Aquacleaner Environmental

"Leader in Waterfront Restoration Technology"
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Lake Association Program

Introduction: ***Aquacleaner Environmental*** a company that manufactures several unique machines that offer real solutions in the restoration and reclamation out your lake. When groups of people have homes on a common body of water, they face similar, reoccurring problems that need to be dealt with as a group. If one house on a lake has problems with aquatic vegetation, silt, leaves, rocks, sticks or zebra mussels, it's reasonable to assume that most others on the lake share similar problems. Starting with individual homeowners helps begin the reclamation process, which can be then extended to areas of the lake that are problematic. The dynamics that occur in water provide the best medium (better than air) for various types of problems to travel freely from one place to another and spread. The process of reversing and reclaiming what Mother Nature has left you requires a group effort with a short and long term plan.

Aquatic Vegetation is a perfect example. 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. If you have the perfect yard but your neighbor has a bunch of dandelions, the wind blows the wrong way and now you have the dandelions. Now 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, you can suppress an infestation.

Silt Build Up is another problem that affects your lake as a whole. Silt comes from two main sources.

1) Organic Build Up: This is the result of long-term accumulation from aquatic vegetation or leaves that blow into your water. To understand what and how it occurs again use the example of what takes place in your back yard on land. If you take a pile of leaves and bury them in your yard, they will eventually decompose and turn into a black organic matter commonly known as compost. The same reaction occurs in the water through leaves or with aquatic vegetation. Silt is a pure organic matter mixed with water. It is a nasty bottom to step in, and over time can over ruin your shoreline and reduce the amount of usable space as the water recedes and the silt builds up. It also provides a very fertile bottom that aids in the spread of aquatic vegetation.
2) Run Off: When water travels, it brings things with it. Soil that comes from land and enters your waterway through storm run-offs, culverts and tributaries, may not be as organic as that from vegetation, but it's results are the same.

Regardless of how the silt has built up, leaving it there is only going to deteriorate your lake and cause further problems. Aquatic vegetation loves a rich, nutritious soil to take hold in and over time as water travels from other places, seeds or fragments from other plants will enter your lake and have a nice bottom to take root in.

Working as Team: Everyone who lives on your lake is affected by the various problems that will eventually occur in any body of water, and a team approach should be in place so that everybody benefits from the work that is done. UWS with the use of our Aqua Cleaners can reclaim your lakes by helping you establish a remediation program so that those who use it can truly enjoy it.

Why Form a Lake Association: By bringing together your neighbors and forming an association you are putting in place the necessary tools for acting as one in the interests of all. Not dealing with your lakes problems or allowing individuals to act on their own will not make a real difference and in the long term and can actually cause detrimental results including a devaluation of the property values to everyone on the lake. When someone wants to buy a house on a lake, they expect to have a nice, useable property. Having silt up to your hip or aquatic vegetation growing all over looks nasty, constricts the ecosystem, and also keeps you from being able to enjoy your water.

Benefits From Having an association Include:

1) Being able to request grants and funding from various sources
2) Working as a team with everyone's interests in mind to accomplish goals
3) Working together to solve problems long term
4) Educating members as to various problems to affect everyone

Dredging and Suction Harvesting Solutions: The Aqua Cleaners can solve most of the problems that your lake has and give each homeowner a Restored Water Front property. At UWS, we offer two solutions to your problems.

Options:

1) **Purchase/lease 5" Machine Suction Harvester or Dredger -** Purchasing the equipment so that each homeowner can maintain their property to their own satisfaction. By purchasing the equipment from us, your lake and those who live on it will always have the means to keep the quality of your property at it's best

2) **Contract us do the work with our Suction Harvester or Dredger** – We will discuss and coordinate an appropriate treatment plan that meets each clients needs.
3) ***Buy or lease The Aquacleaner Octopus*** – This is the latest, and most advanced waterfront remediation machine that offers several unique configurations to tackle any type of project. This machine can be used with 2 suction harvesters, or one suction harvester and 2 dredge pumps.

Having us do the work:

UWS stands ready take on any size project and your lake is no exception.
Rate: Vegetation Removal - $200.00/hr with an acre averaging $15,000.00
Dredging - $30/cyd without dewatering and an additional or $10/cyd with the dewatering bags.
Our cost is significantly less and goes down with large acreage jobs.

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Costs for our Equipment:

Suction Harvester - 5" machine starts at $30,000 plus extras
Dredging machine – 3" hose starts at $30,000 plus options
Refurbished Machines starting at $20,000
Octopus Pontoon Boat – 28' multi purpose water restoration machine starts at $80,000

Labor

When considering this option the number one question that needs to be addressed is " who will do the work if you purchase the machine"? There are several options that you have to answer this dilemma.

1) You can hire them your selves. The Aqua Cleaner machine can be operates by as few as 2 people that you can hire for as low as $10.00 per hour/pp. UWS can help you find these people and will train them to use our equipment to our companies standards and be compliant with the state.
2) You can use volunteers from the lake home owners
3) You can work with an established landscaper who can take your employees and put them under his insurance at a reasonable rate or potentially have us put your people on our payroll

The reason this option should be considered is as follows:

1) The Cost Factor – The only way your lake will ever control and eliminate the vegetation in your lake is to use our machines over time. No matter who does the work, and how through the job, vegetation will continue to grow in small amounts due to factors that no body has control over. Mother Nature assures us of her unpredictability. Water travels from place to place and with it seedlings and fragments associated with vegetation and re growth travel with it. So over time owning this equipment will assure you that your lake can remain properly managed.
2) Your Job will cost a sizeable sum to have us remove the aquatic vegetation in its entirety. By using your funds to purchase our equipment you assure yourselves that you will have control of your lakes destiny in a cost efficient manner.

Building a Remediation Program:

Suction Harvesting – If your lake association chooses to buy one of our machines we would recommend that you divide the number of homes on the lake by the days in your season usually as soon as plants are noticeable, and allow each neighbor to have the machine for that period of time to clean up and maintain their property. A smart maintenance program would use the Aqua Cleaner for individual homes starting in May and running till the end of June, then have the machine used to go after large patches of vegetation throughout the lake till mid August, then return to individual homeowners

Dredging –
How It Works: 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. Pumps are the preferred method of dredging but the norm in the industry is large, aggressive machines, which move huge amounts of water (1500gpm and up) along with sediment and are very hard to manage in a small-contained area like the backyard of your lakefront property.

Spot/Suction Dredging operates by sucking up silt and water together (slurry) and pumping it to a desired location. The most cost effective method involves pumping the material into a field and letting the water and sediment dissipate and be absorbed into the ground. Our second option is to pump the silt and water into a dewatering bag that sits on your property. Because we pump a low volume of water, and a high concentration of solids, we are able to contain, separate and manage the spoils and return water with ease. Return water filters out with good clarity but then passes through a permeation berm where it's filtered to an even cleaner level and allowed to return to the source. The remaining water slowly leaches out and over a short period of time, the silt contained in the bag will harden and can then be removed
When performing a sizeable dredge project you need to look at the areas on the lake that are the worst and start there. Then proceed to each individual homeowners house. Typically if you are using a dewatering bag you will want to place the bags in a central location so as to be able to operate within the machine pumping capacity (1000' max). However, please note that the shorter the distance that you need to pump, the more effective the machine will be (the longer the discharge hose, the less suction capacity you will have).

With any large-scale job using this machine you will need to have a place to dispose of the vegetation or dredge spoils. Either your local transfer station or a farmer who wants the vegetation for compost will be needed to place the vegetation in it's final resting place.

Our company will:

A) Provide set up and training of equipment with delivery of your machine
B) Provide 1 year of maintenance on your machine with long term options available
C) Offer assistance in obtaining for you qualified personal to operate the machine

Cost Comparisons

The harvesters that are on the market that will accommodate a large lake such as yours run between $100,000 and $150,000 depending on model and options.
WEED HARVESTERS:

1) Will never solve your problem, because they will only increase the re growth of your vegetation
2) Will leave vegetation that floats and pools in masses all over your lake
3) Can not reach around individual slips, docks and close to the shoreline
4) Is known for substantial fish kills that will reduce your lakes fish population.
5) Can not offer shoreline remediation of leaves, sticks, and assorted debris
6) Our machine will reduce the vegetation in your lake and over time help to eliminate it.

Your cost for labor is approximately $30/hr for a 2 man crew X 80hrs = $4800 PER ACRE so a 10 acre job costs you $48,000.

Dredging: Our dredge machine requires only one person in the water and is easy to use.

These are just estimates but I believe your lake would benefit long term by ownership of our machine.

Capacity – There are several criteria that must be assed to determine the rate of progress (ROP) that you can achieve using our Aquacleaner S.H. It is important to understand the relationship between the times spent in any one spot versus the quantity of vegetation removed. Working the bottom more extensively takes more time but also may yield better results long term relative to the re growth. ROP varies from 200sq/hr to 600sq/hr

Type of plant: Rooting System dictates how fast we can remove this year's plant. Your goal is to get last years plants out as well which are beneath this years plants.
The type of bottom – Soft, silted in bottoms will make plant removal and it's rooting system easier to extract. Hard bottoms like clay or sand will require more suction to get to the rooting system of the plant.
The density of the plant both in how many plants are in a given box as well as how tall they are. More Biomass requires more time to go through a given area.
The Depth of the water is important because deeper water work will slow your rate of progress due to the logistics of moving around while under water and the size of the plants involved.
Define The Other Types of debris in the area to be cleaned. Leafs, stick rocks, zebra mussels, and larger timber must be gone through as part of a shoreline remediation and to maximize your use of the waterfront.

Regulatory Compliancy – Suction Harvesting has been equated to a form of dredging because of its potential for bottom disruption and as such requires knowledge and compliancy with your states regulatory agencies. U.W.S. will secure all necessary clearances and permits (when required) from the appropriate agencies that have jurisdiction in your water body so that you can begin your suction-harvesting program. In many states permits are not required once an operational protocol has been established for you to follow. Dredging requires a permit, which we can get for each home or potentially lake wide.

References – Available upon request once we learn about your application and the level of information you are seeking

Before

After

4 inch Portable Suction Dredge

Dirty Dredgger

Dredge set Up

Upland Staging Area