THE FUND *for* LAKE GEORGE

LAKE·GEORGE WATERKEEPER®

LAKE GEORGE TOWN SEPTIC INITIATIVE PROGRAM

New York State Federation of Lake Associations, Inc.
36th Annual Conference
May 4, 2019

Chris Navitsky, P.E. – Lake George Waterkeeper

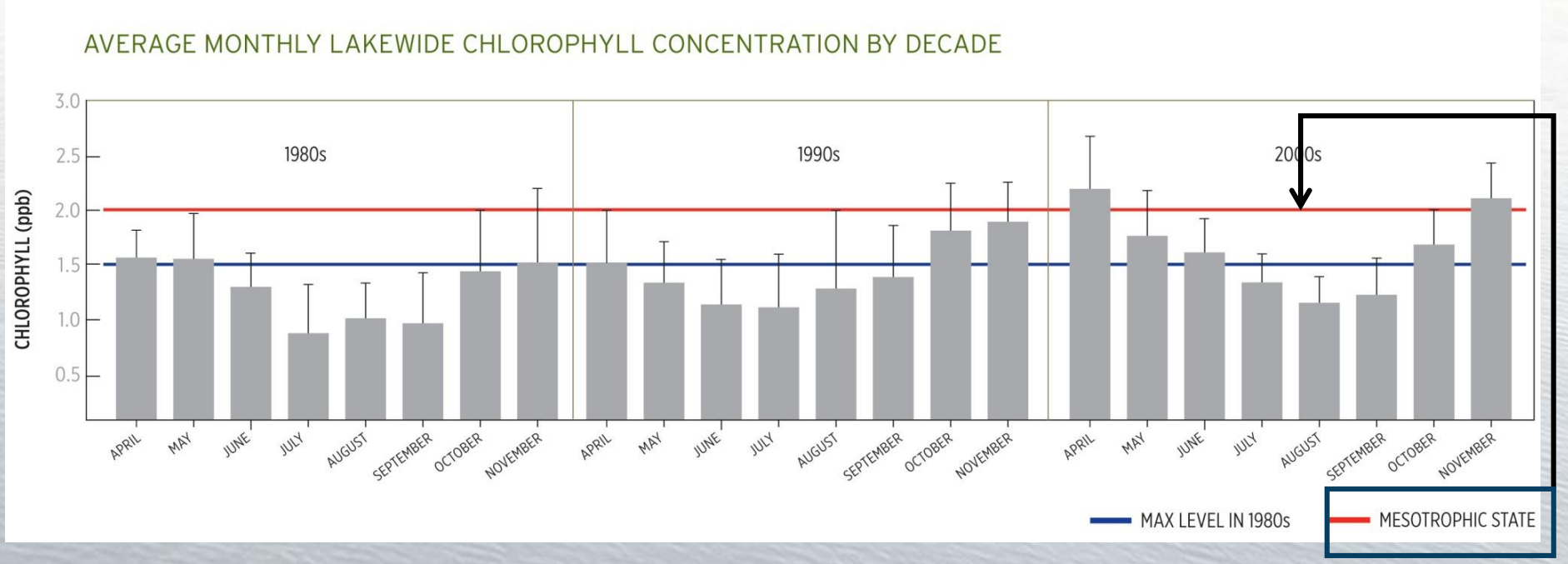
Agenda

- Introduction
- Lake George Science
- Model for Protection
- Science to Solutions
- Lake George Town Septic Initiative Program
- Prioritization Algorithm
- Takeaways

Presenter – Chris Navitsky, P.E.

- Lake George Waterkeeper since 2002 and member of Waterkeeper Alliance
- Program of The FUND for Lake George
- Defend the natural resources of Lake George and its watershed for the common good of the community

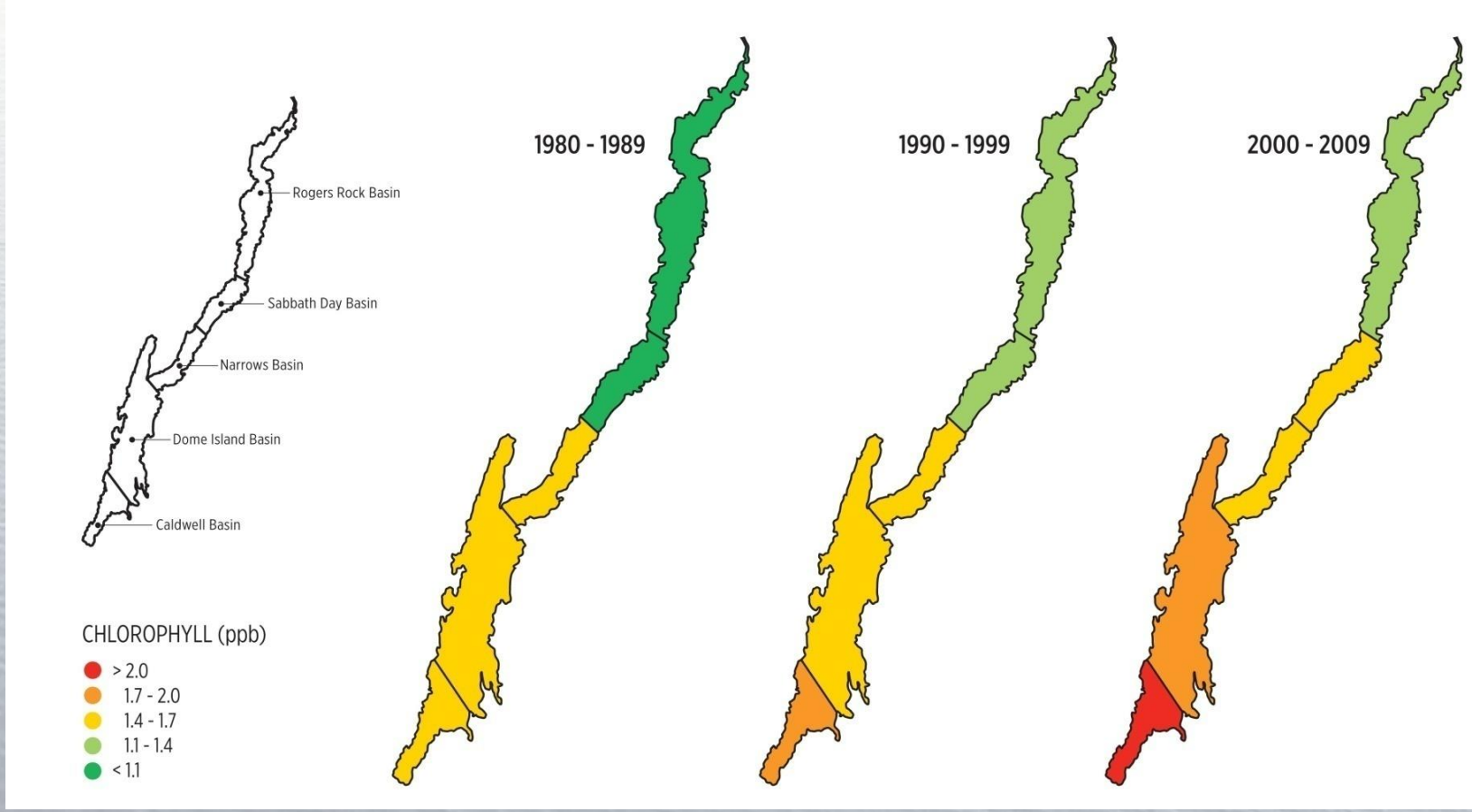
Lake George - Science



Chlorophyll is an important indicator of overall water quality health because it measures algal growth in the lake. Algal growth is driven by nutrient loading.

CHLOROPHYLL HAS INCREASED 33%

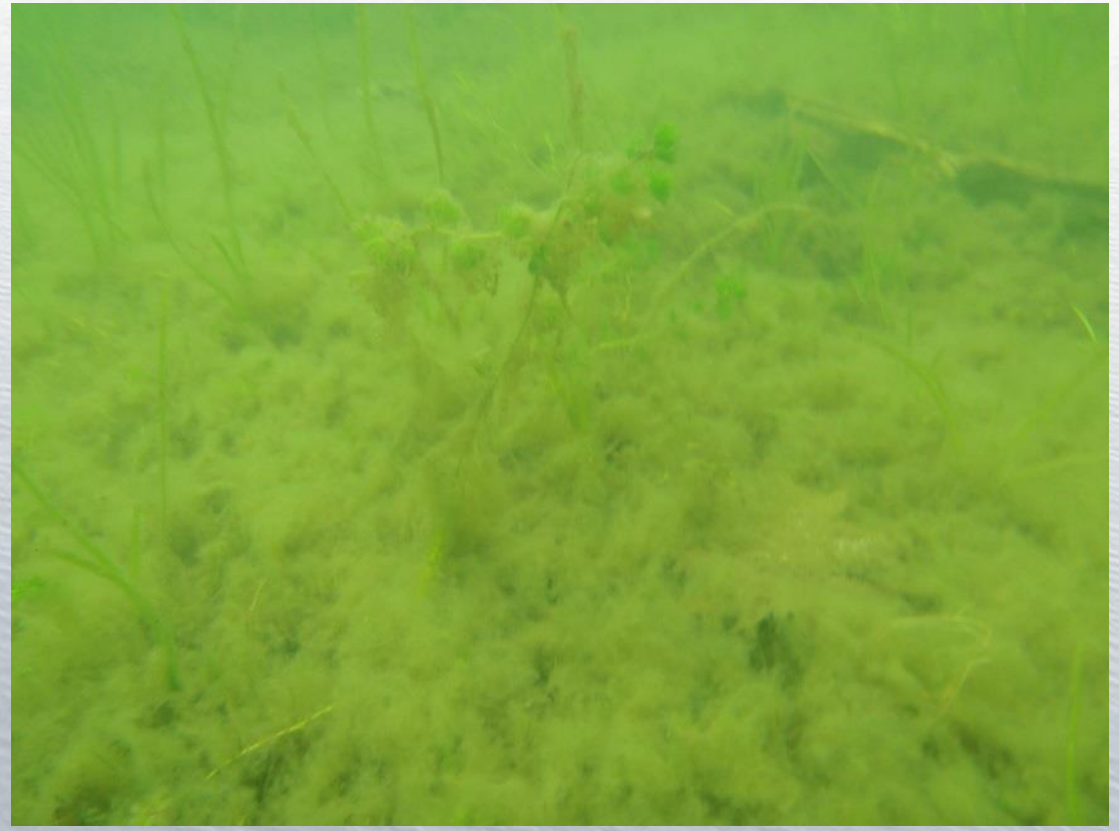
Lake George - Science



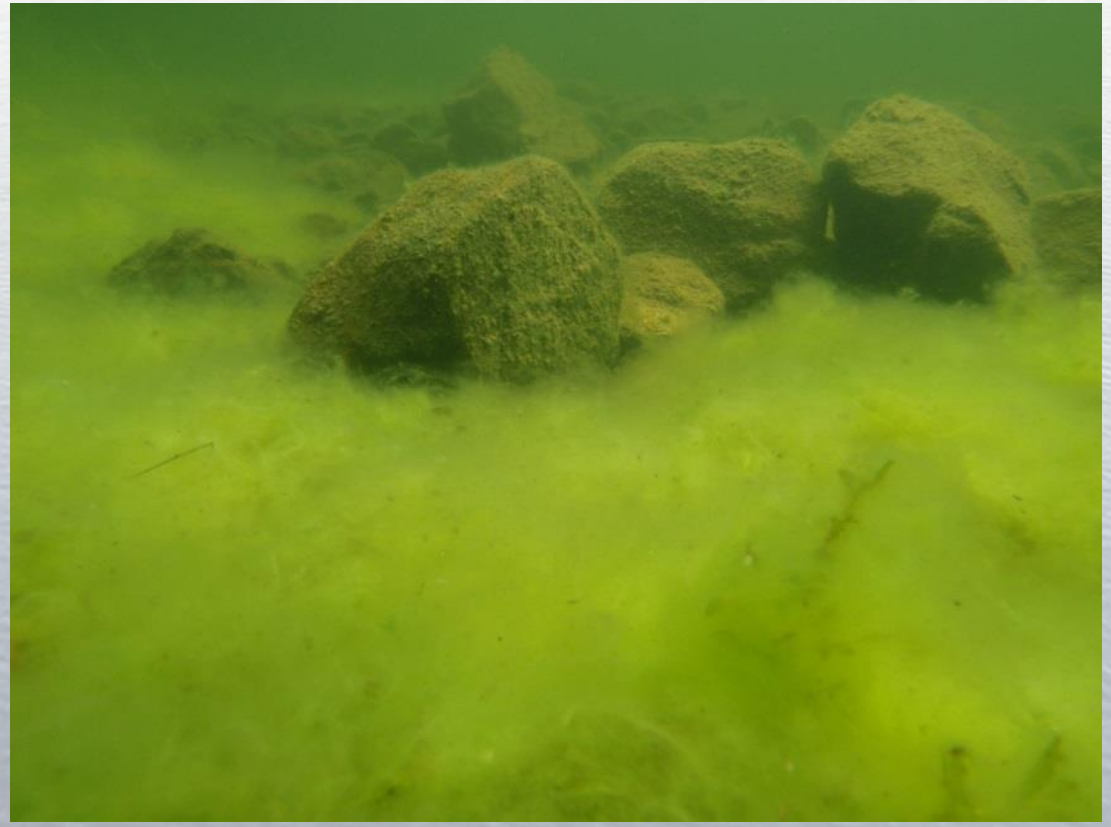
North has oligotrophic levels (outstanding water quality)

<u>South has mesotrophic levels</u> (medium water quality)

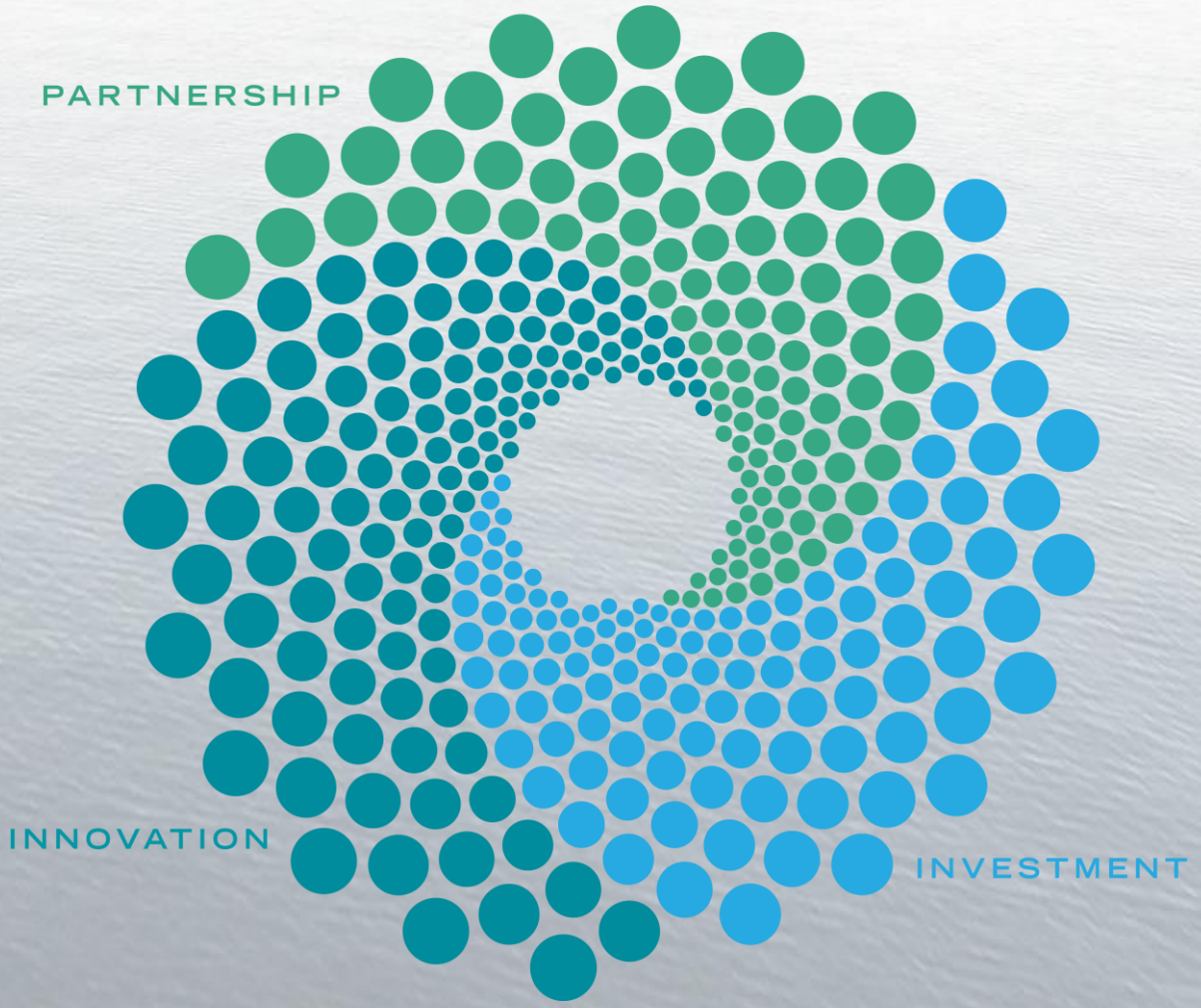
Lake George Algae



Lake George Algae

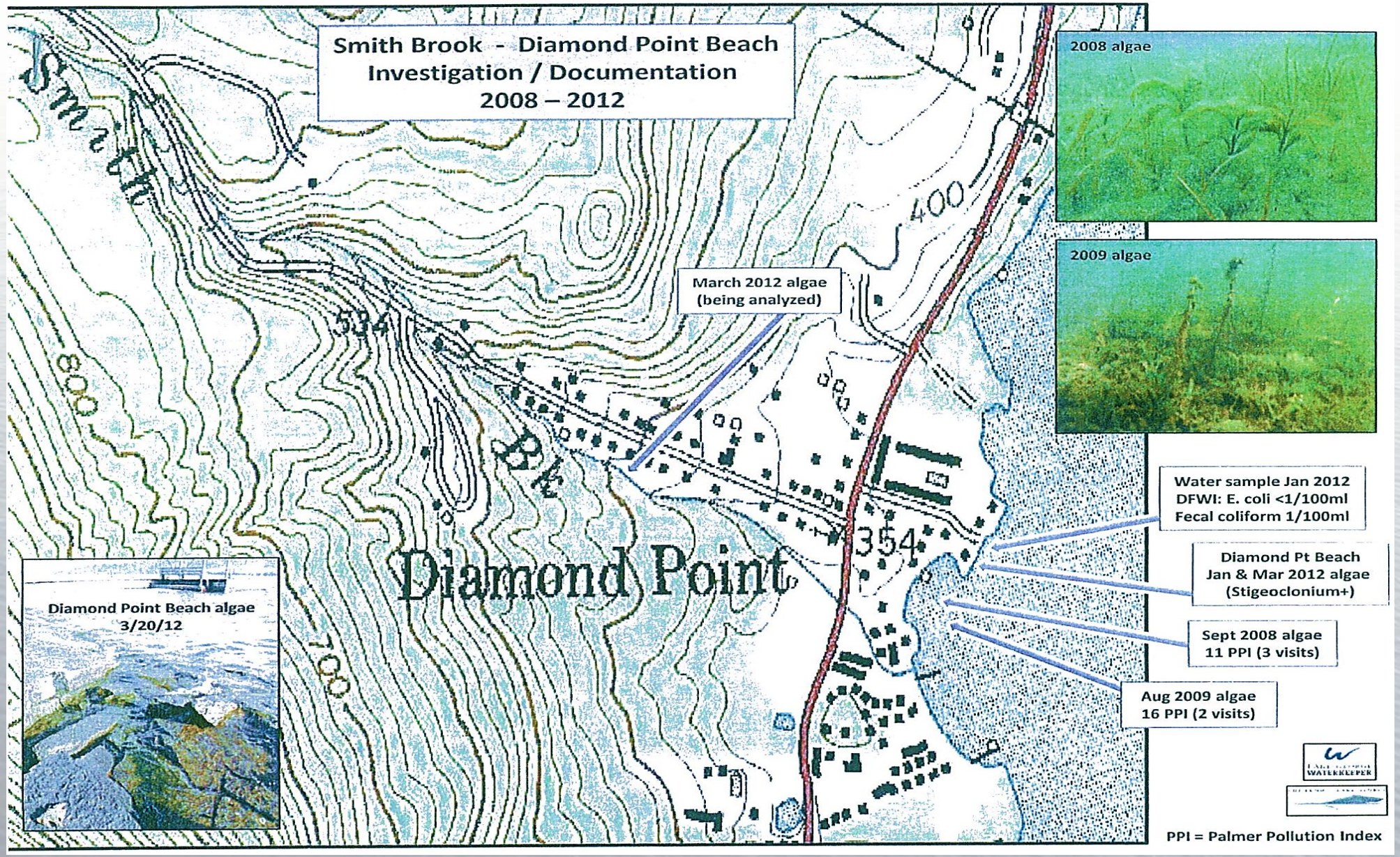


The Model For Protection



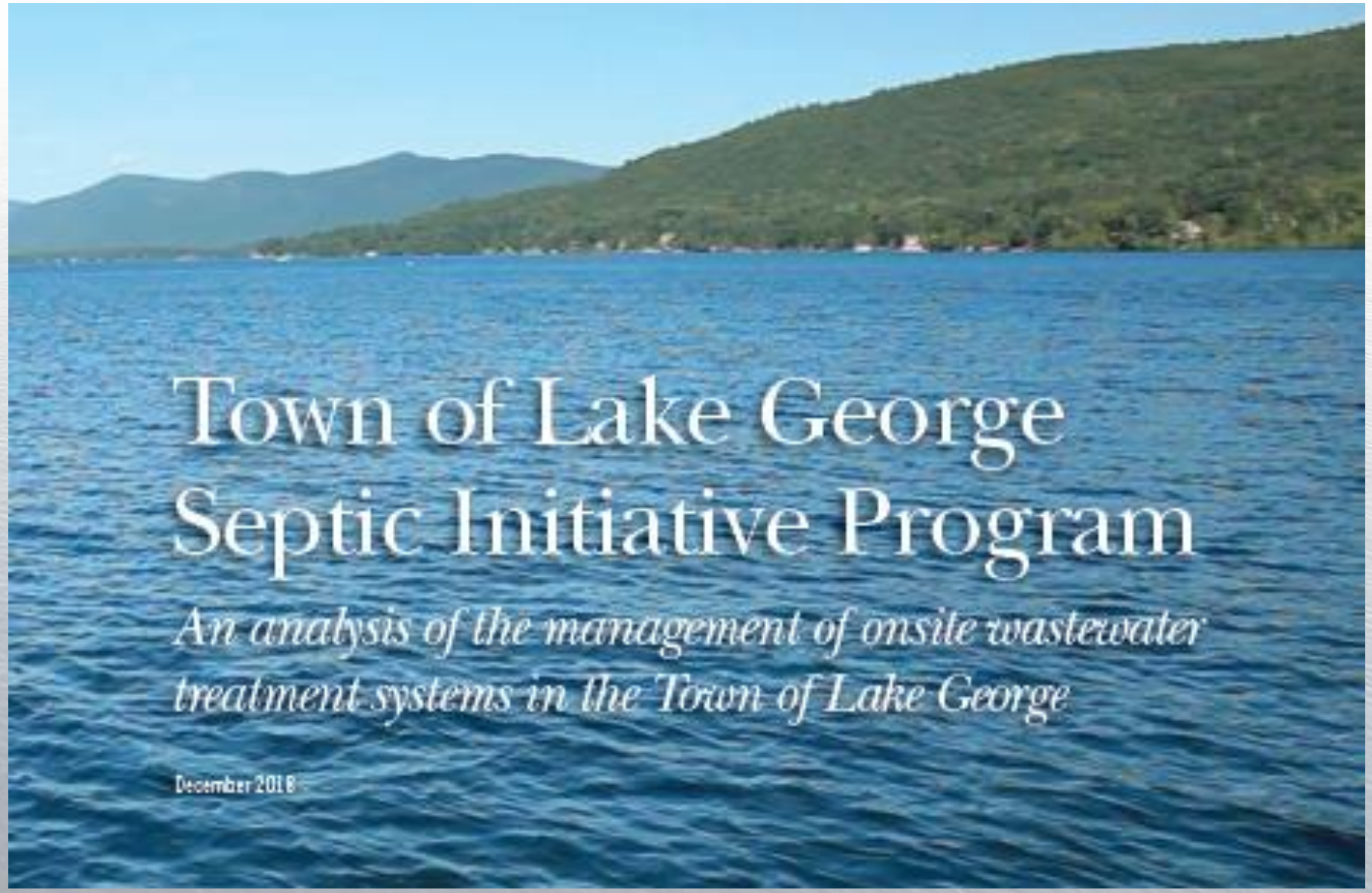
Lake George – Septic Systems (OWTS)

- 6,000 systems within watershed
- Estimated failure rate: 5-15%
- Increased nearshore algal growth
- Multiple studies document water quality impacts


Smith Brook - Diamond Point Beach
Investigation / Documentation
2008 – 2012
2008 algae
2009 algae
March 2012 algae
(being analyzed)
Diamond Point
Diamond Point Beach algae
3/20/12
Water sample Jan 2012
DFWI: E. coli <1/100ml
Fecal coliform 1/100ml
Diamond Pt Beach
Jan & Mar 2012 algae
(Stigeoclonium+)
Sept 2008 algae
11 PPI (3 visits)
Aug 2009 algae
16 PPI (2 visits)
PPI = Palmer Pollution Index

Lake George Town Septic Initiative Program (LGSIP)

- Town of Lake George awarded $104,000 NYSDEC Grant
- 6 Major Objectives administered by The FUND –
  - Inventory and Assessment of all OWTS
  - SIP Report and Mapping
  - Municipal Outreach and Coordination
  - Algae Sampling and water quality testing
  - High Priority Areas and Funding
  - Amend Town Sanitary Code/Ordinances


Town of Lake George
Septic Initiative Program
An analysis of the management of onsite wastewater treatment systems in the Town of Lake George
December 2018

LGSIP Boundaries

- Phase I – Diamond Point Area
- Phase II – Cannon Point to Hearthstone
- Phase III – Hearthstone to English Brook watershed
- Phase IV – East Side (Plum Point to Wiawaka/Bloody Pond Road

LGSIP Inventory – System Evaluation

Town of Lake George - Planning and Zoning Office
Phase I
Diamond Point to Carriage Hill - Septic System Initiative

Dec 2015

= Concerns (need to discuss)

ref #	tax map #	Landowner name	phone #	Lake George address	other address? Y	Survey	Age of OWTS	OWTS status	Map in file?	Inspection date	Last date pump out	witnessed Y / N ?	pump out invoice in file?	Status of OWTS (see file details) NP - No Problem	OWTS signed off?
1	212.04-1-2	Irwin D. Nathanson Living Trust	518-668-9892/727-2009	609 Diamond Pt Rd	N	N	2005 new tank	1500gal w/1970's leachfield	yes	"none req" per RH	10/16/2013	no	yes	?	?
77	212.04-1-28	Flacke, Robert		10 Olde Coach Rd.		N	2003	1250 gal tank w/ 225 lf absorption	sketch	no	none			need inspection	no
78	225.00-1-5	Brand, Lina		752 Diamond Point Rd.		N	??	limited info - septic tank & 3 trenches	no	SCHEDULE	?	no	none	no info	no
79	225.00-1-80	Feldman, Micheal	908-964-2486	59 Watershed Rd.	Y	N	2014	1000 gal tank & 150 lf absorption	yes	installation 2015	none	N/A	none	approved	yes
64	225.08-1-1	Diamond Point Church (no septic)		3699 Lake Shore Dr	N/A		---	---	---	---	---	---	---	---	---
57	225.08-1-10	Varely, Vincent/Linda (was Wells)		812 Diamond Pt Rd	N	N	1982	1000g concrete w/field	sketch	09/20/13	8/13/2013	no	no	"NP"	yes
56	225.08-1-11	Moses, Eric (was McKinney)	518 441-8101	808 Diamond Pt Rd	Y	Y	2012 tank only	1000gal to 1965 cement wall dry well and tile fi	sketch	no	2012 new tank	To call TLG when pump out in spring 2014			
55	225.08-1-12	Havron, John H. (POA Stephen Duell)	518-338-5193	804 Diamond Pt Rd	Y	Y	???	septic tank & cesspool	sketch	None	7/1/2013	no	no	need inspection	no
54	225.08-1-13	Grogan, Michael (was Hamilton)	518-237-8060/366-0975cell	800 Diamond Pt Rd	Y	Y	1957	metal tank (500 gal?) to field?	sketch	None	o pumpout info	no	no	need inspection	no
53	225.08-1-14	Linn, Brett/Belvilaqua. Christine	845-225-1020	796 Diamond Pt Rd	Y		2002(?)	info returned "UNKNOWN" – tank to drywell?	sketch		Nov 2015	no	no	1973 survey "main	none
52	225.08-1-15	McGarry, Ann/Russo, Joseph	518-668-4815	792 Diamond Pt Rd	Y	Y	2002	septic tank & Eljen	sketch	none	0/0/12	no	no	satisfactory	no
51	225.08-1-16	Vito, Melissa	518-668-5545	790 Diamond Pt Rd	N	Y	1991	1000g to dry wells(2)	sketch	none	05/00/12	no	no	satisfactory	no
50	225.08-1-17	Stewart, Elizabeth (was Lloyd)	765-2631/281-3944cell	786 Diamond Pt Rd	Y	Y	1991	1000g to dry well	sketch	none	0/0/11	no	no	Need inspection	no
49	225.08-1-18	Brownell Family Partnership, LP	914-831-1445/668-9332	784 Diamond Pt Rd	Y	Y	2014	Clarus Fusion w/UV disinfecting installed Nov 2	yes	approved - 2014	none	no	no	approved	yes
48	225.08-1-19	Champagne, Lyle (was Hewson)	860-836-9557 (Delight C.)	780 Diamond Pt Rd	Y	Y	2003	1250gal pumped up dry wells (2)	sketch	none	10/17/2014	no	no	satisfactory	yes
63	225.08-1-2	DPCC Rectory	518-668-9648	842 Diamond Pt Rd	N	N		ON MAP - failed	"metal tank leaking"						
47	225.08-1-20	McCoy, Franklin (vacant lot)		Diamond Pt Rd	N/A		---	---	---	---	---	---	---	---	---
46	225.08-1-21	Martin, Dorothy	518-668-2982	756 Diamond Point	Y	N	1958(?)	cesspool	no	None	none	no	no	Need inspection	no
62	225.08-1-3	Catlin, Dennis & Barbara	518 668-5358 ?	836 Diamond Pt Rd	N	N	Unkown	300 gal septic tank w/ (2) 6' drywells	field locatio	2015	no info	no	no	Need inspection	
80	225.08-1-35	Lennon, William		32 Olde Coach Rd.		N	1973	1000 gal septic tank w/ 75 lf trench	sketch	none	no info	no	no	Need inspection	no
81	225.08-1-36	Lehman, Janet		761 Diamond Point Rd.		N	Unknown	Unknown	nothing	None	no info	no	no	need inspection	
61	225.08-1-4	Morton, Ian & Mary (was Truesdale)	518-685-5199	834 Diamond Pt Rd	N	N	1940	2 cesspools - 1996 proposed septic never built	sketch (1996	none	9/11/2017	yes	no	11/26/13 LMVM	
60	225.08-1-5	Kostolni, Vinnie/Christine (was Holtz)	518 744-4729	830 Diamond Pt Rd	N	Y	1967	1000g w/2 cesspool	sketch	none	10/1/2014	no	yes		
65	225.08-1-6	McKenna, Michael/Christine (was Baker)	860-604-1289	3685 Lake Shore Dr	Y	Y	"100 yrs old"	8'x4' cesspool	sketch	none	7/29/2008	no	yes		
71	225.08-1-67.1	Velano, Paul		3709 Lake Shore Drive		N	1969	1000 gal septic tank w/ dry well	plan	none	none	no	no	need inspection	no
72	225.08-1-67.2	Matteo, Jennifer		843 Diamond Point Rd.		N	1969 (??)	300 gal metal septic tank w? 1000 gal seepage pi	sketch	none	none	no	no	Need inspection	
73	225.08-1-68	Clifford, Kevin (Pot Belly)		3711 Lake Shore Drive		N	1987(?)	1500 gal septic tank, 800 gal septic tank (res.) &	sketch	2005	0/0/1991	no	no	need inspection	no
59	225.08-1-7	Hicks, Kevin/Deborah (was Eaglestone)	518 495-9944	822 Diamond Pt Rd	Y		1987(mod)	1250g w/drywell (see 1987 application)	sketch	none	4/28/2012	no	no		

LGSIP Findings

- 34% response rate on surveys.
- Approximately 1/3 of systems are under normal life expectancy (30-40 years), 1/3 are at or exceeding life expectancy and 1/3 no known information.
- 20% of septic tanks are undersized.
- 1/3 of septic tank volumes are unknown.

LGSIP Findings

- 20% of septic systems have no known information.
- 20% of septic systems utilize drywells.
- Over 50% of parcels have no record or have never been maintained.

LGSIP Findings

- 1/3 of properties have the highest inspection concern level (Tier 1).
- 14% of algae samples indicate probable organic pollution. (Palmer Pollution Index)
- 50% of the algae samples indicate excessive nutrients. (Trophic Index)

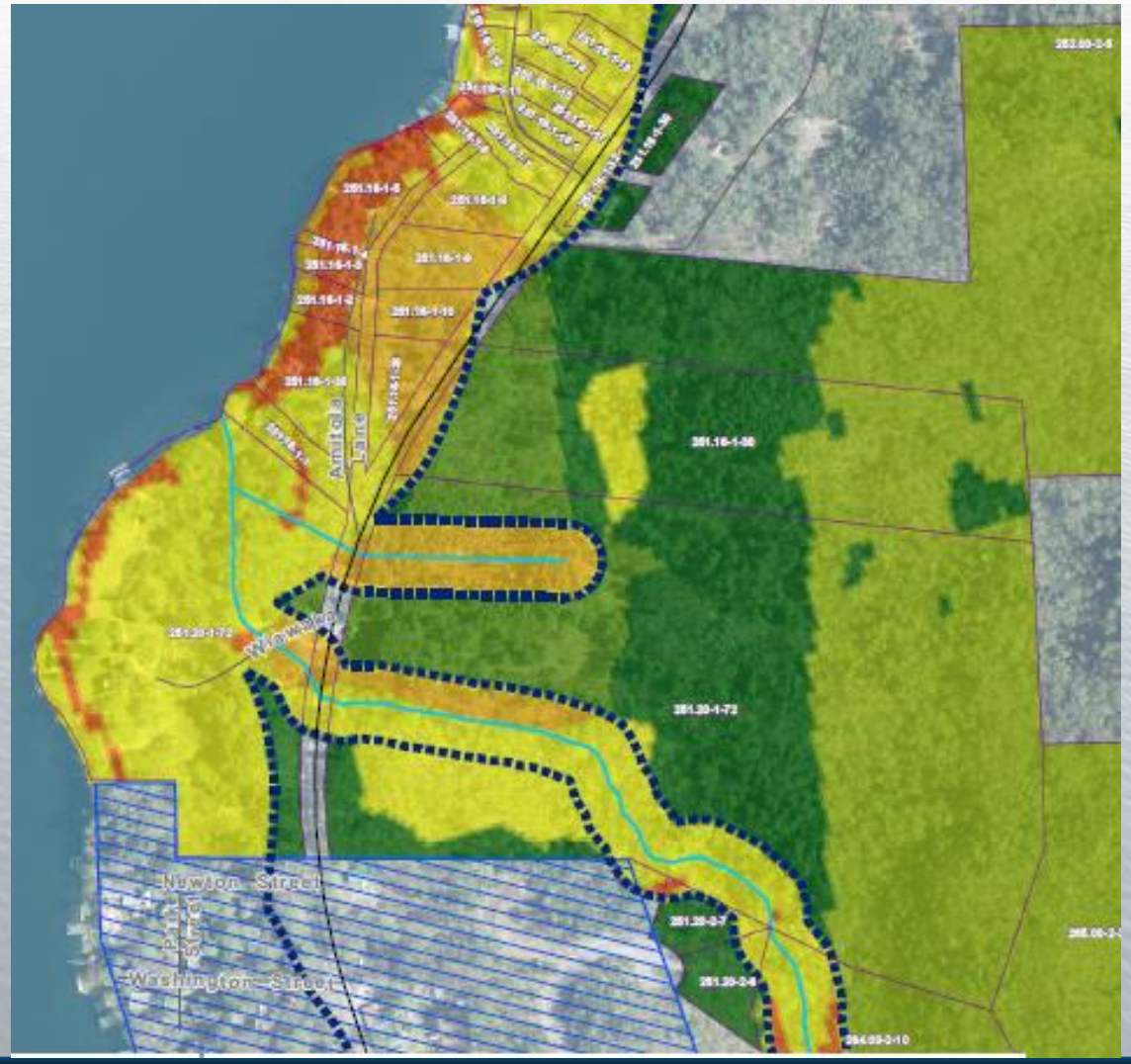
How Did We Prioritize?

- Implement GIS to Evaluate Parcels for OWTS Site Suitability based on Weighted Parameters
- Create Data Base of Inventory Assessment with Weighting Criteria with greater influence on system treatment
- Map areas of sampling of Excessive Algae growth and indices
- Develop Prioritization Algorithm and Map Results

LGSIP – Site Suitability

Item	Characteristic/Range	Weighted
Steep Slopes	Above 15% = 1	16%
	Below 15% = 0	
Depth to Bedrock	Less than 1' = 1	16%
	less than 2' = 0.5	
	2' and above = 0	
Depth Seasonal High Groundwater	Less than 1' = 1	16%
	less than 2' = 0.5	
	2' and above = 0	
Stream Buffer	Greater than 100' = 0	26%
	Less than 100' = 1	
Shoreline Buffer	Greater than 500' = 0	
	Less than 500' = 1	
APA wetland	Within wetland = 1	
	Outside wetland = 0	
	Less than 200' Palmer 15-20 = 1	
hydraulic conductivity (Ksat)	0 to 3.52 micrometers/sec= 1	26%
	3.52 to 7.06 micrometers/sec= 0.5	
	7.06 to 423.33 micrometers/sec= 0	
	423.33 to 705 micrometers/sec= 0.5	

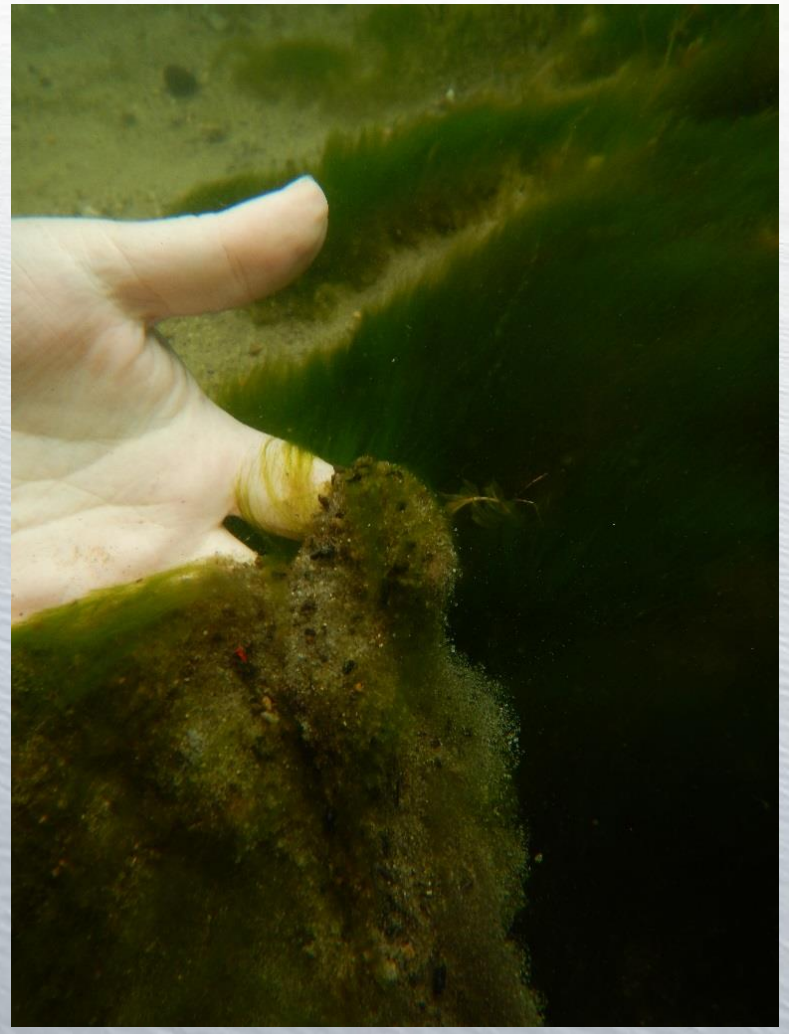
LGSIP – Site Suitability



LGSIP – Existing System Inventory

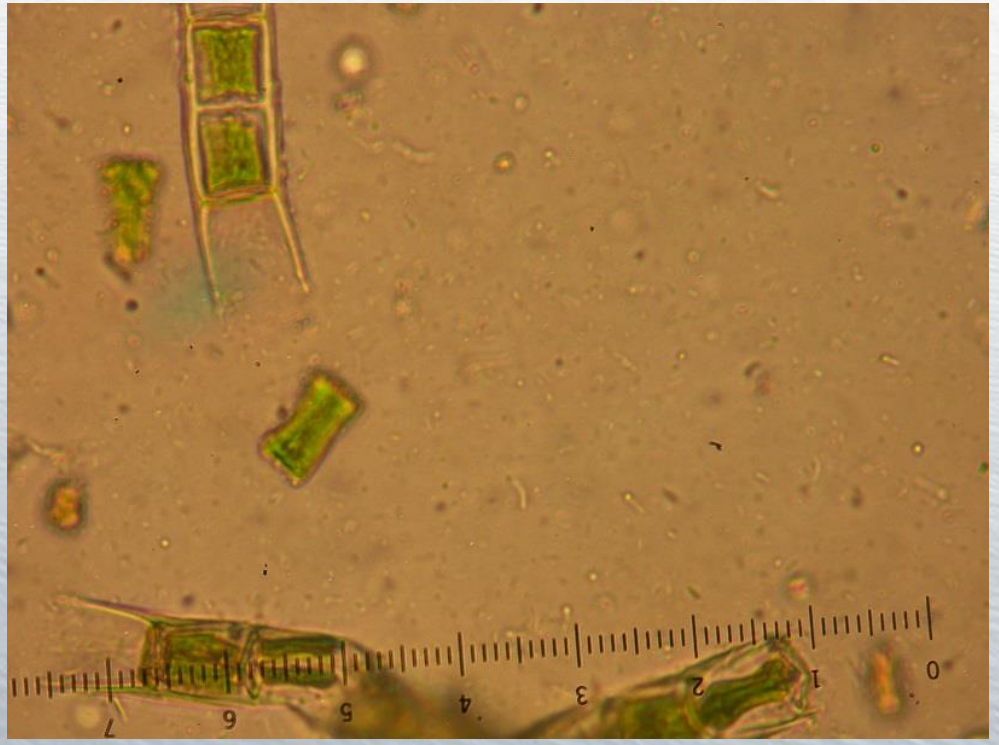
Item	Characteristic/Assessed Points
System Age	0-30 Years = 2
	30-40 Years = 1
	>40 Years or Unknown = 0
System Components	Compliant Systems meeting Codes = 3
	Undersized Septic Tank = 2
	Undersized Absorption Field = 2
	Seepage Pits = 1
	Cesspools = 0
System Maintenance/Pumpouts	0-4 Years = 3
	4-8 Years = 2
	>8 Years = 1
	Unknown or Never = 0
System Record	Record Drawings, sketch, information exist = 1
	No record drawings or system information = 0
OWTS Certification	Town or Professional sign off = 1
	No sign off =

LGSIP – Algae Sampling



Littoral Algae Biomonitoring

- Pinpoint pollutants
- Indicate organic pollutions
- Provides story of impact from nutrients and pollutants
- Based on established protocols (EPA, DEC, Palmer Pollution Index, National Water Quality Assessment Program



Littoral Algae Biomonitoring

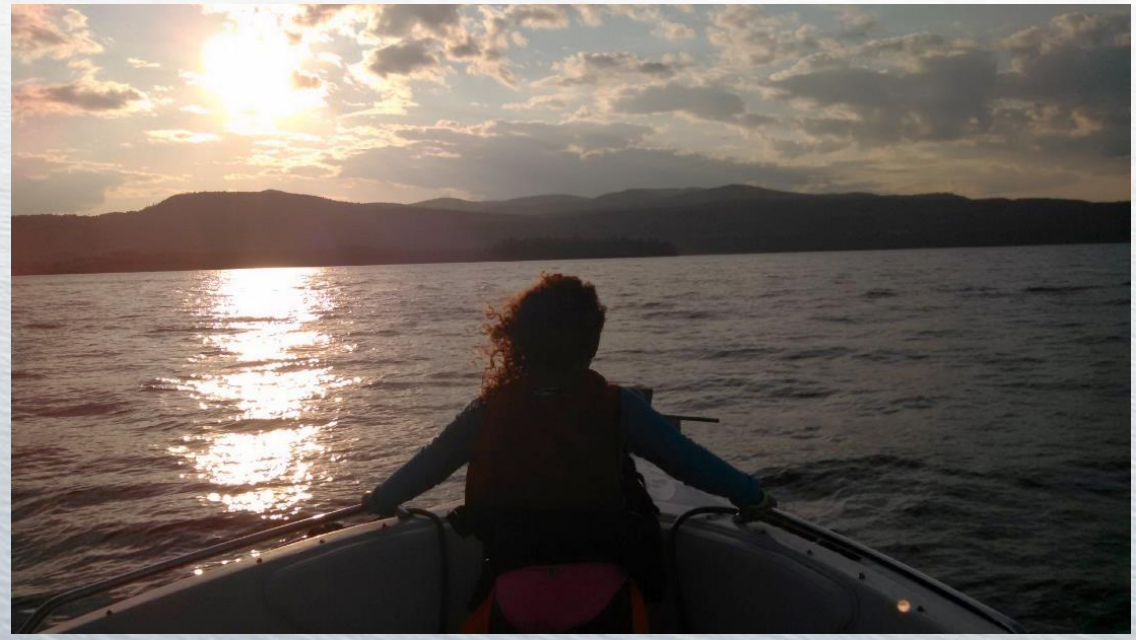
- Sampling based on observed algae, site conditions and land use results
- Single sample is representative assemblage taken from all available substrates and habitats for target reach
- No preservatives added
- Homogenized and identified to lowest taxonomic level possible

LGSIP – Prioritization Map


North Diamond Point
South Diamond Point
Smokey Bear Area
South Green Harbour
Town of Lake George
Septic Initiative Program
PRIORITY AREAS
Stebbins Brook Area
Sunnyview Area
Plum Point
Westover Cove
Sand Pebble Cove
Wiawaka Area

Looking Forward

- Implement Management Program
- Develop GIS Database for system information
- Funding – FUND Grants, State Infrastructure Grants
- Basin-wide Acceptance
- Future Septic Summit



THE POST-STAR SATURDAY, JULY 21, 2018 | C3

VIEWPOINTS

EDITORIAL

Inspections will safeguard water

The abundance of clean fresh water could be this area's greatest resource.

But with streams and rivers winding through our counties and a lake or a pond within a few minutes' drive of any spot in the region, it's hard to appreciate how rare and how valuable this abundance is.

The worst thing we could do is kill the golden goose by fouling the water. The town of Queensbury's push for a law to require the inspection of septic systems on waterfront properties when they change hands is sensible and overdue.

OUR VIEW

Queensbury officials are doing the right thing in proposing a law to require inspections of septic systems on waterfront lots.

Many of these septic systems are old. Some have not been serviced in many years.

It's easy not to think about where the sewage is going once it leaves your house. That's OK if you're tied into a municipal sewer system, but problematic when the sewage is flowing into an underground system that may have stopped working and is next to a lake.

In some cases, as with the Hudson River, these same bodies

Although progress would be gradual under the Queensbury law, we can see, with a recent report from Dunham's Bay, that small steps lead to measurable results.

Over the past three years, 15 septic systems have been replaced among the approximately 70 properties on Dunham's Bay. But those improvements have already led to about a 25 percent decline in algae that indicates the presence of human waste.

"The algae is really the canary in the coal mine," said Chris Navitsky, Lake George Waterkeeper.

Take Away Messages

- The Town of Lake George has put together a management approach based on public outreach and inventory documentation to support an inspection and management program.
- Algal biomonitoring is a tool to determine potential sources of impacts.
- The FUND for Lake George has developed a GIS based algorithm to determine prioritized management areas based on site suitability, existing system evaluation and water quality.

QUESTIONS?