WEEDS BGONE

LAKE SAVERS™ Renewing Lakes Naturally Canada

Accelerating Nature's Way

To A Healthy Lake

[Click here for a video on how aeration works]

Contents

- About Weeds B Gone
- Problem – Eutrophication
- Solution – Inversion oxygenation and bioaugmentation
- Uses
- Benefits
- Project Examples

WEEDS BGONE

Mission Statement

To improve the HEALTH of water bodies using natural, sustainable technologies that work!

- 46 Years of experience
- Custom engineered solutions
- Industry leading performance
- Driven by engineering / science / results

WEEDS BGONE

Our technology has been tested and scrutinized by multiple independent 3rd party organizations across multiple applications.

WEEDS BGONE

Weeds B Gone History

- WeedsBGone started out 25 years ago harvesting weeds. We have developed many products along the way from screening products, cutters and boat harvesters to get rid of the weeds in cottage waterfronts and pond’s. Over the years we have realized that these methods are a quick fix and can be short term solutions.

- WeedsBGone connected with Clean-Flo who have been in business aerating lakes and reservoirs with amazing results all over the world for over 40 years. Weedsbgone has now been working with Clean-Flo for the last 7 years in the USA and CANADA aerating lakes and installing continuous laminar flow inversion oxygenation systems. This whole group is achieving great results through aeration.

- WeedsBGone installed over 70 systems in the last 6 years in southern Ontario and show results with all our systems where people are seeing a muck reduction of 4-6 inches per season, less weeds, cleaner water and more fish. This overall has lead to much more enjoyable waterfronts. This is the most natural and effective long term solution of dealing with our water quality problems. Please view this video for additional knowledge on our systems and the benefits you will get from using continuous laminar flow aeration in conjunction with beneficial bacteria's and enzymes

Eutrophication Definition

Eutrophication – The process by which a body of water acquires a high concentration of nutrients, especially phosphates and nitrates. These typically promote excessive growth of algae. As the algae die and decompose, high levels of organic matter and the decomposing organisms deplete the water of available oxygen, causing the death of other organisms, such as fish. Eutrophication is a natural, slow-aging process for a water body, but human activity greatly speeds up the process.” - Art, 1993(USGS website)

Watch This video to see a YouTube video on how this process can kill fish over time from a lack of oxygen

Harmful Herbicides

- **Herbicides / pesticides may exacerbate the problem**

- **Findings of endocrine disruption**

(Endocrine disruptors are chemicals that may interfere with the body's endocrine system and produce adverse developmental, reproductive, neurological, and immune effects in both humans and wildlife.)

WEEDS BGONE

Continuous Laminar Flow Aeration

Inversion Oxygenation

- **Custom engineered**
- **Laminar non-turbulent flow**
- **Restores and maintains aerobic conditions by removing toxic gases and carbon dioxide**
- **Oxygenates entire water column and into the sediment pore water**
- **Prevents release of nutrients from anoxic sediments – reducing/eliminating internal loading.**
- **Reestablishes the aerobic environment required to accelerate biological breakdown of organic nutrients.**

Continuous Laminar Flow Aeration (The Process)

- The most important part of CLEAN-FLO's unique water improvement process is called "Continuous Laminar Flow Inversion and Oxygenation". Laminar flow inversion sets the stage for other functions to take place that lead to eutrophication reversal and water quality improvement. CLEAN-FLO invented and engineered this energy efficient process for a wide range of fresh water and wastewater applications. Unlike ordinary diffused air systems, surface aerators, paddlewheels, hypolimnetic aerators, or propeller-aspirator aerators, our process oxygenates an entire body of water from top to bottom.

- Laminar flow created by our systems is non-turbulent and will not increase suspended solids or increase turbidity. In fact the opposite is true, suspended solids and turbidity will be reduced. Our diffusers are placed on the bottom and are not suspended above the sediments, to ensure oxygenation of the sediment-water interface. As the bubbles release from a diffuser, oxygen is transferred to the water from the bubble, and they also move water gently to the surface and across the surface where additional oxygen is absorbed by the water. CLEAN-FLO systems are designed to completely mix the surrounding waters and evenly distribute dissolved oxygen throughout the sediments for efficient microbial utilization.

- Laminar flow inversion and oxygenation carries oxygenated, toxic gas-free surface water down to the bottom where it binds phosphorus and nitrogen to the sediments and kills anaerobic, often pathogenic (disease producing) bacteria that produce acids and toxic gases. This oxygenation helps purge the water of carbon dioxide (CO2), which is a primary nutrient necessary for aquatic plant photosynthetic growth and productivity. Other gases such as hydrogen sulfide (H2S) and ammonia are also purged from the sediments. Oxygenation enables beneficial microorganisms to feed on bottom organic sediment. It enables aquatic insects to feed on the microorganisms, and fish to inhabit the bottom waters and feed on the insects, providing a valuable natural food source to improve fish growth and health.
- CLEAN-FLO laminar flow systems increase inversion of a water body to several times a day or several times a week or month. The amount of inversion depends on CLEAN-FLO's engineering design to counteract incoming pollutants and pollutants in that particular body of water. Our systems are designed for a particular site and account for variables such as water depth and volume, basin morphometry, water flow rates, presence of aquatic weeds and algae growth, and thickness and composition of lake sediment.

- Continuous laminar flow aeration and oxygenation has provided valuable improvements in water quality and fish health and growth, while also producing reductions of nutrients, algae and aquatic weed growth, organic muck, foul odors and disease bacteria.

Continuous Laminar Flow Aeration

Continuous Laminar Flow Aeration

Where aeration can be used and what it does

What Aeration Does

- Improve water quality / clarity
- Reduce phosphorus, nitrogen, hydrogen sulfide
- Organic muck reduction
- Algae control – shift to diatoms
- Weed control
- Reduce pathogenic bacteria
- Eliminate odor
- Reduce fish kills / improve overall fishery
- Reduce iron, manganese and other metals and Stabilize dissolved oxygen levels
- Reduce beach closures
- Ice prevention
- Improve irrigation water
- Meets organic farm standards
- Increase water depth
- Increase property values
- Reduce mosquito breeding
- Reduce sediment nutrient release

Where Aeration Is Used

- Ponds – retention, golf course,
- Lakes(Waterfronts) Canals
- Drinking water reservoirs
- Rivers
- Aquaculture
- Wastewater
- Water containment tanks

List of aeration projects in ontario completed

List of completed lakefront systems	List of harbours
● Buckhorn Lake ● Stoney Lake ● Chemong ● Cordova Lake ● Sturgeon Lake ● Big Bald Lake ● Wolf Lake(Cottage association) ● Manitouwabing Lake ● Lake Simcoe ● Walker Lake ● Lake Dalrymple ● Bogart Pond (Newmarket) ● 4 Mile Lake	● Trent Port Marina ● Crates Marina ● HawkStone ● Lagoon City ● Bear Harbour ● Snug Harbour ● Hammock Harbour

Lagoon City Ramara Township Aeration project 2016

Lagoon City Ramara Township Aeration project 2016

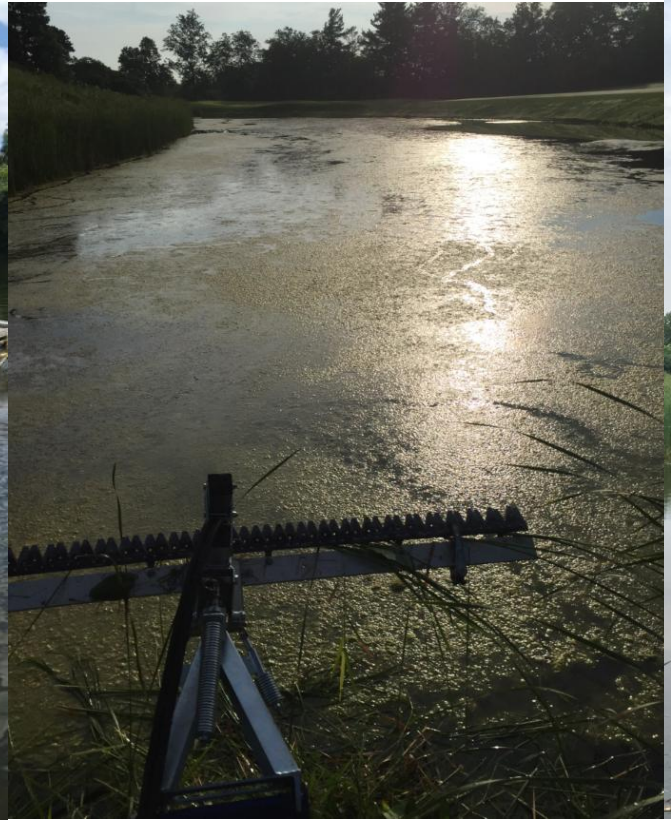
Walker Lake Owen Sound Ontario Project 2016

Walker Lake (Kettle Lake) Owen Sound Aeration Project 2016

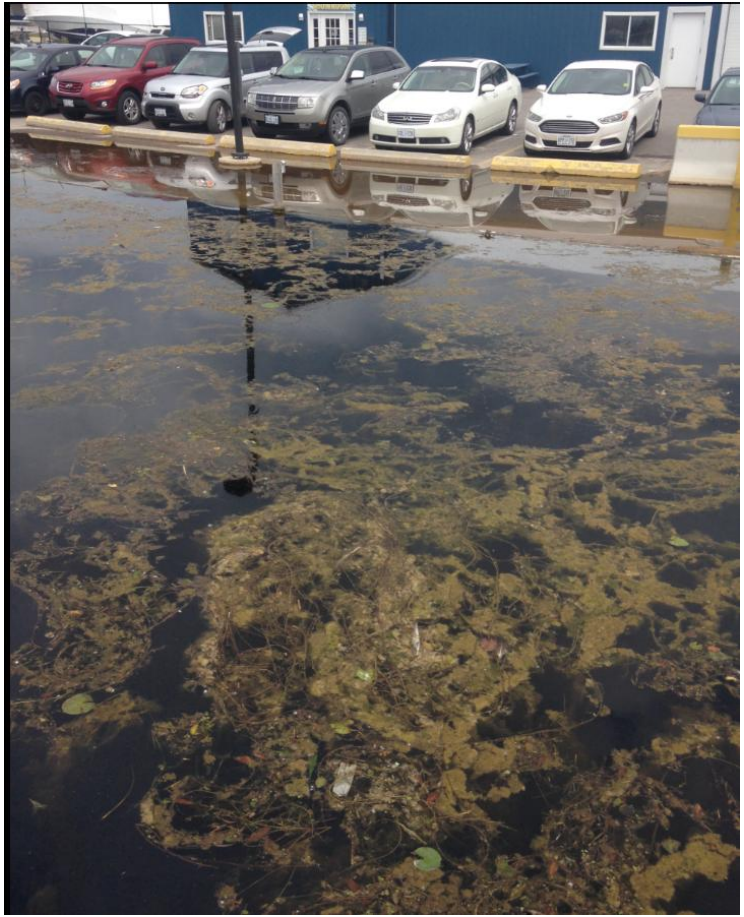
10ft of muck 2016 New Installation

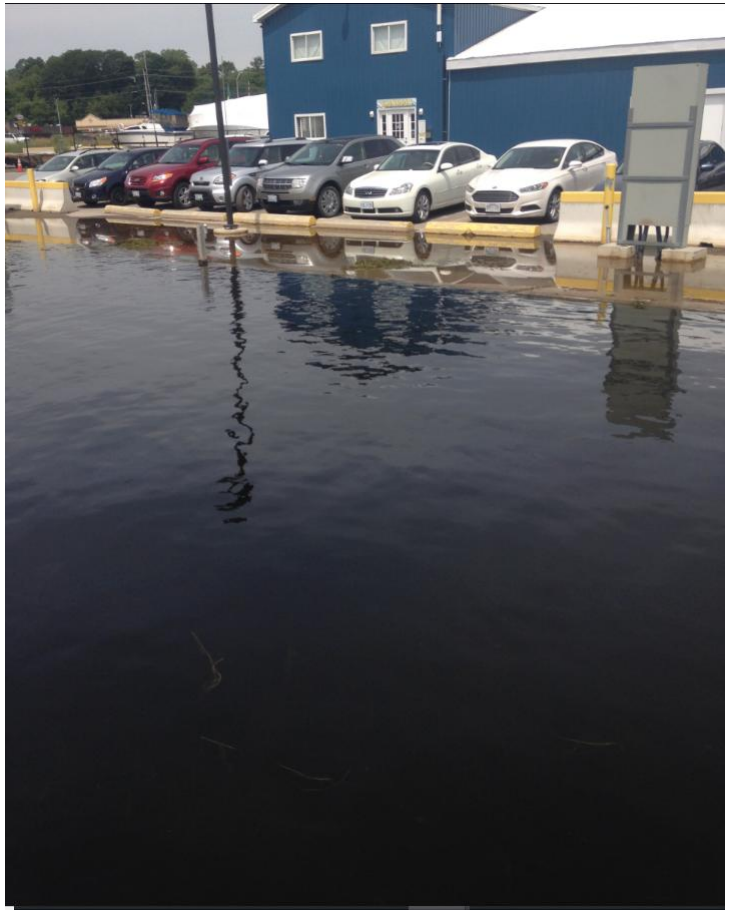
The Mobi – Trac In Action In 2017

[Click Here To View The Mobi - Trac In Action]



Crates Marina Belleville Ontario

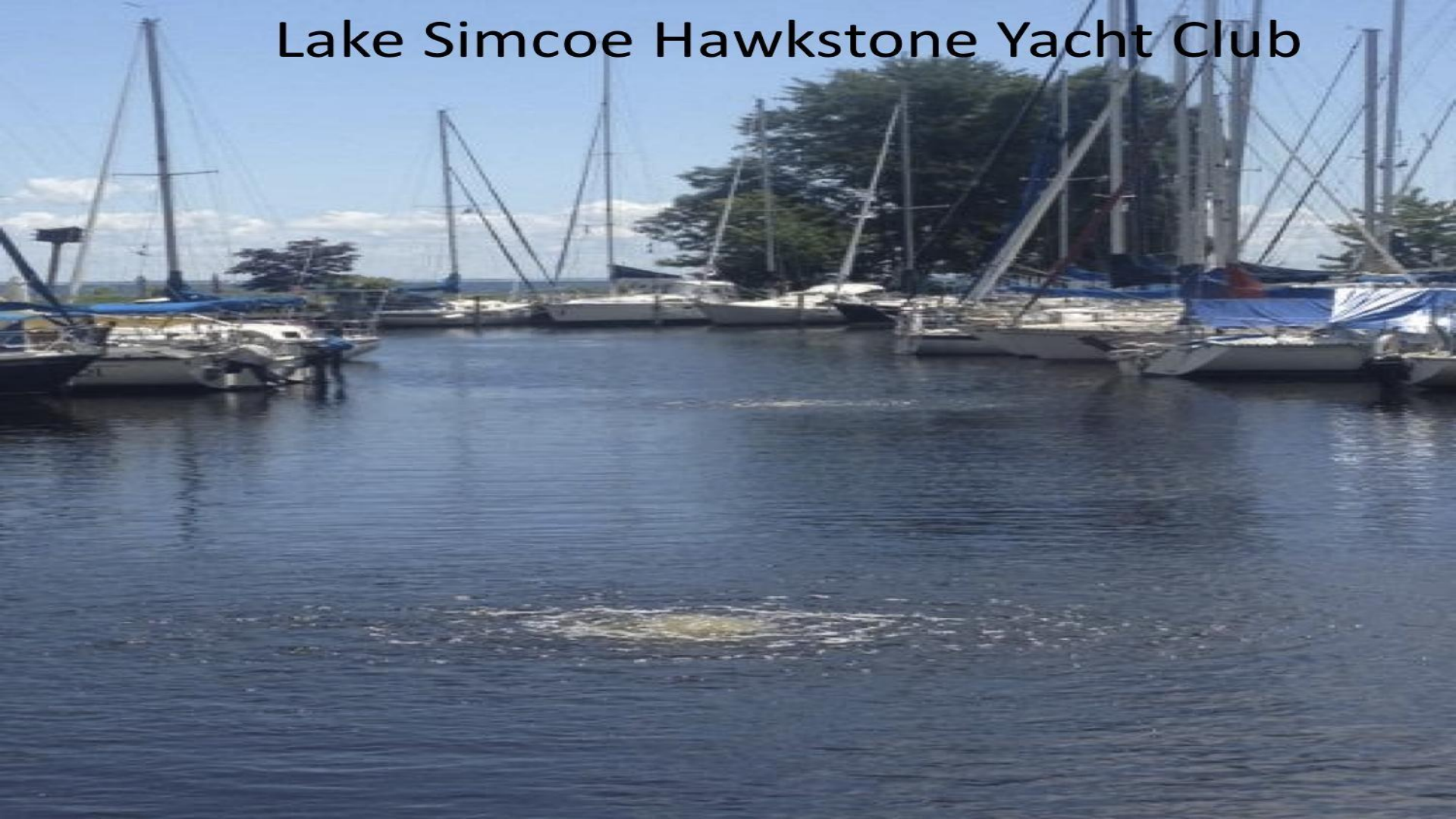





Lake Simcoe

Stoney Lake

Lake Simcoe Hawkstone Yacht Club



Stoney Lake Aeration System

Bio-Augmentation

Bioaugmentation

- Biological augmentation involves the supplemental application of non-toxic, natural, beneficial microbes, enzymes and minerals to clean a body of water.
- Stimulation of Indigenous Microbes – use of food grade electron donors and cofactors to stimulate indigenous microbial populations to improve organic and inorganic bioremediation.
- Ph.D. Microbiologist – 40 years of experience
- Proprietary product formulations
- Customized product formulations
- Driven by science
- > 3,000 microbial strains in culture bank

WEEDS BGONE

Winter Warrior

What it does:

- Winter Warrior is a unique microbial consortium developed by CLEAN-FLO to increase biological efficiency during the winter months and improve water quality and organic muck reduction all winter long. Bio augmentation is a process of improving natural biological activity to breakdown organic pollutants. Bacteria are living organisms, which require optimum environmental factors to achieve best results. The important factors are carbon, nitrogen, phosphorous (food energy source) dissolved oxygen, PH and temperature.
- While treatment facilities can make adjustments to control most of the parameters, it is challenging to control temperature between 40-150 F. Most of the microbial process have optimum temp, between 70-90F. During late fall and winter, water temperatures fall below 55F in many parts of the world. This decrease in the temperature slows down the growth process and reduces the benefits of bio augmentation by over 85%. Such reduced efficiency can lead to increased nutrients and organic muck build-up, resulting in increased algae and weed growth once the water warms in the spring. Now you can do something to get ahead of these spring concerns.

How It Works:

- To improve biological activity during these cold water periods, CLEAN-FLO has developed a unique microbial consortium that can quickly adapt to the lower water temperature and continue functioning in a broad temperature range (34 – 75F). This unique nutrient reduction technology will increase biological efficiency during the winter months and improve water quality and organic muck reduction all winter long. Benefits of using Winter Warrior 1.Improves B.O.D. and C.O.D. 2.Reduces sludge build-up 3.Reduces odors, degrades many organic pollutants. 4.Breaks down F.O.G.5.Natural biological system 6.Works at low temperatures 7.Works under reduced oxygen levels. Best D.O. 4-5 ppm

Application:

- Shake the container well and apply over diffuser boils and broadcast around surface of water body. Application rate is 1 gallon per acre – foot. Acre-foot equals total surface acres multiplied by average depth. Results may vary based on watershed activity and continual nutrient loading. Application use: Lagoons, lakes and ponds, reservoirs, waste water treatment plants, rivers, fish ponds, aquaculture.

C-Flo + Beneficial Bacterial slow release disk

How It Works:

- C-FLO+™ is a slow release disk of special beneficial microbes with natural plant enzymes which feed on organic sediment (muck) at the bottom of ponds and lakes. These organisms are found in the woods feeding on dead leaves, bark, weeds and other dead matter. When you walk through the woods, you step on as many as 300,000,000 of these tiny organisms with every step. C-FLO+™ is comprised of healthful organisms that are natural food for aquatic insects. Microbes multiply as they feed on organic sediment, and insects grow and multiply as they feed on C-FLO+™. Fish then feed on the insects and grow rapidly, as insects are one of the best foods for fish.

WHAT IT DOES:

- C-FLO+™ feeds on bottom organic muck, ooze, and peat, digesting and converting it to carbon dioxide and water. As C-FLO+™ feeds on bottom muck, your pond or lake will deepen, making a better environment for fish, and less opportunity for weeds to grow. Cattails and lilies have gradually disappeared due to muck reduction. This process replaces dredging the organic material at a tiny fraction of the cost. C-FLO+™ is harmless to fish, wildlife, pets, humans, and the environment when used as directed.

APPLICATION:

- About two weeks after the inversion system is started, C-FLO+™ is applied at a rate of 1 pound per acre. There are eight 2 oz. disks per pound. Recommended application is 2-4 times a year. More applications may be required if a CLEAN-FLO Inversion system is not used. C-FLO+™ can be applied by distributing the disks evenly around the water body during the summer months or when the water temperature is 55° F or higher.

Clean And Clean Enzymes

Reservoir Algae Control

How it works:

CLEAN & CLEARTM CONCENTRATED ENZYMES for lakes, ponds and reservoirs result in bioremediation of green algae, filamentous algae and blue green algae to control environmental water pollution. CLEAN & CLEAR TM ENZYMES is a special blend of non-toxic vegetable enzymes from nature that acts as a catalyst to biodegrade nonliving organic matter and reduces available nutrients in the water, thus improving water quality.

What it does:

CLEAN & CLEAR TM ENZYMES softens the cell walls of dead organic matter, making it easier for beneficial bacteria such as C-FLO, C-FLO-6 and C-FLO-6F to feed, giving the bacteria a “jump start” in controlling environmental water pollution.Enzymes activate and help natural bacteria to digest organic matter in lakes, ponds, rivers, reservoirs and wastewater. CLEAN & CLEAR TM reduces odor caused by toxic gases from pathogenic (disease-type) bacteria, including hydrogen sulfide, ammonia, amines and mercaptans. CLEAN & CLEAR TM provides the following benefits:

Application :

1. Accelerates biodegradation of organic matter 2. Helps beneficial bacteria compete with weeds and algae for fertilizers such as phosphorus and nitrogen 3. Helps improve water quality 4. Reduces odors, including animal manure odors; improves air quality 5. Safe to use; no health problems 6. Safe in the environment; no pollution concerns 7. Safe around animals 8. Easy to apply 9. Economical to use 10. Helps liquefy organic waste USE: In lakes, ponds, rivers and reservoirs: Dilute 3-5 ounces into 4-5 gallons of water and spray or pour over water to be treated. Use one gallon per acre-foot of water. Examples: 1/2-acre x 4 feet deep = 2 acre-ft; 4 acres x 10 feet deep = 40 acre- ft. For manure or sewage lagoons, dilute one gallon to 4-5 gallons of water and add to 25,000 to 50,000 gallons of wastewater. CLEAN & CLEAR TM combines enzymatic action with the natural deodorizer yucca schigrada.CLEAN & CLEAR TM ENZYMES for lakes, ponds and reservoirs result in bioremediation of green algae, filamentous algae and blue green algae to control environmental water pollution.

Nutrient Sponge

What It Does:

- These nutrients support the growth of algae and aquatic plants that provide habitat and food for fish, insects and other organisms. However when nutrient levels increase too far, nuisance algae and weed growth can dominate a body of water, making it unattractive, unnavigable, odorous and a poor environment for a healthy fish population.Nutrient Sponge was created specifically to reduce nutrients and help improve water quality without the potential side effects of chemicals.

How it works:

- A unique porous ceramic, Nutrient Sponge has the ability to hold a high quantity of active colonies of microorganisms used to treat water. It can be deployed in the body of water to reduce nutrients present, but can also be deployed in incoming springs, creeks and streams to reduce nutrients before they ever reach a body of water. The best watershed management programs cannot stop all nutrients from entering a body of water, but now Nutrient Sponge can be added to further increase nutrient reduction in incoming waters. Due to the pore size, water can easily flow through the media. Nutrient Sponge is formulated separately for nitrogen and phosphorus and the product is produced in a number of shapes. Discs, interlocking bricks and logs are used in varied applications.
- Examples include using bricks and / or logs in inlet water ways, discs and logs can be used suspended in the water column in the body of water. Aeration and circulation increases the effectiveness of Nutrient Sponge by providing continuous circulation of water through the media. The interlocking bricks are sold individually and are mainly used in inlet areas. The bricks can be anchored in place using the hole in the center. Best results are obtained by placing a nitrogen sponge wall first and immediately behind it, place a phosphorus sponge wall.

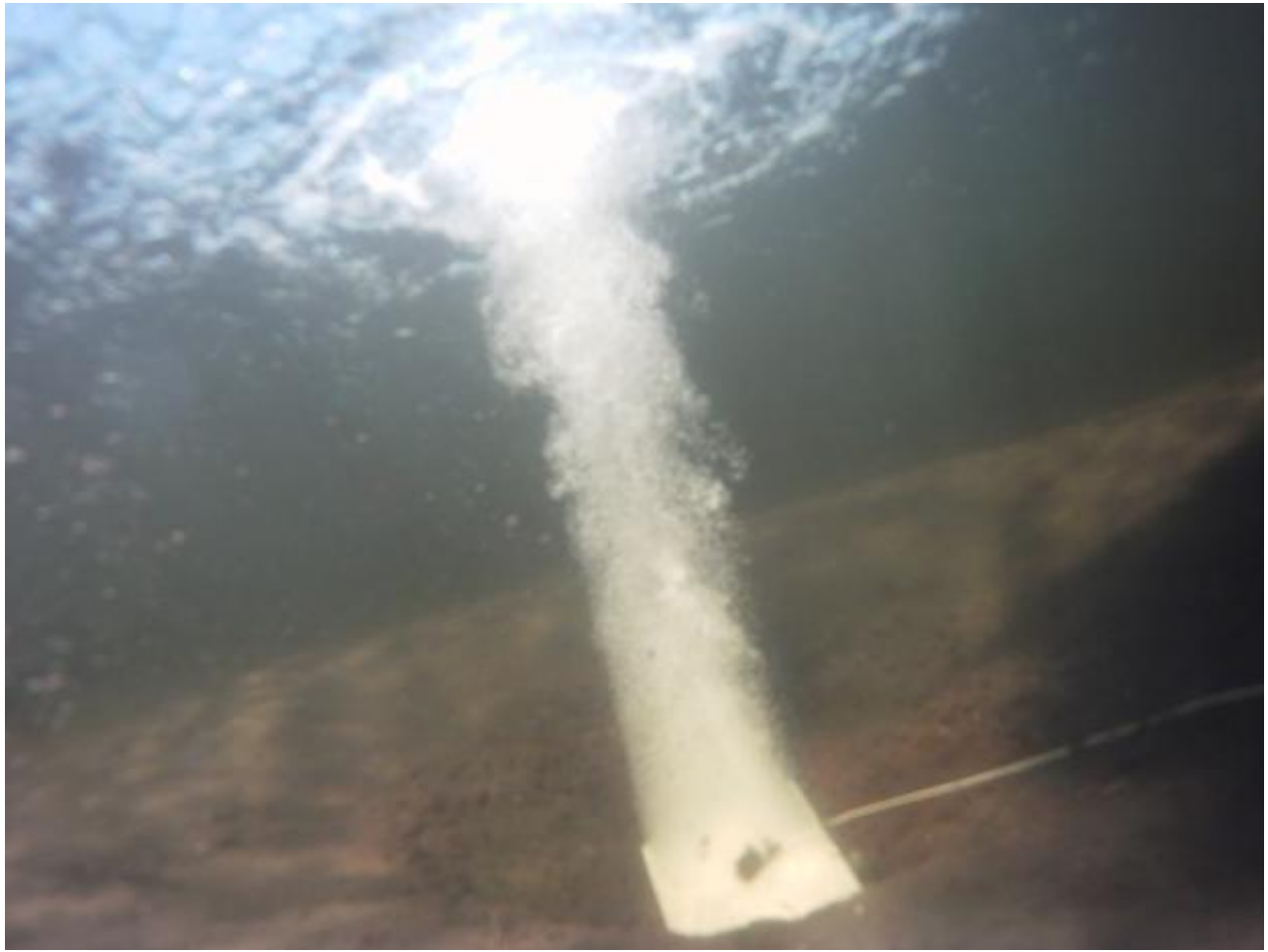
Application:

- The discs are made in either 4” or 8” diameter and are placed in polyethylene sleeves and can be suspended in any body of water. Sleeves can contain a 50/50 mix of the phosphorus and nitrogen discs, or 100% of either type. The logs are about 3” in length and are placed in polyethylene bags. These bags can be placed in inlets and suspended in a water body. Like the bricks we suggest placing a bag of nitrogen logs in an inlet first followed by a bag of phosphorus logs. All applications should take advantage of circulation, aeration and moving water as available. We suggest replacing all material after 2 years of use.
  In inlet and run-off applications that experience inorganic turbidity, a geotextile may be needed to prevent clogging or damage.

De-Icing

WeedsBGone’s aeration systems are able to keep the ice from freezing around your dock and allow you to leave it in all winter long

Non Turbulent Micro Porous Diffuser 12 inch

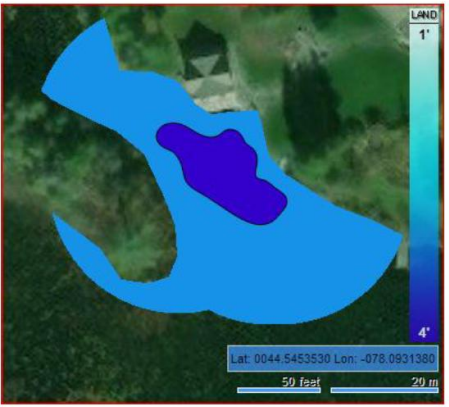


Stony Lake
Tom Reburn
05/15/2016.

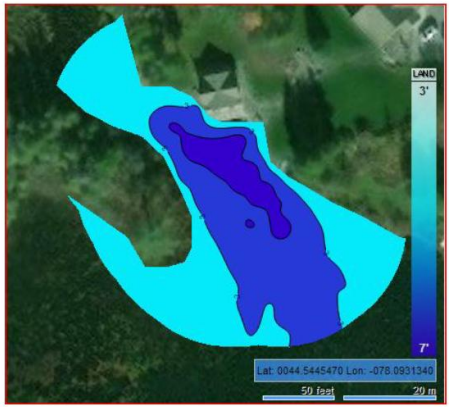
Stony Lake
Tom Reburn
05/12/2017.

The Composition Scan shows the condition of the bottom. Grey is unwanted soft organic material while brown is a firmer, more stable bottom. Good improvement!

Stony Lake
Tom Reburn
05/15/2016.

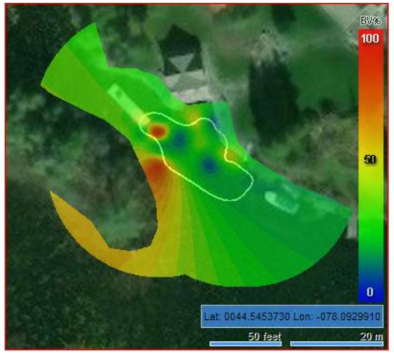


Stony Lake
Tom Reburn
05/12/2017.

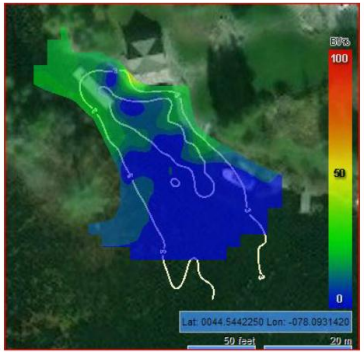


The Contour Scan shows depth. The darker the blue the deeper the water.

Stony Lake
Tom Reburn
05/15/2016.



Stony Lake
Tom Reburn
05/12/2017.

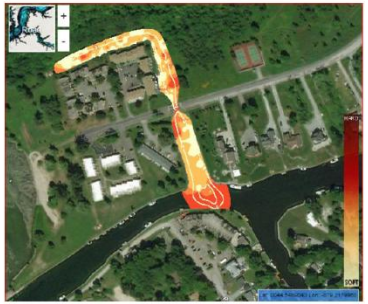


The Vegetation Scan shows vegetation growth. Any colour other than blue denotes vegetation growth. Very good improvement in 1 year!

Lagoon City Pike Lagoon 2016 – 2017 Sonar Imaging Results

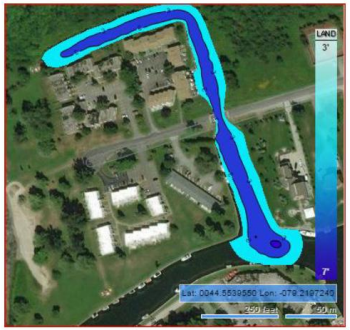
Sediment scans are showing the lighter colours of brown is showing soft organic matter. The scan on the right is one year later showing significant reduction of muck through our sonar imaging. A most definite improvement.

04/19/2016 Pike Lagoon

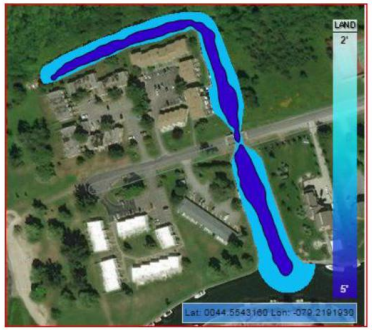


10/05/2017 Pike Lagoon

Contour Scan shows depth. The darker the blue, the deeper the water.
Depth varies from 2’ to 5’.

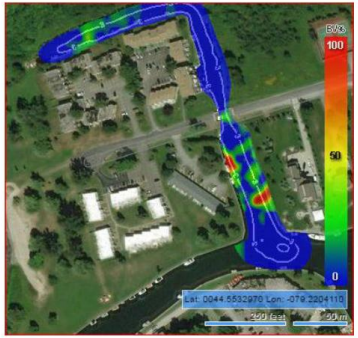


Pike Lagoon April 2016

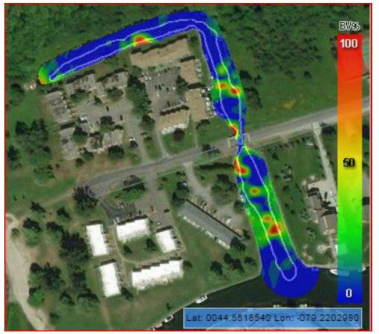


Pike Lagoon April 2017

Vegetation Scan shows growth. Blue is no growth while colours indicate growth.

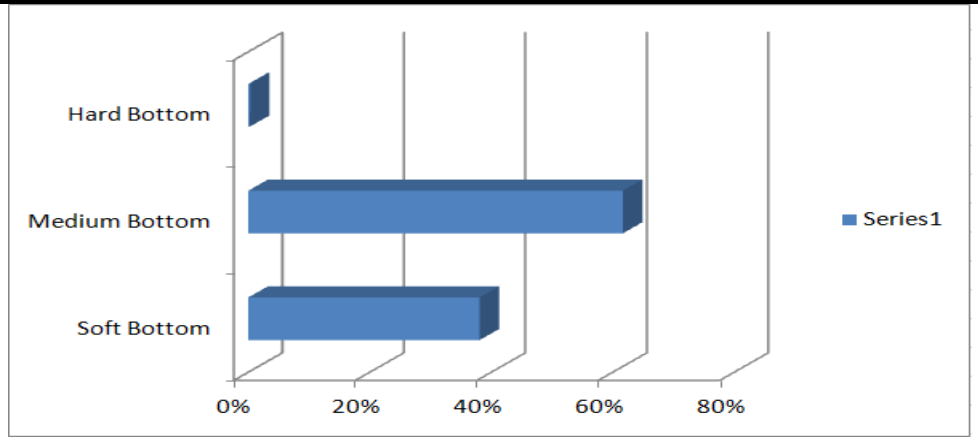


Pike Lagoon April 2016

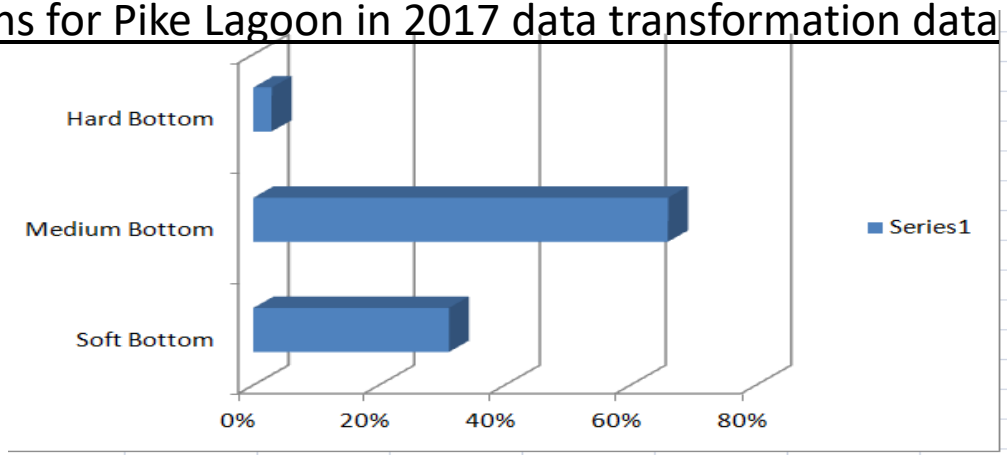


Pike Lagoon April 2017

Scans for Pike Lagoon in 2016 data transformation data



Scans for Pike Lagoon in 2017 data transformation data



Lagoon City Turtle Bay 2016 – 2017 Results Sonar Imagine Scans

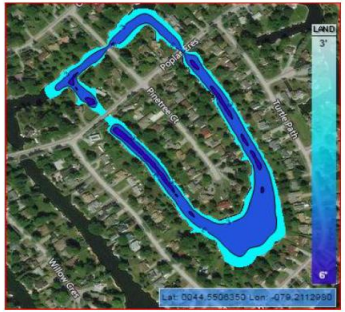
Sediment scans are showing the lighter colours of brown is showing soft organic matter. The scan on the right is one year later showing significant reduction of muck through our sonar imaging. A most definite improvement.

10/19/2016 Turtle Bay

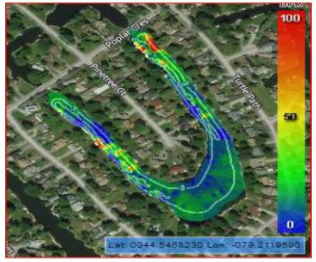
10/05/2017 Turtle Bay

Turtle Bay April 2016 Contours

Turtle Bay April 2017 Contours.



Turtle Bay Vegetation Scan April 2016

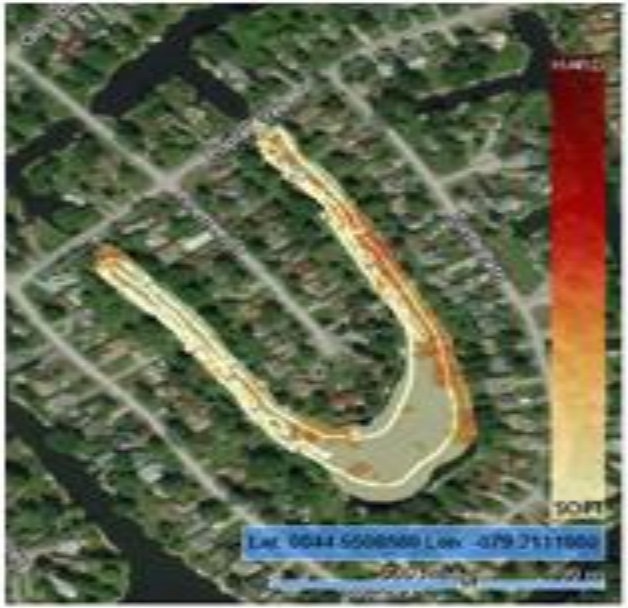


Turtle Bay Vegetation Scan April 2017.

Contour shows depth. The darker the blue, the deeper the water. It is plain to see that the outer edges are deeper this year due to reduction of soft organic matter.

Vegetation Scan shows growth. Blue is no growth while colour shows growth. There is a definite reduction of vegetation in 2017.

Turtle Bay
04/19/2016

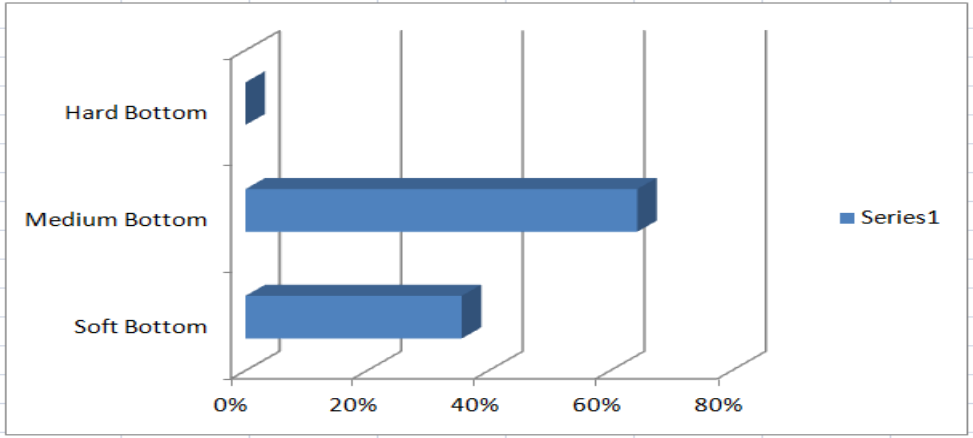


WEEDS BGONE

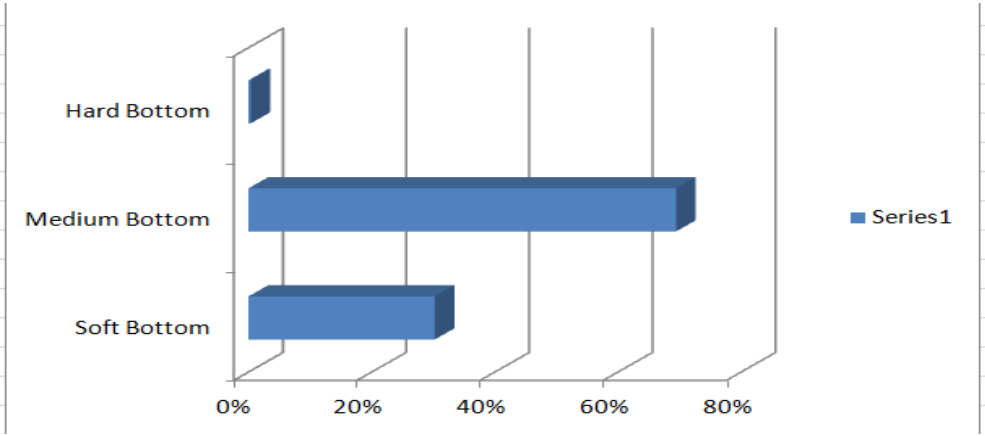
Turtle Bay
08/08/2016

As shown on the legend to the right side of each picture, grey is soft, organic sediment and brown is healthy, firm base. Considerable improvement is obvious after 4 months of treatment.

Scans for Turtle Bay in 2016 data transformation data



Scans for Turtle Bay in 2017 data transformation data



Lagoon City Concord Pond 2016 – 2017 Results Sonar Imagine Scans

Sediment scans are showing the lighter colours of brown is showing soft organic matter. The scan on the right is one year later showing significant reduction of muck through our sonar imaging. A most definite improvement.

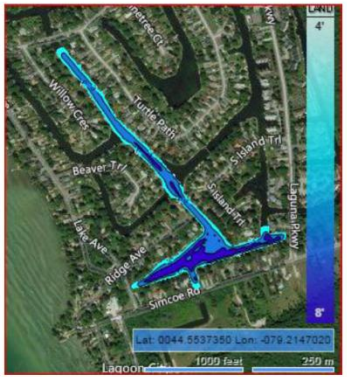
04/19/2016 Concord Pond

10/5/2017 Concord Pond

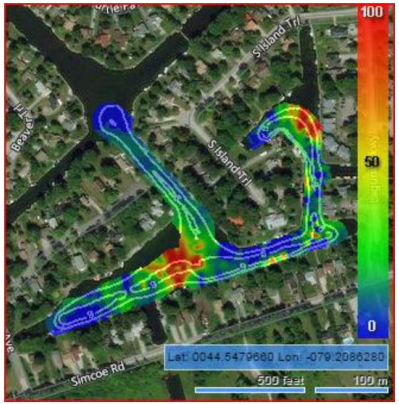
Contour Scan shows depth. The darker the blue the deeper the water. Depth varies from 4' to 8'.

Vegetation Scan shows growth. Blue is no growth while colour shows growth. A definite improvement in 2017.

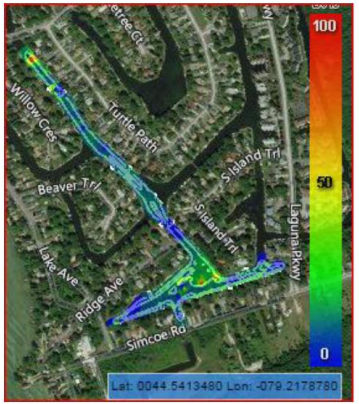
Concord Pond 2016



Concord Pond April 2017.

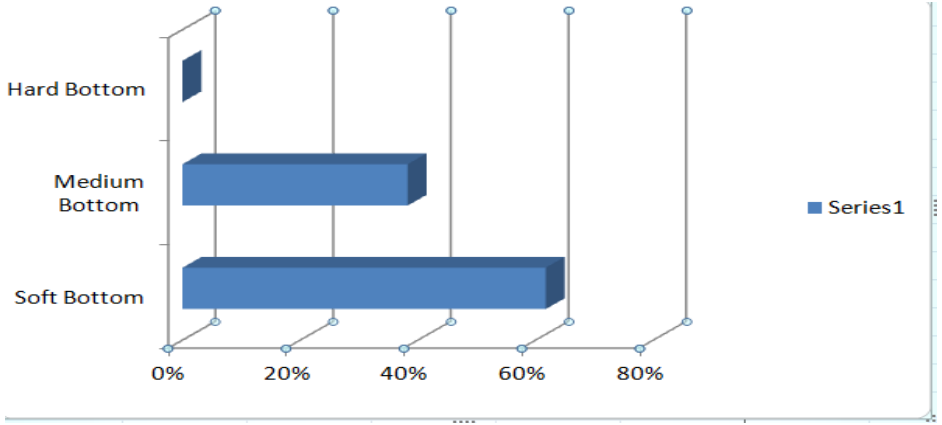


Concord Pond 2016

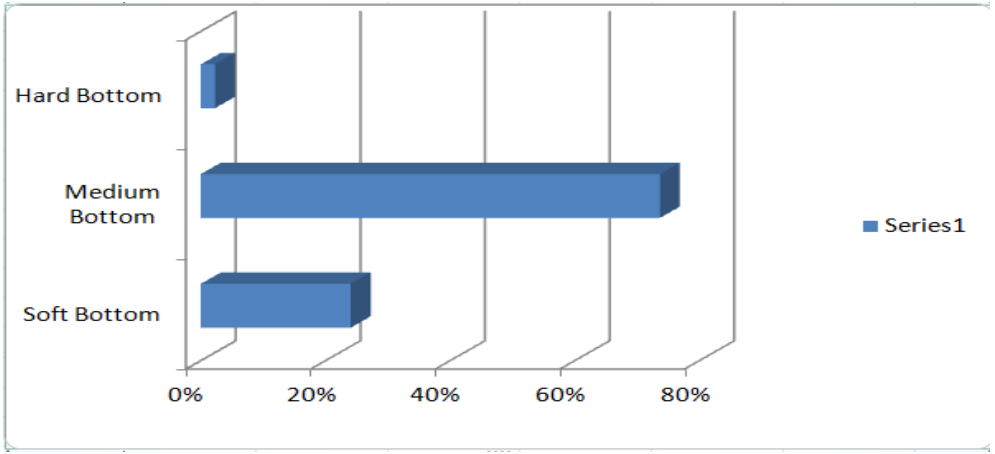


Concord Pond 2017

Scans for Concord pond in 2016 data transformation data

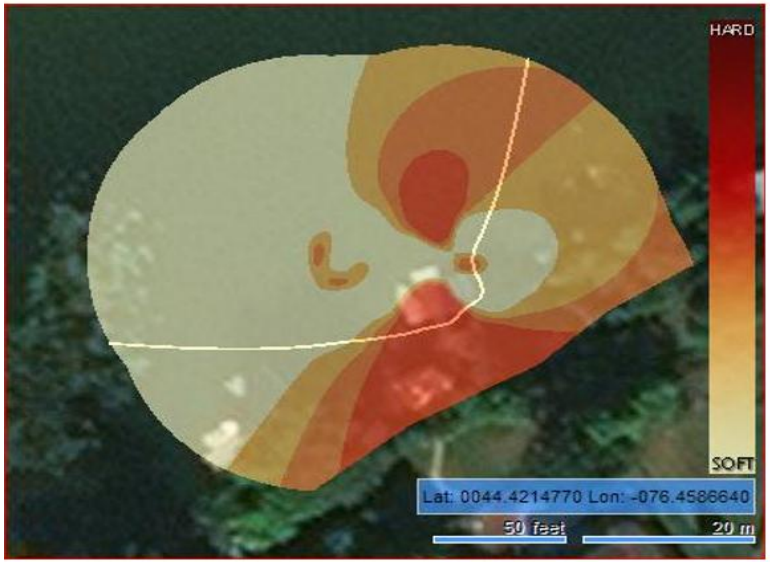


Scans for Concord pond in 2017 data transformation data

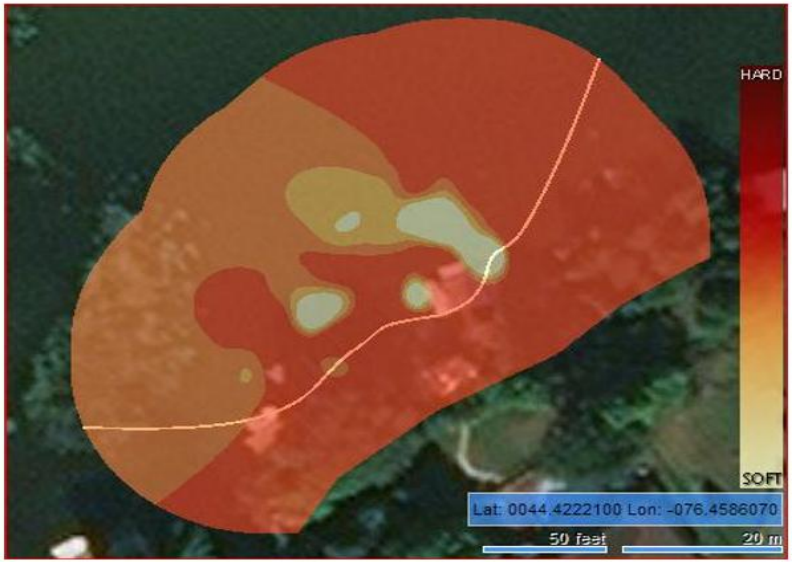


Loughbourough lake

Don Maxwell
Composition Scan 05/27/2016.

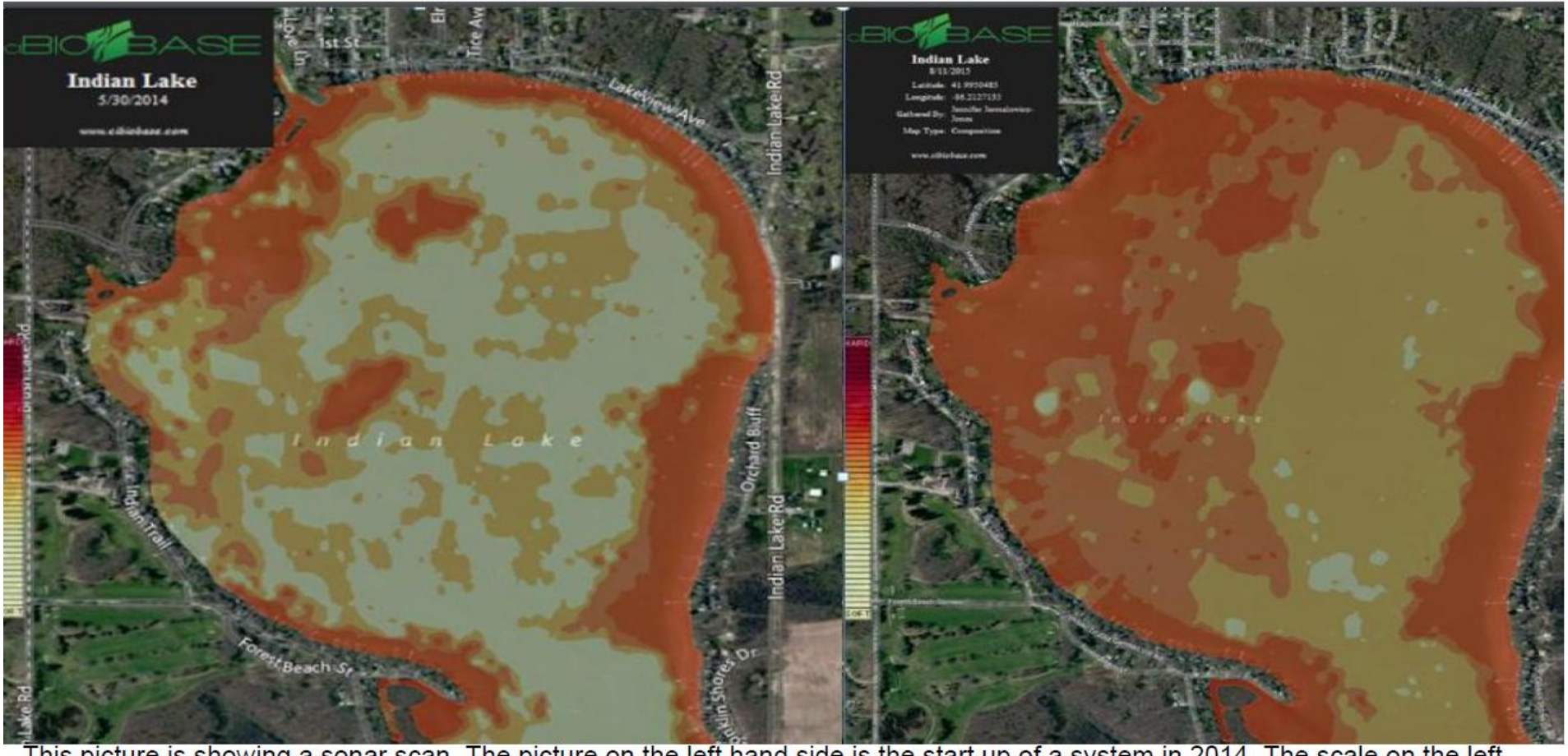


Don Maxwell
Composition Scan 04/27/2017.



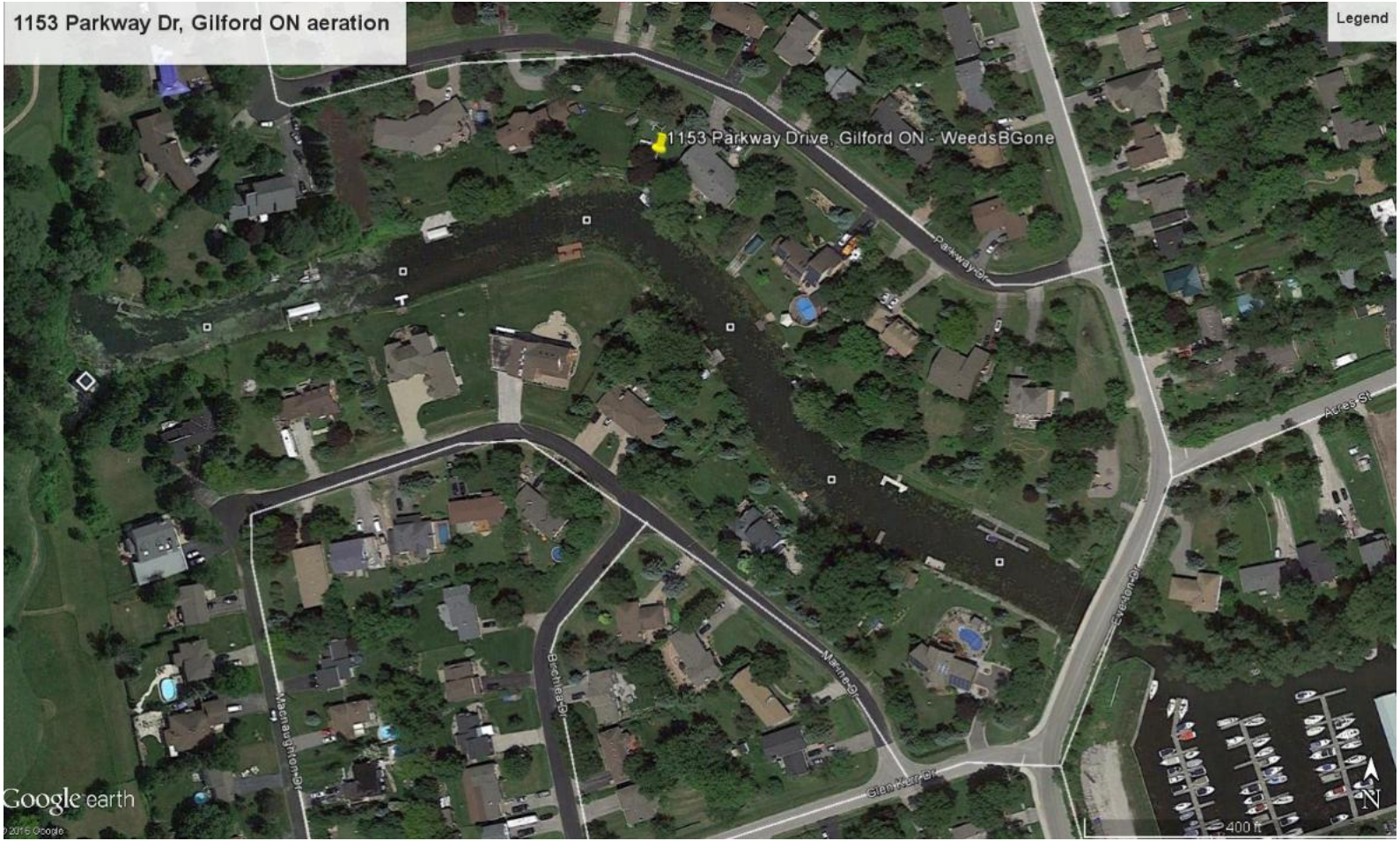
Composition Scan shows the condition of the bottom. Grey is unwanted soft organic material but brown is a firmer more stable bottom. A HUGE improvement in 1 year!

Sediment Reduction Through Sonar Scans



This picture is showing a sonar scan. The picture on the left hand side is the start up of a system in 2014. The scale on the left shows red to grey (grey) Soft organic matter (Red) Hard organic matter. The picture on the right hand side clearly show the reduction of organic matter in just one year.

New Aeration project for parkway Dr Gilford Ontario



Hydro Consumption

1-3/4 Horse Power Compressor
Drawing 9 amps
Approximately hydro costs $70.00 per month

WEEDS BGONE

Typical Clean-flo waterfront aeration system

Typical cottage Waterfront Inversion Oxygenation Equipment System 1 covering 100ft x 100ft

1- 3/4 Horse Power Compressor drawing 9 amps In insulated cabinet	 
Total of 5-8 inch micro-porous ceramic diffusers with brass check valves	
Approximately 500 ft of self sinking 5/8 airline and all required brass fittings	
For A Total Of 1 Gallons Of Clean and Clear, 1 lb of C-Flo + pucks, 3 lbs of muck reduction pellets 3 Gallons Winter Warrior 1 lbs of bio-stimulator	**TreatmentsIncluded** **Total cost $7800.00 Installed Plus Hst**

Years 2 and 3 Bio -Augmentation

1 gallons of Clean and Clear Enzymes	1 gallon of Clean & Clear – pour a gallon over diffuser boils each time CFLO is added.
1 lb C-Flo Bacteria + 3 lb's of (Muck reduction pellets)	CFLO – Distribute 1 lb. of disks and 3 lbs of pellets around the treatment area once water temperature hits 60 degree F (July)
3 Gallons Winter Warrior	Add 2 gallon in the spring as soon as the system is started. Add 1 gallon 1 month before the system is turned off in the fall.
1 lb. of Bio-stimulator	add 1 lb. to the treatment area - Bio-stimulator enhances the growth of natural bacteria and increases natural biological activity along side of the CFLO and muck pellets
For A Total Of 1 Gallons Of Clean and Clear, 1 lb of C-Flo + pucks, 3 lbs of muck reduction pellets 3 Gallons Winter Warrior 1 lbs of bio-stimulator	Years 2 and 3 Treatments Aprox $625.00 Plus HST