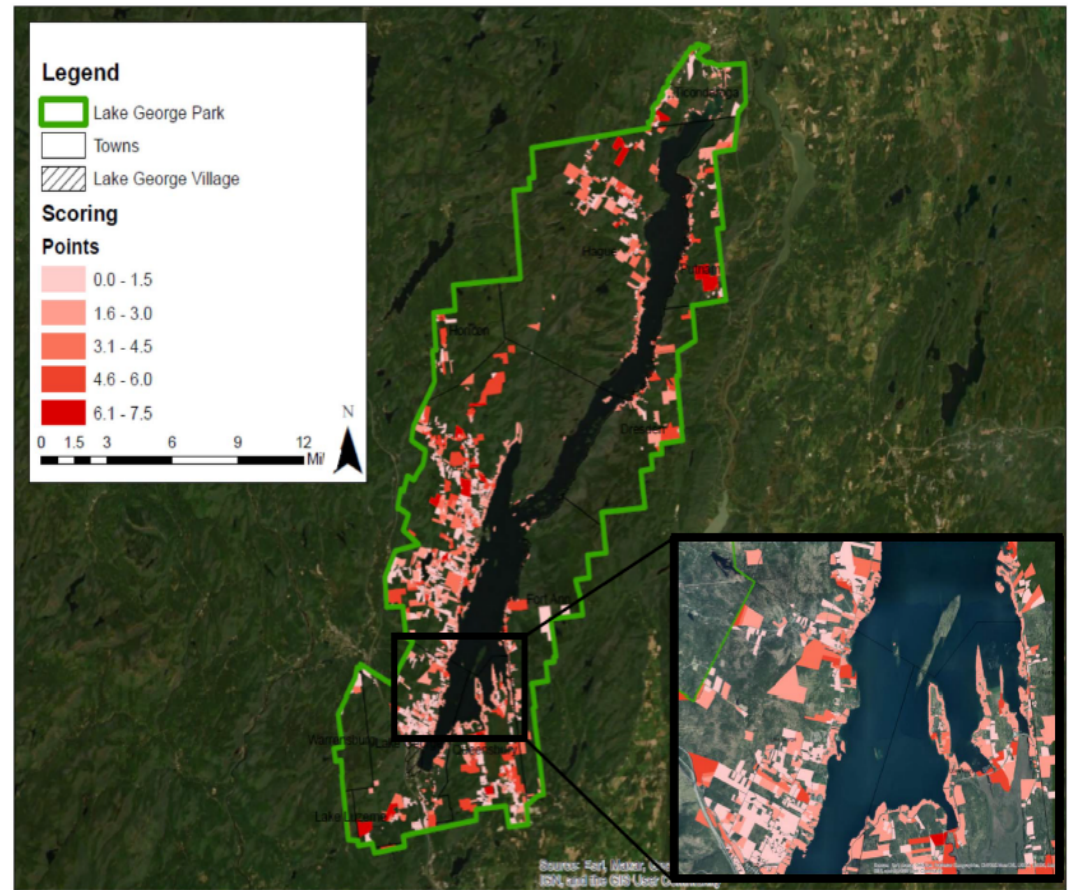
Decision supported by municipal elected boards around Lake George



How Will It Work?

- ▶ 1/5th of the 2,700 properties will be inspected each year for five years (~540 per year)
- ▶ Each year, letter to those 540 landowners to arrange septic pumpout and inform the Commission
- ▶ Septic hauler to have septic tank and distribution box uncovered
- ▶ LGPC Inspector on-site for pumpout to conduct inspection
- ▶ Follow-up report identifying any issues and needs for repair

Map 15 – OWWT Resources of Concern Scoring



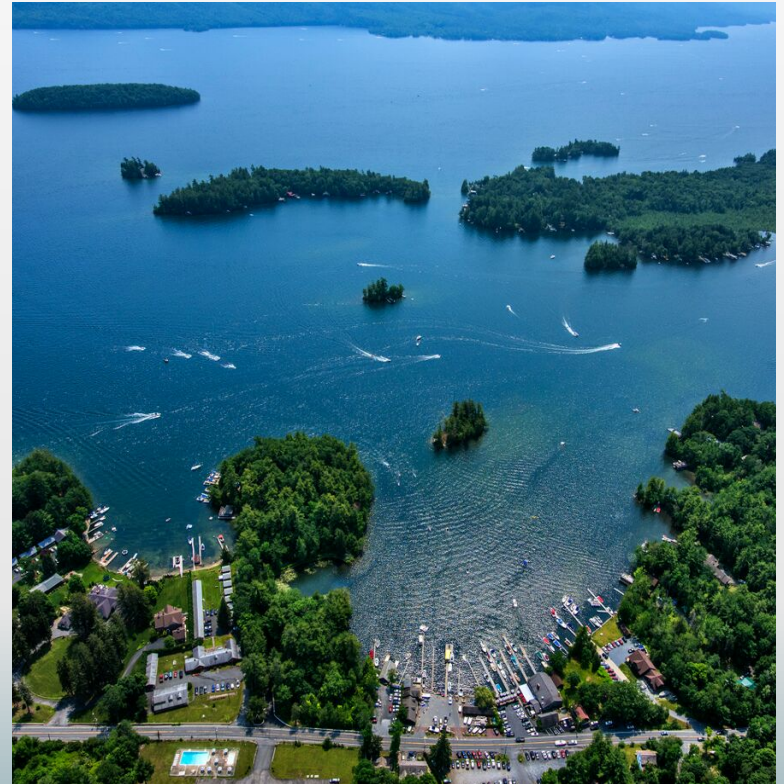
Cost to Property Owners

Residential Property Annual Fee
\$50

Commercial Property Annual Fee
\$100

Properties with Holding Tanks
Annual Fee \$25

Septic Tank Pumpout Fee –
Variable Cost (\$200-400) every
five years (should be occurring
already)



What if Issues are Found?

- ▶ Failed Systems/
Components corrected
within six months
- ▶ Substandard Systems
(<100% Tank Size, <50 feet
from lake or stream)
upgraded within 5 years
- ▶ Permit Review conducted
by current review authority
(e.g. Town, County)



NYS Septic Replacement Funds



- ▶ Cost shared funding may be available for replacing failing septic systems, up to \$10,000
- ▶ Warren, Essex and Washington Counties
- ▶ More than \$1 million awarded to Lake George to date



New Design Standards: Basin-Wide

1. Absorption area located 3' from seasonal high groundwater and bedrock
2. Variances from waterfront horizontal setbacks and vertical separation distance (depth) require improved water quality performance (e.g. increased soil depth or ETU's)
3. Redevelopment of any property requires upgrade to current standards



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LAKE GEORGE, NEW YORK, August 12, 2022

No. 17

Lake-Wide Septic Rules to be Released this Fall

By Anthony F. Hall

The Lake George Park Commission expects to open its proposed Lake-Wide Septic System Rules to public comment this fall, the board announced at its July 26 meeting.

According to Dave Wick, the Park Commission's executive director, the new regulations could take effect as early as spring, 2023.

The Commission's draft regulations stipulate that all residential septic systems within 500 feet of the Lake George shore and 100 feet of major tributaries be inspected once every five years.

Commercial systems would receive annual inspections.

The hope is that these inspections will be done by trained Lake George Park Commission technicians at a cost of \$50 for residential systems and \$100 for commercial systems," said Joe Thoun, the Park Commission's environmental analyst.

The fees would fund the annual costs of the inspections, which would start in May and end in November, said Dave Wick.

According to Wick, 2,800 of the 6,200 systems within the Lake George watershed are within the

targeted areas.

One fifth or 500 of those 2,800 systems would be inspected every year and every system would be inspected once every five years, said Joe Thoun.

"When issues are found that might impact the long-term performance of the system, they would need to be corrected within that five-year period," said Thoun.

The Lake George Park Commission last attempted to establish an inspection program in 1990.

According to Dave Wick, the courts invalidated the 1990 program because its Environmental Impact Statement failed to address the "reasonable" possibility that mandatory and presumably unpopular septic regulations would fuel the demand for a lake-wide sewer system, which, in turn, would lead to environmentally unsustainable development.

As adopted, those regulations promulgated standards for the design of new septic systems and authorized the Lake George Park Commission to monitor systems to make certain they were functioning properly, charge homeowners an annual inspection fee; and require the homeowners to maintain their systems.

Bolton Board OKs EMS Taxing District

By Anthony F. Hall

Bolton's Town Board voted August 2 to establish an EMS tax district to finance Bolton's Emergency Medical Services, a not-for-profit organization.

According to Bolton Supervisor Ron Conover, residents will not see an increase in their taxes as a consequence of forming the new taxing district.

Rather, the taxpayer-funded subsidy of the organization, which is now included within the town's appropriations for the General Fund, will appear as a separate item on residents' tax bills.

"All things being equal, the formation of the district should have no budgetary effect," said Conover. "Publishing the costs as a line item on the tax bills will, however, increase transparency."

"We all know that EMS costs have been rising steadily, not just in the Town of Bolton, but across the board. When the costs are embedded in a town budget, people may fail to be aware of those rising costs. This keeps people informed," said Conover.

According to Conover, the Town pays roughly half the costs of the EMS.

In 2022, the Town's share was \$327,674. In 2020, it was \$250,000. In 2009, \$89,200.

According to Earl Mikolowski, a



In 2018, the Bolton EMS purchased a new, custom-built ambulance with significant support from the Wolgin family.

officer. "Our budget's biggest driver is, by far, payroll."

According to Mikolowski, the Bolton EMS includes 14 paid staff members, two EMT volunteers and four volunteer drivers.

"I did not oppose the formation of an EMS taxing district," said Mikolowski. "I have no difficulty with transparency. I'm always ready to discuss our expenses with the taxpayers."

The EMS will continue to be responsible for preparing the annual budget whose total will appear as the line item.

As a separate taxing district, Bolton's EMS district will be subject to New York State's tax cap, which was first applied to local governments and school and taxing districts in 2012. The cap limits

the rate of inflation, whichever is less.

Operating within that tax cap will be difficult, Mikolowski acknowledged.

In 2023, the district's budget will include the health insurance costs of employees who work more than thirty hours per week.

"It was a necessary step to retain staff," said Mikolowski. Johnsonburg and Lake George have also established EMS Taxing Districts, and Chestertown and Warrensburg are expected to follow suit.

According to Ron Conover, the rising costs of EMS services, now visible to residents of towns throughout Warren County, may elicit public support for a wider, inter-municipal EMS district.

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Taking control of water quality: Lake George targeting wide-reaching septic inspection program

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LAKE GEORGE

Commission approves sending septic regulations to state

Michael Goot May 24, 2022 2



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Septic System Program Resources

The documents below are being used to help inform the discussions and decisions of the Septic System Review Committee.

	LGPC Septic Inspection Programs Review 9.2.21	 DOWNLOAD
	Private OWWTS Inspection Research Update 9.2.21 - Presentation	 DOWNLOAD
	Septic Literature Review Matrix - 7.30.21	 DOWNLOAD
	Town of Lake George Septic Initiative Program	 DOWNLOAD
	Report: Contaminants of Emerging Concern & Public Perception of the Issues - 2018	 DOWNLOAD



Next Steps in the Process

- ▶ Continue outreach to property owners
- ▶ Public hearing Tuesday, November 22nd 4pm, Fort William Henry
- ▶ Public comment period open until November 30th
- ▶ If approved, implementation in Spring of 2023



Thank You

Dave Wick, Executive Director

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Photo courtesy of Carl Heilman