THE FUND *for* LAKE GEORGE

The Model for Enduring Protection of Lake George

Smart Management for Small Communities
Syracuse University - Environmental Finance Center
April 26, 2018

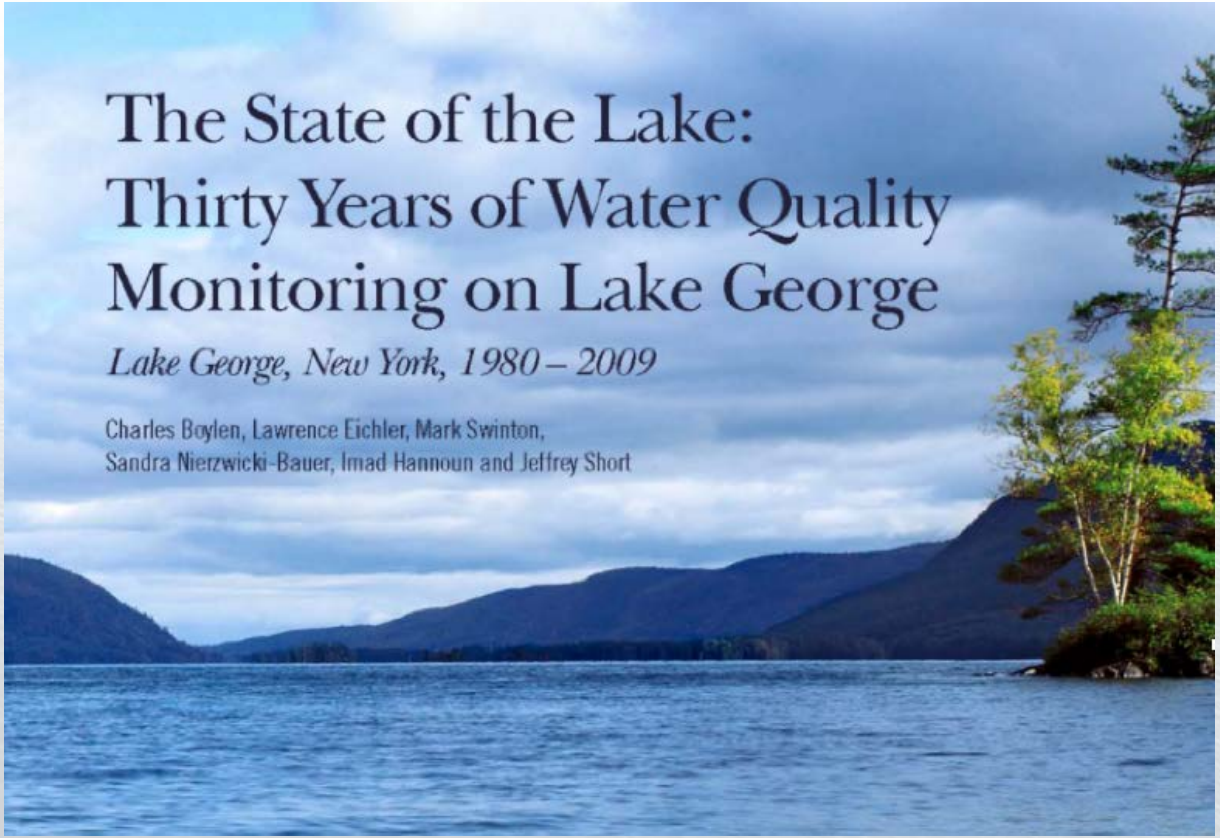
Agenda

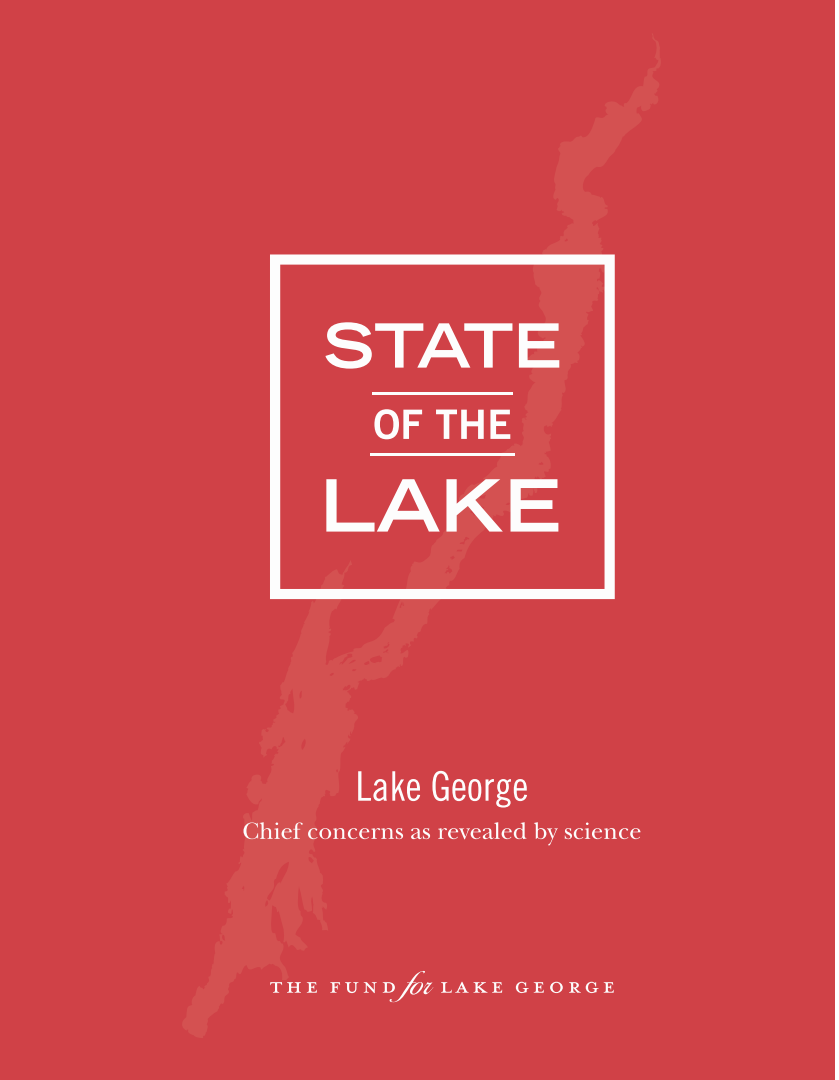
- Introduction
- Background
- Legacy Strategy
- Portals to Protection
- Model for Enduring Protection
- Science to Solutions

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

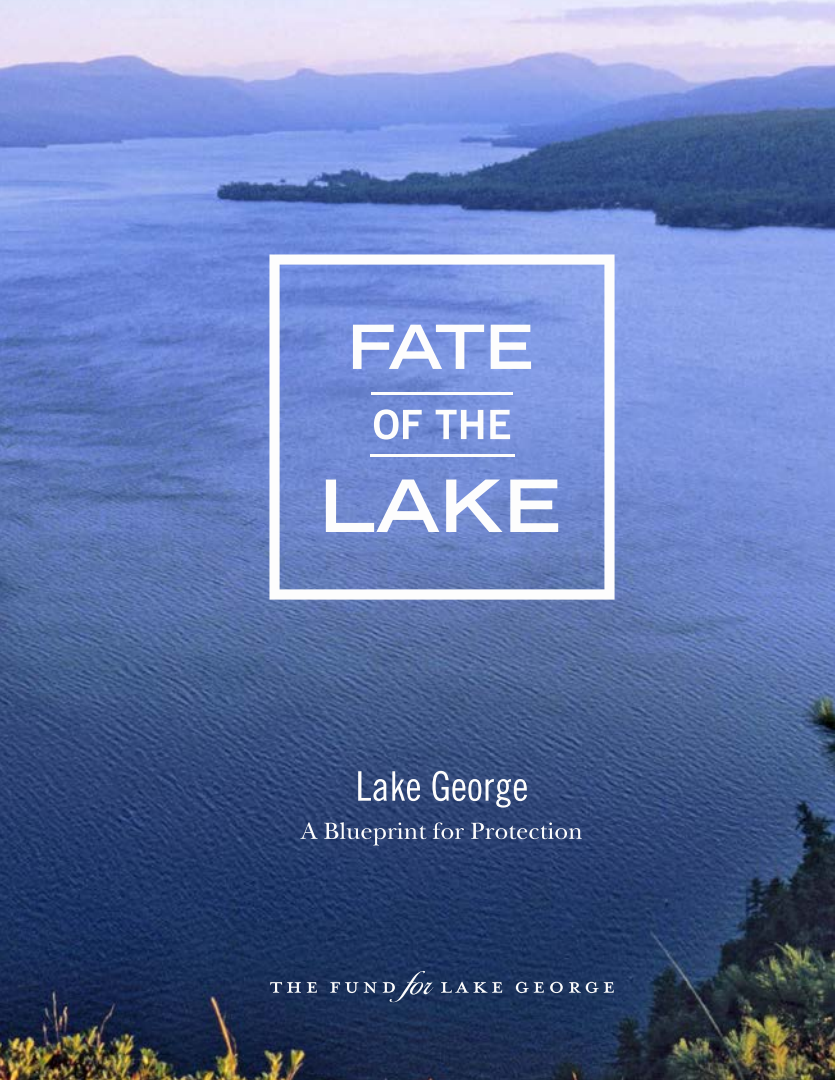
Science


The State of the Lake:
Thirty Years of Water Quality Monitoring on Lake George
Lake George, New York, 1980 – 2009
Charles Boylen, Lawrence Eichler, Mark Swinton,
Sandra Nierzwicki-Bauer, Imad Hannoun and Jeffrey Short



State of the Lake

Chief concerns as revealed by science.



Fate of the Lake

A Blueprint for Protection.


THE FUND for LAKE GEORGE
Legacy
STRATEGY
ONE GOAL
Stopping the present decline of water quality and achieving sustained protection of Lake George for the next generation.


THE FUND for LAKE GEORGE
Legacy
STRATEGY
SALT REDUCTION
INVASIVE SPECIES PREVENTION AND TREATMENT / ERADICATION
WATER QUALITY AND CLARITY PROTECTION
SCIENCE OF SOLUTIONS

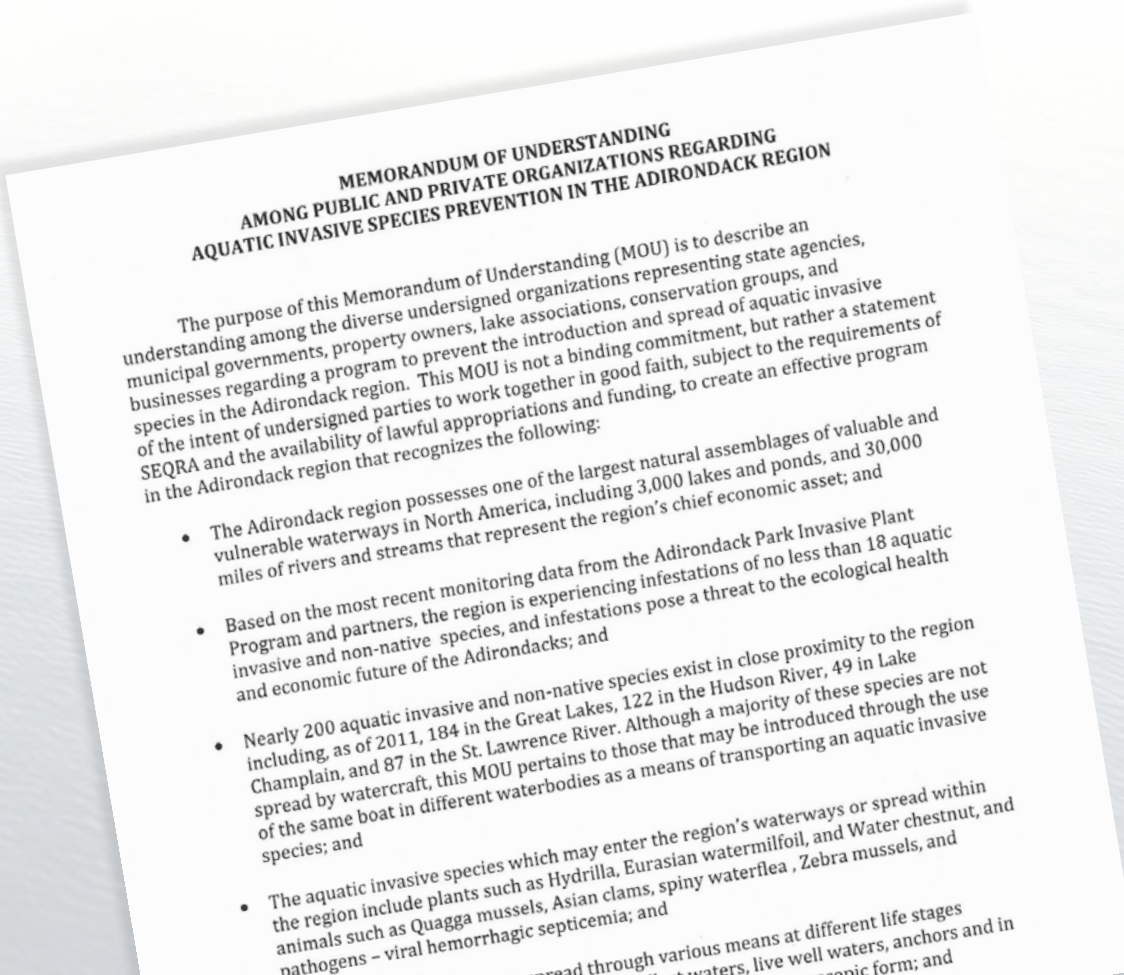

THE FUND for LAKE GEORGE
Legacy
STRATEGY
Partnership
Innovation
Investment

Invasive Species

Partnership

Innovation

Investment



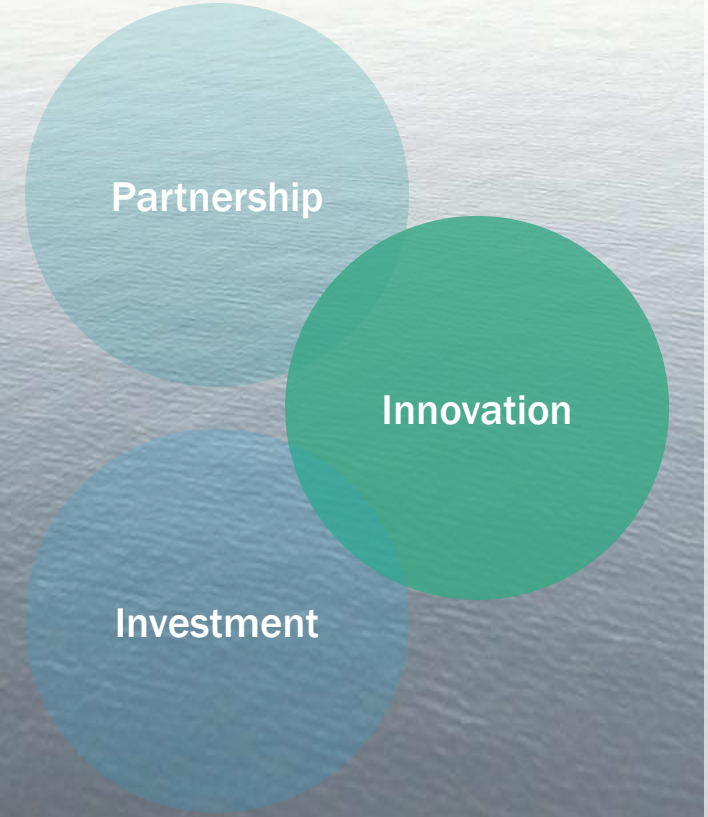
MEMORANDUM OF UNDERSTANDING
AMONG PUBLIC AND PRIVATE ORGANIZATIONS REGARDING
AQUATIC INVASIVE SPECIES PREVENTION IN THE ADIRONDACK REGION

The purpose of this Memorandum of Understanding (MOU) is to describe an understanding among the diverse undersigned organizations representing state agencies, municipal governments, property owners, lake associations, conservation groups, and businesses regarding a program to prevent the introduction and spread of aquatic invasive species in the Adirondack region. This MOU is not a binding commitment, but rather a statement of the intent of undersigned parties to work together in good faith, subject to the requirements of SEQRA and the availability of lawful appropriations and funding, to create an effective program in the Adirondack region that recognizes the following:

- The Adirondack region possesses one of the largest natural assemblages of valuable and vulnerable waterways in North America, including 3,000 lakes and ponds, and 30,000 miles of rivers and streams that represent the region's chief economic asset; and
- Based on the most recent monitoring data from the Adirondack Park Invasive Plant Program and partners, the region is experiencing infestations of no less than 18 aquatic invasive and non-native species, and infestations pose a threat to the ecological health and economic future of the Adirondacks; and
- Nearly 200 aquatic invasive and non-native species exist in close proximity to the region including, as of 2011, 184 in the Great Lakes, 122 in the Hudson River, 49 in Lake Champlain, and 87 in the St. Lawrence River. Although a majority of these species are not spread by watercraft, this MOU pertains to those that may be introduced through the use of the same boat in different waterbodies as a means of transporting an aquatic invasive species; and
- The aquatic invasive species which may enter the region's waterways or spread within the region include plants such as Hydrilla, Eurasian watermilfoil, and Water chestnut, and animals such as Quagga mussels, Asian clams, spiny waterflea , Zebra mussels, and pathogens – viral hemorrhagic septicemia; and

…spread through various means at different life stages …t waters, live well waters, anchors and in …ganic form; and

Invasive Species



Stop
Aquatic
in**V**asives from
Entering
Lake George

Invasive Species

Partnership

Innovation

Investment

over 86,800

trailered boats were inspected since 2014

5,200 inspected boats **required decontamination**

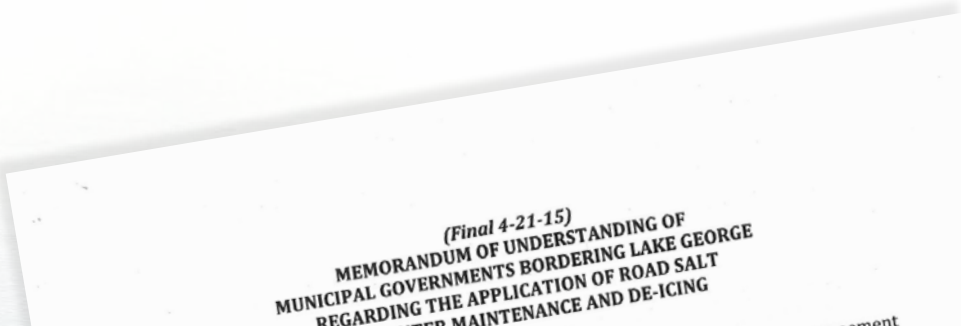
6% of total inspections

Road Salt

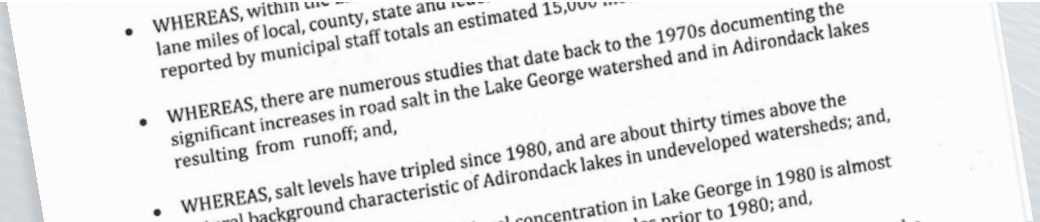
Partnership

Innovation

Investment


(Final 4-21-15)
MEMORANDUM OF UNDERSTANDING OF
MUNICIPAL GOVERNMENTS BORDERING LAKE GEORGE
REGARDING THE APPLICATION OF ROAD SALT
MAINTENANCE AND DE-ICING

- AGREE TO intend to reduce salt applications
- AGREE TO investigate and consider equipment
- AGREE TO collect data with consistent methods
- AGREE TO assess and tailor application rates
- AGREE TO establish education and training
- AGREE TO participate in annual “Salt Summit”


- WHEREAS, within the … lane miles of local, county, state and … reported by municipal staff totals an estimated 15,000 …
- WHEREAS, there are numerous studies that date back to the 1970s documenting the significant increases in road salt in the Lake George watershed and in Adirondack lakes resulting from runoff; and,
- WHEREAS, salt levels have tripled since 1980, and are about thirty times above the … background characteristic of Adirondack lakes in undeveloped watersheds; and,
- … concentration in Lake George in 1980 is almost … prior to 1980; and,

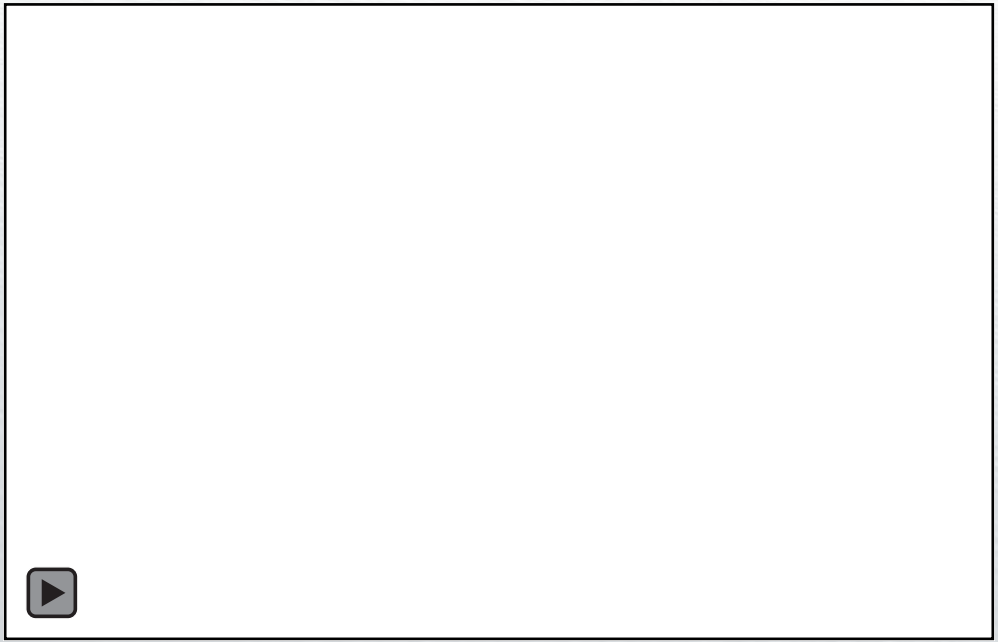
Road Salt

Partnership

Innovation

Investment

SUSTAINABLE WINTER MANAGEMENT (SWiM™) PROGRAM

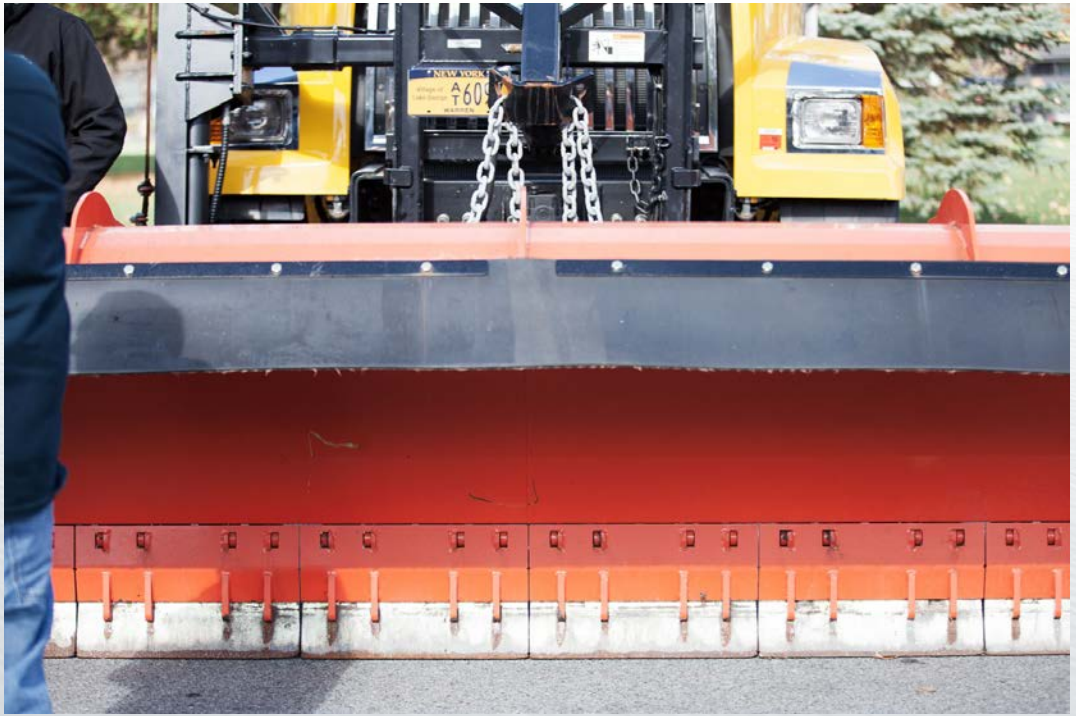


Road Salt

Partnership

Innovation

Investment



Water Quality & Clarity Protection

Partnership

Innovation

Investment

Town of Queensbury

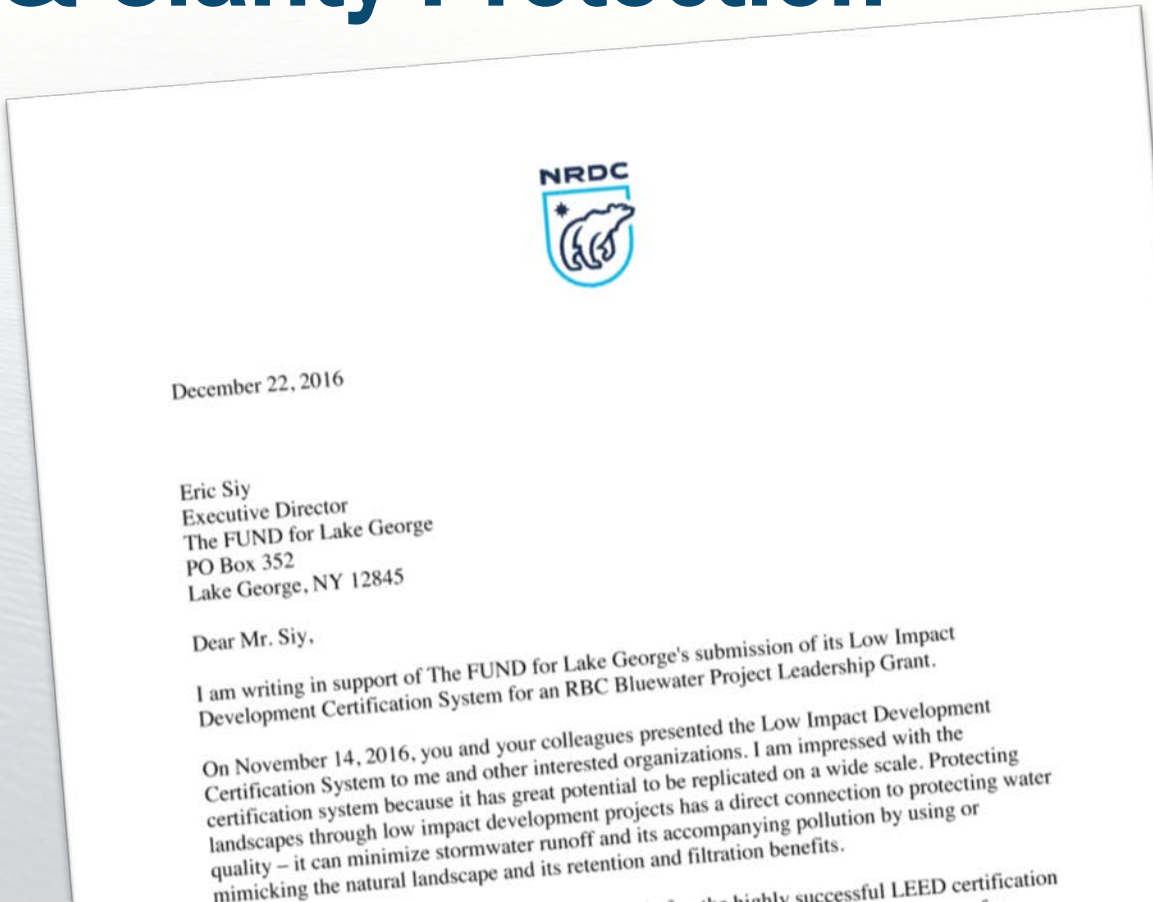
Town of Lake George

Water Quality & Clarity Protection

Partnership

Innovation

Investment



NRDC

December 22, 2016

Eric Siy
Executive Director
The FUND for Lake George
PO Box 352
Lake George, NY 12845

Dear Mr. Siy,

I am writing in support of The FUND for Lake George's submission of its Low Impact Development Certification System for an RBC Bluewater Project Leadership Grant.

On November 14, 2016, you and your colleagues presented the Low Impact Development Certification System to me and other interested organizations. I am impressed with the certification system because it has great potential to be replicated on a wide scale. Protecting landscapes through low impact development projects has a direct connection to protecting water quality – it can minimize stormwater runoff and its accompanying pollution by using or mimicking the natural landscape and its retention and filtration benefits.

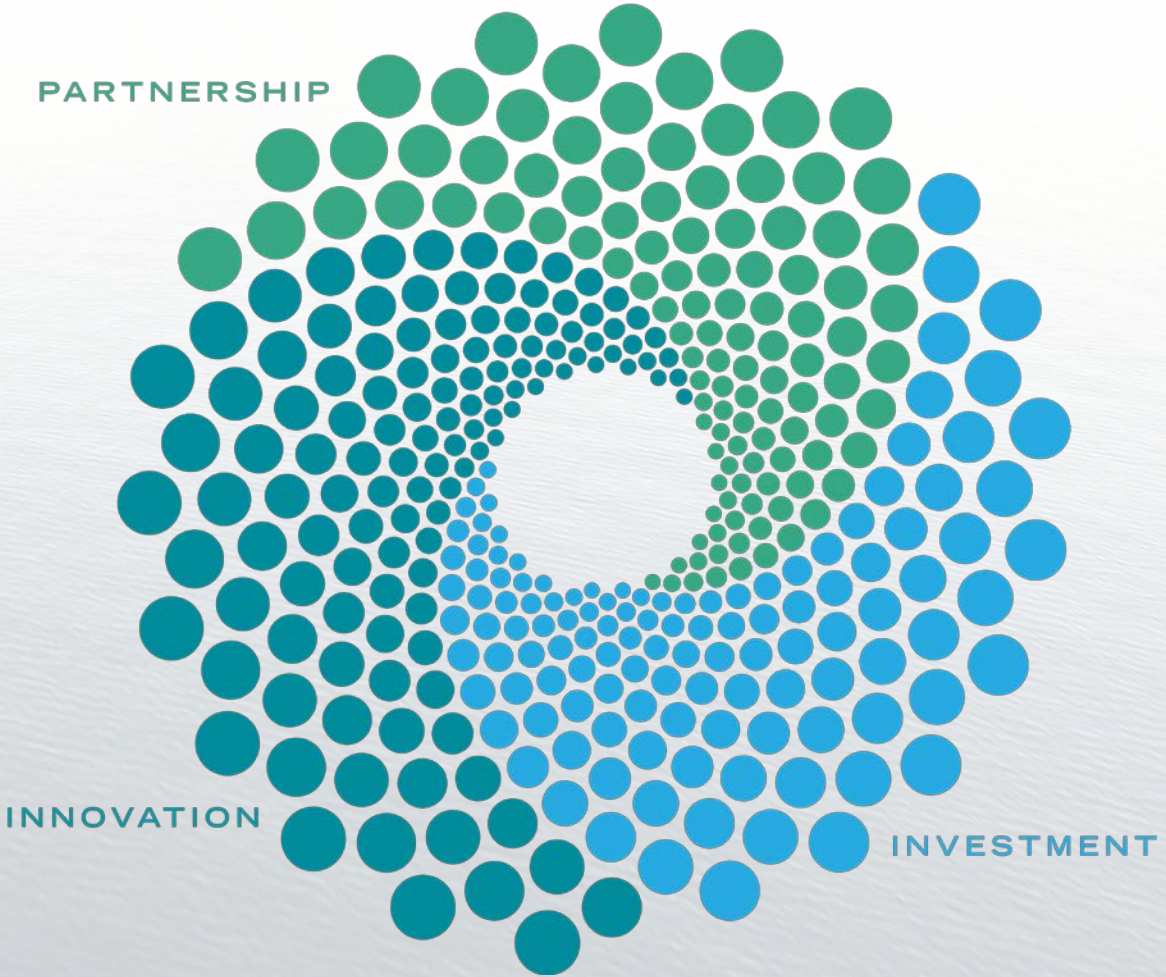
Water Quality & Clarity Protection

Partnership

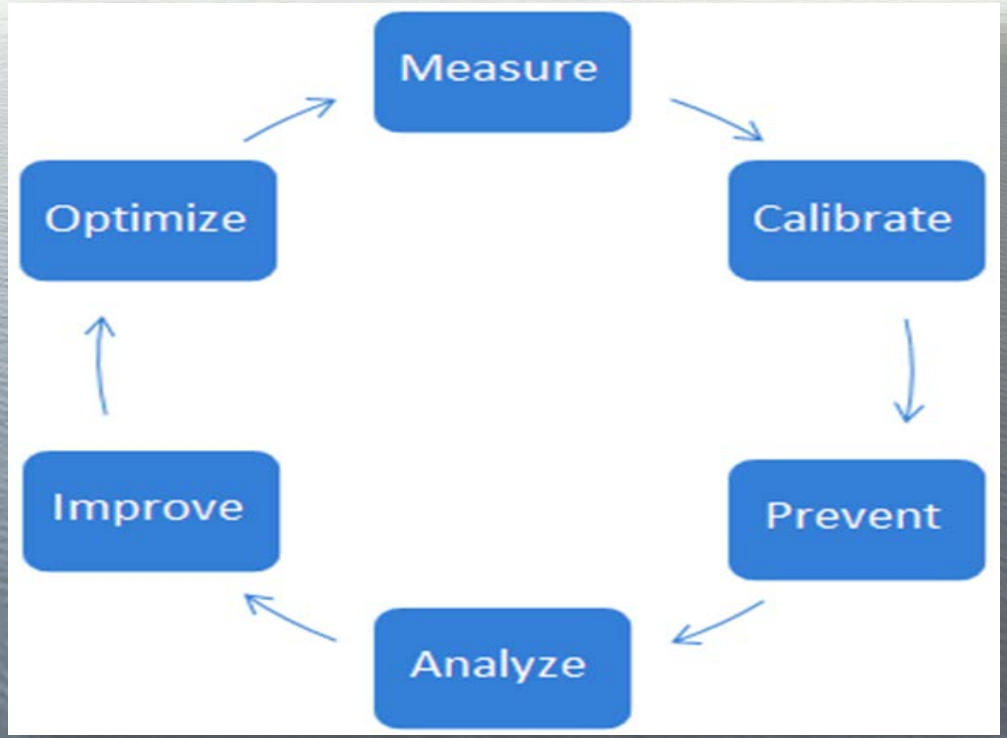
Innovation

Investment

The Model

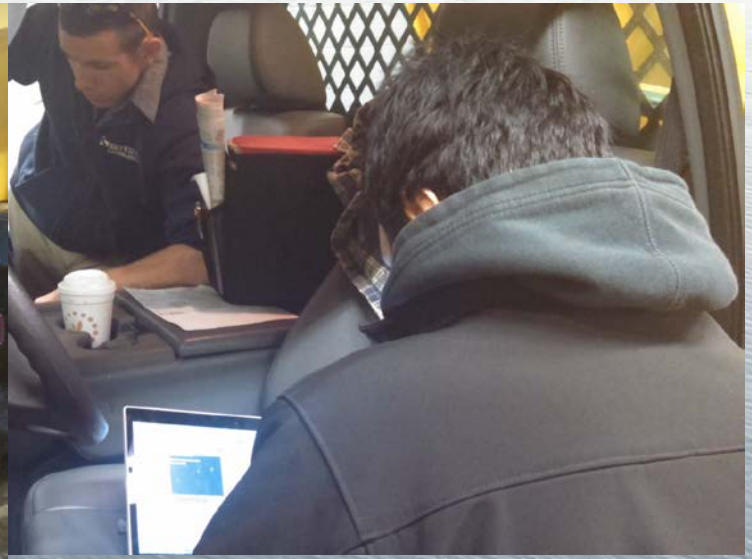


Science To Solutions: Best Practices



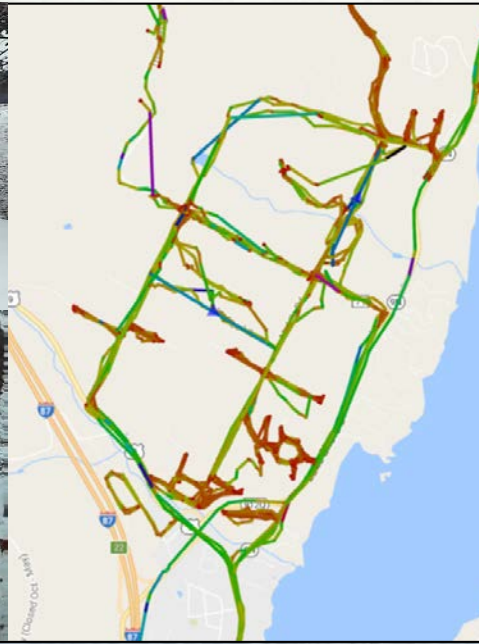
Science To Solutions: Measure

Science To Solutions: Calibrate



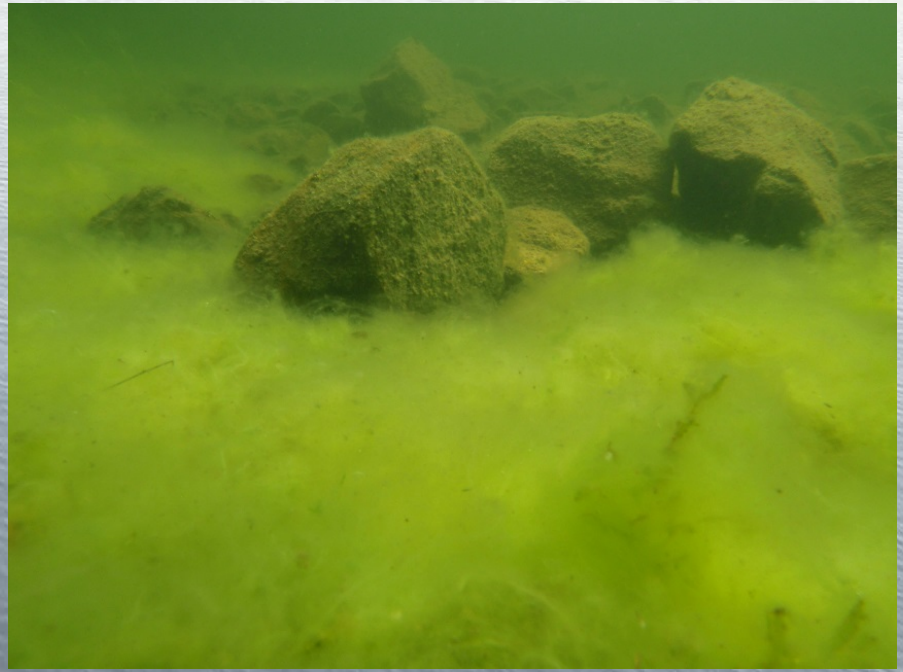
Science To Solutions: Prevent

Science To Solutions: Analyze



Science To Solutions: Wastewater Management Districts

- Increased algae growth catalyzed initiative
- OWTS Inventory Review:
  - 21% adequately designed
  - 14% marginal
  - 65% undocumented
- Public hearing held
- District formed in 2015



Science To Solutions: Wastewater Management Districts

- 50% Matching Grant Program through The FUND for Lake George
- 10 grants totaling $92,000
- 80% are enhanced systems providing tertiary treatment
- Biomonitoring provided to document improvements

Science To Solutions: Wastewater Management Districts

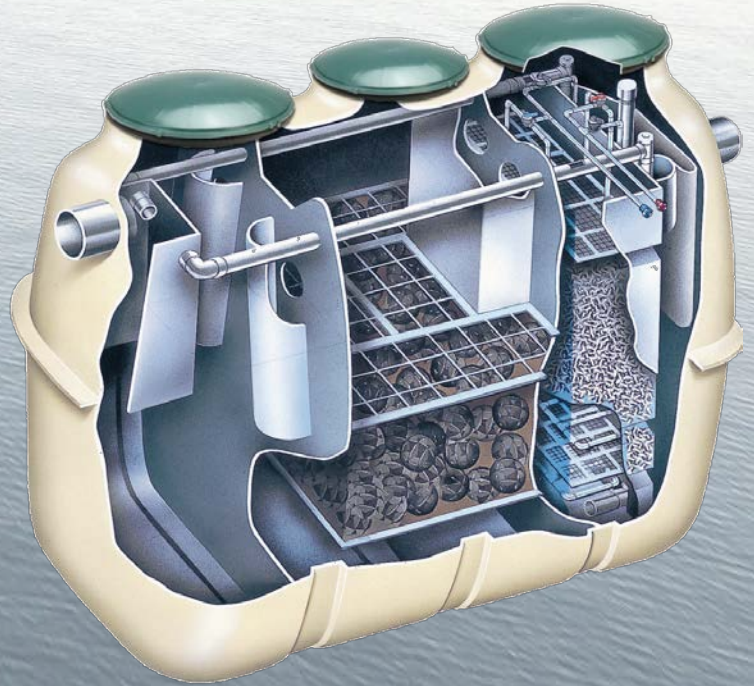
- High Organic Pollutions (PPI ≥15)
  - 2014 – 2 of 13 sites
  - 2016 – 1 of 11 sites
  - 2017 – 3 of 21 sites (2 new)
- 8 sites PPI has decreased
- 2 sites PPI has increased
- 3 sites with replacement system have decreased PPI

Palmer Pollution Index

Site #	2014	2016	2017
1	15	12	10
2	14	10	9
3	14	12	11
4	10	17	15
5	10	12	10
6	None	11	7
7	8	8	10
8	13	9	-
9	19	9	11
10	11	9	10
11	12	12	11
12	9	None	-
13	11	N/A	-
14	11	None	-

Science To Solutions: Septic Initiative Algorithm

- NYSDEC WQIP Grant received by Town of Lake George administered by The FUND for Lake George
- Work Plan Objectives
  - Inventory & Assessment of OWTS
  - SIP Report & GIS Mapping
  - Municipal Outreach & Coordination
  - Algae sampling & water quality data
  - High Priority Areas & Funding
- Developed GIS-based Prioritization Algorithm

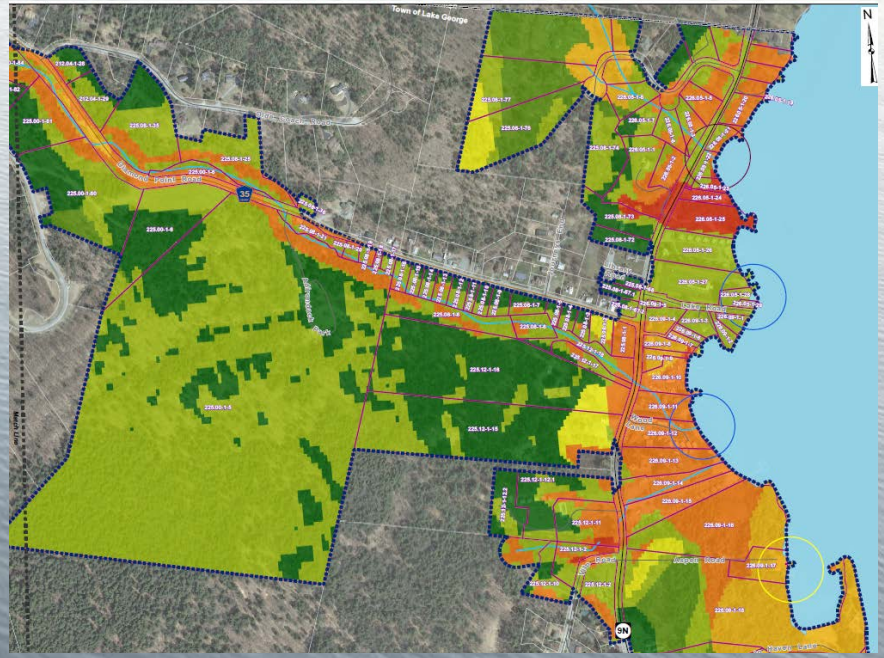


Science To Solutions: Septic Initiative Algorithm

WATER QUALITY AND CLARITY PROTECTION

First data set based on rating Site Suitability:

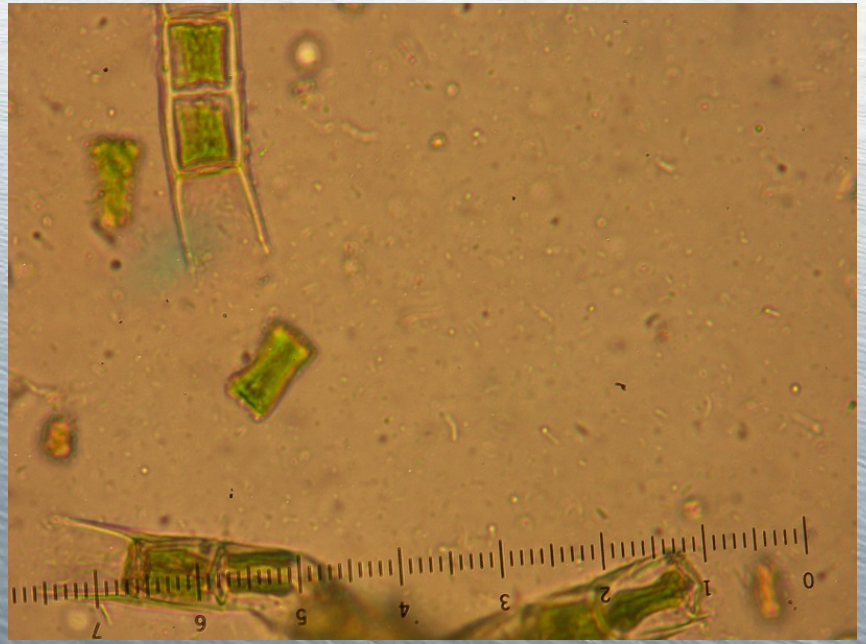
- Depth to bedrock (20%);
- Depth to groundwater (20%);
- Slopes (20%);
- Setback to surface waters (40%);
- K_{sat} (Hydraulic Conductivity) (40%).



Science To Solutions: Septic Initiative Algorithm

Second data set based on results from Biomonitoring:

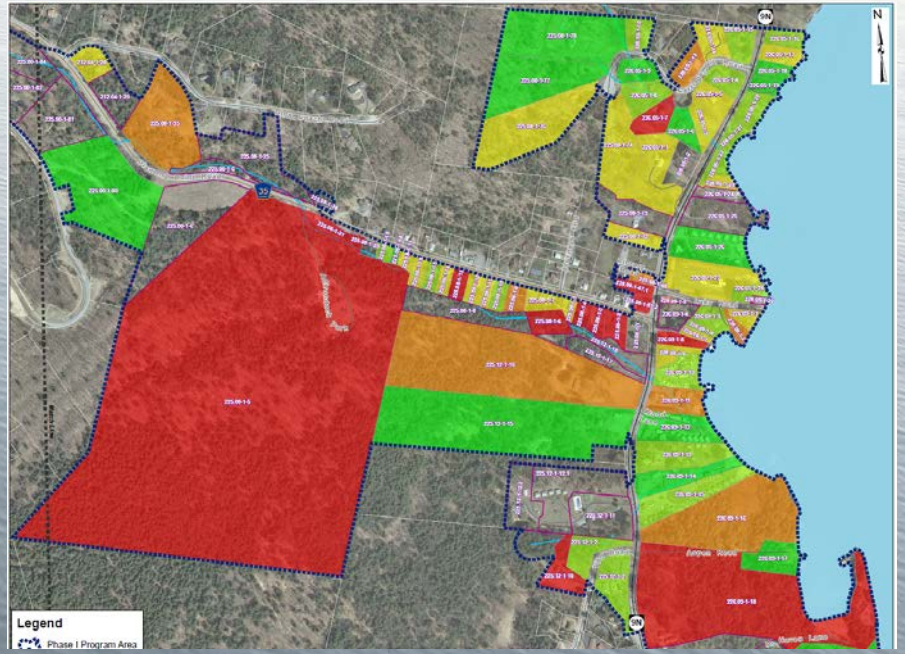
- **Palmer Pollution Index Score**
  - 15-19 Probably Organic Pollution
  - 10-14 Moderate Organic Pollution Present
  - <10 Indicates Limited Organic Pollution
- **Trophic Index (TRI) –** Levels of excessive nutrients



Science To Solutions: Septic Initiative Algorithm

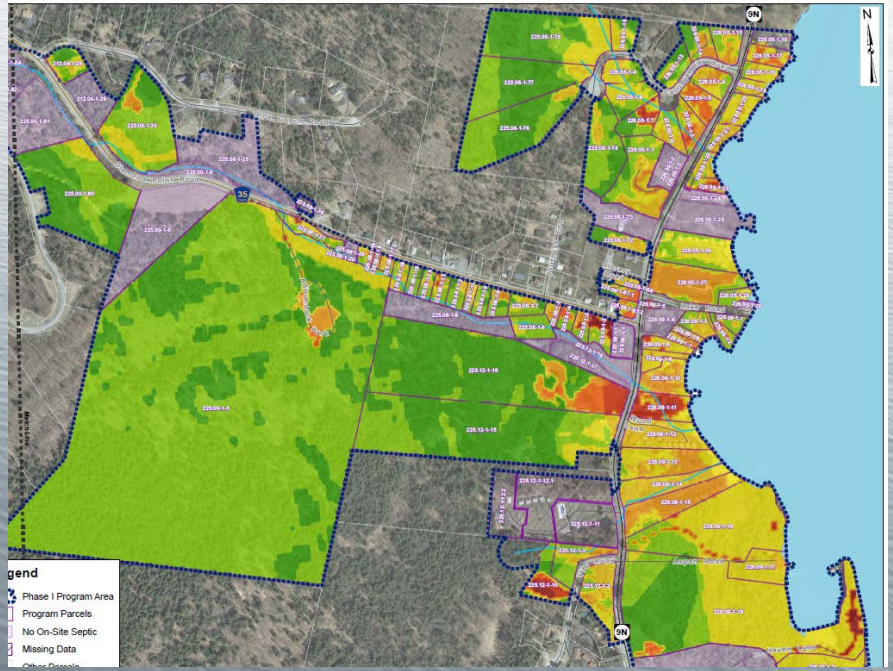
Third data set based on existing OWTS inventory rating:

- Systems age (2 pts.);
- System Components (3 pts.);
- System maintenance (3 pts.);
- Town permit records (1 pt.);
- Town inspection (1 pt.)



Science To Solutions: Septic Initiative Algorithm

- Overlay three data sets to create Prioritization Map to target areas for replacement.
- Use to base management/ inspection and funding program
- Model for Lake George watershed
- Model that can be exportable for other watersheds



Take Away Message

- Protection of our resources and community vitality begins and ends with science.
- The FUND For Lake George has developed a Model for Protection based on Partnership, Innovation and Investment.
- The Model is scalable, exportable and adaptable.

THANK YOU!

cnavitsky@lakegeorgewaterkeeper.org

fundforlakegeorge.org