Aquacleaner Environmental

"Leaders in the field of Waterfront Restoration Technology"
P.O. 8 Lancaster N.Y. 14086
(585) 752 – 7930
www.aquacleaner.com

The Aqua Cleaner Pond Restoration System

Pond Restoration

Your pond is a part of your landscaping that accentuates your property, supports it's own ecosystem and can be a source of great recreational entertainment. The dynamics that occur in a pond are vastly different from those of lakes and other bodies of water, and as such, require different methods to maintain and perform remediation on. Aquacleaner Environmental is on the leading edge of technology in the field of Suction Harvesting and Spot Dredging Equipment, and is the perfect solution to reclaim or maintain your pond. Suction Harvesting offers the best short and long-term solutions to controlling and eradicating the spread invasive vegetation as well as the removal of a variety of debris (leaves, sticks, timber, rock). Dredging is no longer a nasty 8-letter word, but rather is a natural step in the restoration of your pond. Our system is derived from years of experience in the field and has proven to be the most environmentally safe method.

Mission Statement

At Aquacleaner Environmental, we have developed and implemented a new generation of machines capable of performing waterfront restoration work in all most circumstances and remove problems that hinder the use and enjoyment of your pond. We will reclaim and restore them back into the condition they were in years ago, while remaining conscious of the environment and ecosystem, and the need to protect it. Because our systems and process is multifaceted and versatile, we can competently assure you that we will restore your waterfront property to its previous pristine condition. We are committed to operate under the highest levels of professionalism and combine leading technology with a staff comprised of the best and brightest minds in the waterfront restoration field. Our passion and respect for one of earth's greatest assets will not be compromised. With our services we will diligently provide an environmentally healthy and safe way to help protect our waters and the ecosystem it supports. We promise to provide these services in conjunction with all local & state governmental laws and work hand in hand with all the governing bodies, environmentally conscious of the delicate balance that exists between nature and man.

Dynamics – The dynamics that occur in your pond vary vastly from those in lakes and other larger bodies of water for several reasons.

- Ponds by definition are a smaller, contained and defined area of water that is subject a variety of factors that inevitably fill in and become problematic.
- Water flows into the pond whether by stream, creek, storm water run off, or from the surrounding landscaping, and when water flows, it brings things with it. Chocolate color water after a strong rain is a clear sign of organic sediment washing into your pond.
- Organics material including leaves, sticks as well as other debris can accumulate in your pond and fill in your shoreline, denying many components of your pond's ecosystem a place to survive.
- Aquatic plants grow and die each year and decompose into organic silt. Invasive weeds once introduced to your pond can flourish and multiply, overrunning your pond and accelerating the "filling in" process.
- Ponds have a limited amount of depth and space, which over the years becomes less and less. Overtime all ponds need to be dredged to regain its original depth and reclaim the ecosystem it supports.

Shoreline – the shoreline of your pond is the important area because it is where a bulk of the ecosystem is supported. Fish spawn in the shallow portions of your pond and from there the rest of the pond's marine life flourishes. Frogs, turtles, and birds all feed off the shallow water and close proximity to the land surrounding the pond, so keeping this area open allows the ecosystem to survive and develop.
The second reason the shoreline plays such importance in your ponds health involves the spread of invasive aquatic vegetation. When the ponds bottom is firm (when it was first built), it makes it much hard for invasive weeds to spread because these types of plants can't root themselves easily, as compared to a soft, silty bottom, which provides a rich organic base for them to multiply.

Options for remediation – your pond took years to get into the shape it's in currently, so dealing with it all at once is not always necessary depending on your desired goals (long and short) as well as your budget. Working on your pond in phases can begin to bring a pond back to a healthy state without an all or nothing mentality. You should first consider your problems and what you looking at achieve.

What are your Concerns:
- Ponds health, Ecosystem, Eco chain, Algae Blooms, Fish Kills, Discolored Water, Appearances.

Options: Your options can varying but start with Vegetation and Debris Removal, Shoreline Remediation, Dredging Inlets, Dredging the Center, Reclaiming depth. U.W.S. stands ready to assist you with all options that meet your goals and budget.

The Aqua Cleaner System

The core of UWS's services comes from the strength and abilities of the Aqua Cleaner. The Aqua Cleaner's are several unique pump designs, one a Suction Harvester and the other the smallest Gas Powered Dredge Machine. Both machines come in several different size configurations depending on the required applications.

The Aqua Cleaner Vegger is a Suction Harvester that is designed to suck up any type of solids that will pass through a hose. These include aquatic vegetation, leaves, rocks, zebra mussels, sticks and other debris.

The Aqua Cleaner Dredger is designed strictly as a portable dredge machine that will suck up silt, sand and other soft organic material. It uses water agitation to create a slurry and can pump over 1000' away without a booster.

Aqua Winch – A portable, self contained winch with motor, that when placed at the waters edge, will Pull up to 10,000 lb items out of the water

Aqua Cutter – A self-contained pressure washer which is mounted on a small pontoon or operated on shoreline, and has a built in feeder pump. It will cut any organic rooting system.

Suction Harvesting - Comparisons

The Aqua Cleaner System is a new approach to an age-old problem of aquatic weed removal and long-term restoration of water front property. The DEC offices in several states are already familiar with our equipment and have allowed work in even the most sensitive areas. Some states don't require any permit in waters that are not designated wetlands. Our staff stands ready to assist in permits in any state, and for any project.

1. Chemicals – A short term solution to aquatic vegetation problems because they only kill a portion of the plants, which drop to the bottom, turn into silt, and allow for substantial regrowth, are harmful to your water ways, and while killing the plants, still leave remains floating in your water
2. Weed Harvesters – Cutting vegetation is the old, obsolete method for removing weeds. It has many drawbacks. They leave clippings to collect all over your property and create a mess. Harvesters also spread and ensure new seedlings because clipping a weed in half causes seedlings to fall from the broken weeds and re seed lake bottom. In addition harvesters are large, bulky machines that can't cut close to your docks.
3. Grass eating Carp – While being a good long-term solution for an entire waterway, carp are of no value to your own property. Typically when you purchase these fish, they are so small that they can't eat much vegetation till they are years older. They are also picky eaters and will only eat from a select menu.
4. Excavators – This is the only other way to remove unwanted aquatic vegetation and perform dredging, however it is very messy and ineffective because an excavator can only reach out 15' from shore and when using it for dredging removes silt that that has a high percentage of water in it, making it impossible to capture much of the desired material.

Aqua Cleaner Suction Harvester

Science behind Suction Harvesting: Your waterfront property is basically an aquatic garden. It is the optimal environment for aquatic vegetation to grow in because it has all the ingredients that vegetation needs to flourish; water, sun, and a rich soil. If you look at your back yard and use that as an example you can further understand the dynamics of what takes place in the water. You have the perfect yard but your neighbor has a bunch of dandelions. The wind blows the wrong way and now you have dandelions (the water is a much better medium than air). If you try to remove the dandelions by pulling them or cutting them they will still grow back. However if you dig them out and excavate the roots, the odds are much greater that the re-growth will be minimized. Because water is constantly moving, it carries seeds from aquatic vegetation. When these seeds land on your property they can take root and grow. No matter what you try, invasive aquatic vegetation will always grow. Using chemicals only makes the problem worse because when a plant dies, it drops to the bottom, decomposes and again releases the seeds that are stored inside the plant so that they sprout new plants next season. Again, harvesters also make the problem worse because when you cut a plant you are releasing the seeds that are stored within the plant, and they will fall to the bottom and take hold as well. (Ask any landscaper, and they'll tell you… if you want thicker grass, just keep cutting it).

How It Works: Suction Harvesting is the most effective way of removing aquatic vegetation because a diver uproots the targeted plants and the years past decomposing plants and feeds them into a vacuum hose that conveys them to the surface. There, a second worker bags them in 50-pound onion bags. The weeds and all the solids go into the bag, while the water passes through the mesh bag and back into the lake. When a bag is full it is placed onto a raft that is later taken to shore where the bags can be composted or trucked offsite. We have seen re-growth as little as 10% next season and as much as 50%. It leaves no remains (floaters), can operate in the tightest areas right up to your waters edge. We can suction up a fish and it comes through the hose without going through a motor, and returned into the water so were "fish friendly".

STOP THE CYCLE

Aquatic vegetation grows and dies each year, sending the carcass of the plant to the lakes bottom. There they decompose, releases new seeds, which only increases the density of the plants next season, and adds to the silt build up. Suction Harvesting slows this process down and over repeated use, will stop this vicious cycle. In contrast with chemical treatments or weed cutters, we also offer the advantage of selectivity. If you want only the milfoil removed but want the lily pads to remain untouched, we can easily accommodate your desires.

Dredging:

The traditional method for removing soil entailed having a large construction excavator operate either from your dock or out on a barge. This process is imprecise and not very effective. Scooping large volumes of soil from a water way is intrusive, disrupting the ecosystem and doesn't afford a close tight cleaning. In ponds the risks are far greater. Pumps are the preferred method of dredging but the norm in the industry are large, aggressive machines, which move huge amounts of water and silt which are very hard to manage in a small contained area like your backyard.

The Aqua Cleaner operates by sucking up silt and water together and pumping it to a desired location. The most cost effective method involves pumping the material into a field and letting the water dissipate and be absorbed into the ground, and then letting the silt be absorbed into the ground over time. Our second option is to pump the silt and water into a dewatering bag that sits on your property. The water slowly leaches out and over a short period of time, the silt contained in the bag will harden and can then be removed. Silt is typically composed of a very pure, organic material, which can be spread over your lawn or given to local landscapers or farmers.

Site Plan For Dredging: A) Mark off area to be dredged. B) Build staging area C) Pump out soil into the staging area and allow to de water and dry D) Move soil onto dump trucks E) Cart away soil

Construction Equipment Pitfalls

The alternative of using construction equipment sounds easy in theory but holds many pitfalls, which most people are unaware of and only find out when it's to late.
They include:
Draining the pond -Removal of the water and keeping it out long enough for the pond to dry out is very challenging. While streams and tributaries can be diverted, ponds that are feed by springs cannot just be shut off.
Environmental - Killing the marine life and the ecosystem the pond supports
Working in the pond – We have seen and heard of many pond projects where the construction equipment gets stuck in the sediment and becomes useless.
Risks – Most ponds contain a barrier on the bottom that is not permeable and holds the water in the pond. Operating construction equipment in it posses the risk of nicking that barrier and creating a hole or fisher that will allow the water to escape and requires identifying the hole and repairing it, which is not an easy task to achieve.
The Slop – No matter how long a pond can remain dry, the sediment never gets very pliable, so moving it around will always make a huge mess all over the surrounding landscaping.

The maintenance of ponds requires a unique combination of both our Aqua Cleaner machines because ponds inevitably are full of an array of debris, which makes dredging them difficult for most standard dredge pumps to handle. We typically use a two-step process where we work an area first with our suction-harvesting machine to remove the debris and give us clean sediment. As we use the Suction-Harvester, we contain and consolidate the sediment with a silt curtain and then pump it out with our spot-dredging machine. Our process is the only one in the industry that actually is operated with our manpower in the water at all times, and thus allows us to deal with and overcome the obstacles those ponds present.

Bigger is not always Better

Standard dredge machines move large amounts of sediment that are accompanied by large amounts of water, 1500gpm and higher. As a result the amount of space that is required to de-water this slurry is also significant. A logistical aspect that typically is hard to accommodate. Our Aquacleaner machines move only 300gpm, with a significantly higher percentage of solids, which allows us to manage our slurry in a smaller, confined area.

This hands on approach allows us to overcome the obstacles and challenges that ponds inevitably bring and has made UWS the leaders in pond restorations.