

# Aquacleaner Environmental

“Leaders in the field of Waterfront Restoration Technology”

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## **The Aqua Cleaner Dirty-Dredger**



**Aquacleaner Dirty Dredger:** – Aquacleaner Environmental created a machine called the “Dirty-Dredger”, a multi-purpose utility dredge that addresses the types of material that is usually found along a shoreline perimeter of lakes and ponds. Aquatic plants, leaves, sticks, timber and assorted debris are always mixed with the sediment and will bog down any type of dredge pumping system because the consistency is such that pumps and intakes are continuously getting clogged. The nature of our system of dredging requires the machine be operated in the water and such allows us to manage the material we are dredging. The “Dirty Dredger” takes everything out of the water in one step, and then it segments the material, filtering out the solids and passing the slurry mixture directly into our 2- dredge pumps. As a result of this process we can achieve a slurry mixture as high as 60% solids and 40% water. This system is the perfect remedy for a variety of projects including suppression of Invasive Plants like Milfoil, Hydrilla, and Curly Pond Weed using our DASH (diver assisted suction harvesting).

**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 unique form of dredging equipment and the methodology for its use. 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 along with DASH 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. Natural bottoms can be deepened as well depending on their consistency.

**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 in the water and up-land nor does it afford a close tight cleaning. Pumps are the preferred method of dredging but the norm in the industry is very large, aggressive machines, which move huge amounts of water (1500gpm and up) and lower slurry mixtures along with sediment and is 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**

**The Nozzle** – Comes in several configurations.

An operator stands in the waterway holding a control rod that has a small water agitator and behind it a 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.

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 15 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.

## **Components:**

### **Pontoon Boat:**

- A 24' – 28' Pontoon boat with 27" circumference tubes.
- Our work boat is well designed and features a porous deck that allows water to drain
- Totally accessibility with gates in the front and back as well as a side ladder
- Spuds for stability when dredging
- Self propulsion so no out board motor is required
- Out riggers that can carry the turbidity curtains and place them in the water with ease
- 2 6.5" Honda engines and high pressure water pumps
- A 2 Hanger bagging system
- 2 13.5 (4') dredge pumps
- A commercial Air compressor for DASH (diver assisted suction harvesting)
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**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.

**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 15-25cyds/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

**Before and After**

