

Aquacleaner Environmental

“Leaders in the field of Waterfront Restoration Technology”

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The Aqua Cleaner Spot/Suction Dredger



Introduction: U.W.S. Aquacleaner is the leader in spot/suction dredging technology with over 9 years of experience manufacturing and performing service work with our spot dredging equipment. We offer you a variety of choices in size, configuration and options of our machines that will work best for your individual needs as well as a comprehensive training program that teaches you the “art of dredging” to maximize your productivity. Spot/Suction Dredging offers a true form of remediation of your waterfront problems and is not a band-aid like chemicals, bottom barriers or weed harvesters.

Science & Dynamics: Dredging is no longer a nasty eight letter word but rather the natural progression in the remediation of your water way because you are removing the biomass and nutrients that have accumulated over the years in an environmentally sound manner. Firming up the bottom and removing the layers of fragments of invasive plants along with the organic silt has been shown to reduce the growth of invasive plants and prevent algae blooms. Our machines are designed to only extract the soft organic material and not change the natural hardpan contours of your bottom.

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.

STATS AND FACTS ABOUT THE AQUACLEANERS

Aquacleaner Dredger: – We have created a system we call Aqua Dredging where an operator stands in the waterway holding a control rod that has a small water agitator and behind it a 3” or 4” suction hose. The hose has a cage surrounding it with 1 ½” or 2” openings so that nothing too big can get into the suction line. The operator can just work the control rod up and down while the machine creates the slurry and digs your hole.

By working in the water you are the most efficient because you can manage all the debris that is mixed in with the sediment and work through your project much faster.

In some cases (like pure organic silt) we don’t need to use the agitator because we can control the nozzle’s height off the bottom and let the hose mix water and silt together and thus create it’s own slurry. This barely disturbs the lakes bottom but it is an effective methodology that allows us to remove at least 10 cubic yards an hour and create a minimal turbidity cloud.

When dredging areas that are in water over 6’, you can use the Hookah air system that is part of your work barge and supplies air to the diver so that they can operate the nozzle with either configuration to dredge out the specified area.

Dredge Comparisons

Since the disruption found with suction dredging and harvesting is minimal and the impact very short over all time frame involved for a permit is usually minimized when an application is complete and presented to the regulatory agencies. These agencies are concerned with the disruption in the water and upland and the norm in the industry is vastly different than how our equipment operates.

- 1) We don't create a large disruption in the work zone in the water
- 2) Suction dredging is only capable of removing the accumulated organic sediment that is on top of the natural bottom and not altering it. Our equipment is more than capable of moving other material including sand, soft clay and natural lake bottoms.
- 3) Our up land disturbance is also minimal because our staging area is relatively small and localized, and with the use of de watering type bags and secondary filtration burlap, the return water is clean enough to return to the source without creating any long lasting impacts.

The norm in dredging with pumps is very different due to the volume of water flowing, as well as the mechanisms for creating the slurry in the water (augers and cutter heads are designed to permeate the bottom and great depth). Both create large disruptions, require much more work to manage and have the potential for a much longer lasting impact. With volumes of water starting at 1500gpm (compared with 300gpm) you need a much larger area to work with the slurry. Typically larger ponds are dug and return lines run which create disruption from the water to the staging area. Suction dredging can de water within 100’ of the source

Suction dredging is the only form of dredging where you actually stand in the water and work through a projects site thus the marine life that habitat the area is less affected as well.

3” Dredge: This model features an 8hp Engine that provides the power for our dredge pump. On the outside, all pumps look similar however the construction of our pumps on the inside is where our success is derived. We use the finest components including: Silicon Carbide seals, High Chrome Iron Impellers and Pumps Housings. 5.5hp engine powers the water agitator and a 4hp engine is used to power the air compressor.
Flow Rate – 375gpm with a maximum head of 100psi

4” Dredge: This model comes standard with an 11hp engine but has an optional 13.5hp engine.
Flow Rate: 11hp-525gpm, head pressure 86psi and 13.5hp-575gpm, head pressure of 92psi

Options – We offer a variety of options that can aid in the use and add productivity to your daily dredging operations, and will be happy to custom build your accessories based on a better understanding of your individual water bodies issues.

Larger Pontoon Boat – a 16’ aluminum pontoon boat gives you a quality workstation to dredge.

De watering Bags- Can be made to fit your specific project requirements for quantity versus space.

Refuge barge- Available in several sizes and gives you a place to store the assorted debris you will encounter.

Discharge hose – Custom assembled hard and soft hose to meet your project specifications.

Turbidity curtain- Contains turbid water & potential fragments while being compliant with states requirements

Capacity – Dredging with pumps requires becoming acclimated with the various dynamics that you will encounter in your waterway. Different types of bottom material will dredge at different rates but you can expect to move 10-25cyds/hr.

Art of Dredging- Dredging is truly an art that involves several aspects that occur both in the water and up on land.

Mark off area – Taking depth measurements so that you can determine the quantity of material to be dredged.

Soil Consistency- Soil samples may need to be tested for heavy metals and to determine the type involved; Sand, clay and pure organics.

Build staging area- where the material will be pumped and separated (de-watered) if necessary.

Operations- pumping out a slurry into the staging area and allowing it to de water and dry.

Return Water- the water that flows out of the dewatering bag can be filtered again so that it is clear enough to return to the source.

Removal- Cart away the sediment to the “final resting place”.

Training – U.W.S. offers a comprehensive training program with delivery of your machine as well as options for long-term use. We will assist in all aspects of your program including manpower, supplies, and insurance.

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.

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



