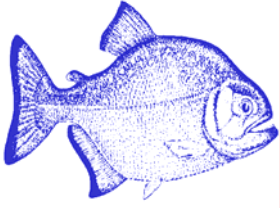


PIRANHA PUMPS ARE MADE BY: EQUIPMENT SPECIALTIES CO. ALBUQUERQUE, NM  
PHONE: (505) 822-0449 FAX: (505) 858-0171



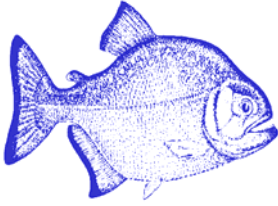
## Piranha—Sand & Mud Removal Pumps & Dredges

**For Removing Sand & Mud From: Marinas, Boat Docks, Canals,  
Ponds, & Waterfront Property**

*Home Of Piranha Pumps* [www.piranhapump.com](http://www.piranhapump.com) & [www.piranhapumps.com](http://www.piranhapumps.com)

Model	horsepower	Engine/Motor	Discharge Size	Excavation Rate cu yd/hr
PS-75-AJ	3/4	115v	2 inch	3-5
PS-135-E	13.5	Honda Gas	3 inch	20-30
PS165-E	16.5	Honda Gas	4 inch	30-40
PS165-ER	16.5	Honda Gas	4 inch	30-40





## **Piranha—Mini Dredges**

### **Models PS135E—PS165E—PS165ER**

### **13.5 & 16.5 Horsepower**

**For Removing Sand & Mud From: Marinas, Boat Docks, Canals, Ponds, & Waterfront Property**

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The Piranha Mini dredge was developed in response to thousands of requests received from waterfront property owners. Decades of runoff and vegetation decay has robbed the storage capacity of lakes, ponds, and canals throughout the United States. The Mini dredge is a compact, highly portable, gasoline engine powered sediment removal pumping system, designed to provide the homeowner and contractors with the ability to excavate and transfer unwanted sediment. It is an efficient alternative to machinery such as: back hoes, excavators, and drag lines. These methods of mechanical excavation are expensive, have limited reach, are destructive to the shore, and typically deposit the material adjacent to the shore only to wash back in with the first good rain.

Our dredges is particularly effective in removing sand, silt, and that fluffy black stinky mud that has ruined your ability to enjoy your waterfront. It is not possible for a dredge in this price range to excavate thousands of cubic yards of material in a short period of time. The excavation capability of these units are in the neighborhood of 10-40 cubic yards per hour depending upon: the nature of your sediment, distance pumped, and your energy & skill levels. To give you a point of reference, a pile of sand the size of a Ford F250 pickup truck would be about 20 cubic yards. That generally represents the size of a hole that you can make in an hour. If you are cleaning a modest area for example; around a dock or boat slip, you can expect to get the job done relatively quickly. On the other hand, if you have a large surface area to cover, say 1 to 2 acres, you are going to be whittling away at it for awhile. Using our pickup truck example again, if you dredge for 4 hours every other

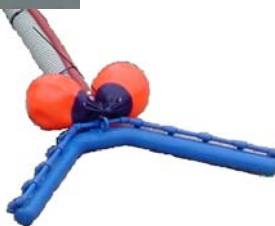
Model PS135E & PS165E

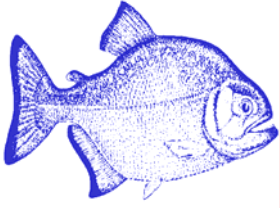


Model PS165ER



weekend for 6 months, you would be able to park a fleet of 50 trucks in the hole that you created. The intent here is to provide you with the means to diminish your sediment problem with a quality, yet affordable piece of equipment. You are also going to have to be prepared to deal with the fact that you will be pumping a lot of water along with the sediment. The mud is not going to come out of your discharge hose looking like toothpaste. Even expensive industrial dredges can't do that. On the other hand, this unit will provide you with the means to renew the quality of your waterfront, and the quantity of removed sediment will be limited only by the amount of time & energy that you put in to it.





## **Piranha—Mini Dredges**

*Home Of Piranha Pumps* [www.piranhapump.com](http://www.piranhapump.com) & [www.piranhapumps.com](http://www.piranhapumps.com)

**What is the difference between the Mini dredge pump and cheaper engine driven self priming trash pumps?** First of all, a self priming pump alone is not very effective in removing sediment. The agitator water jet system is necessary to deliver kinetic energy (energy of motion) to the sediment to take it from a solid state rendering it a fluid slurry.

Cheap trash pumps are not designed to withstand abrasion or shock. Cheap trash pumps usually utilize small diameter carbon/ceramic shaft seals. Carbon/ceramic is the cheapest seal material there is and is a strong indication that your pump is designed to pump water only. The shaft seal is the component that seals the engine shaft as it enters the pump case. A leaky shaft seal will disable your pump completely, by allowing air to enter the pump case instead of water being drawn up the suction hose. The Mini dredge pump is equipped with an oversized silicon carbide shaft seal. Silicon carbide is a premium seal material that is utilized in most industrial grade pumps. We also make the seal much larger in diameter than those found in most "trash pumps". Small diameter seals fit snug on the drive shaft. When a hard piece of debris (rock, wood, etc) hits the pump impeller, it deflects the shaft momentarily and fractures the seal. Our seals have a large inside diameter with a lot of space between the seal and the shaft preventing seal damage from shock. Also, in order for mechanical seals to work, they all utilize a stainless steel compression spring to hold the seal faces together. Lazy pump manufacturers, leave that spring exposed in the water way behind the impeller, rendering it vulnerable to abrasive wear and to collecting stringy material & debris. Our seal spring is tucked away in a recess machined in the pump housing, sealed away from abrasives and debris.



15 minutes of dredging-7 cubic yards

The second most vulnerable component to abrasive wear is the impeller. You will find that most trash pumps have a cast iron impeller. Cast iron is popular inexpensive material, and serves adequately for non-abrasive pump applications. The next level above cast iron is ductile iron. Then comes heat treated stainless steel. The top abrasion resistant impeller material is high chrome iron. High chrome iron impellers are usually only found in severe duty industrial slurry pumps because they are so hard they are expensive to machine. The Mini dredge has a high chrome iron impeller.

We manufacture the Mini dredge with innovative design features from the highest quality components & materials, too many to list here. We could make a cheaper dredge, but it wouldn't work as well or last as long. We've been manufacturing industrial grade pumps for over 40 years. We are very critical about quality, and we make our pumps as if we are building them for ourselves.

**What is the difference between the Mini dredge and a gold mining dredge?** That's like asking about the difference between apples and oranges. A gold mining dredge has a totally different design and purpose. A gold mining dredge utilizes a device called an "eductor" in conjunction with an inexpensive water pump. This system is designed to pump a lot of water with low slurry content a relatively short distance, usually into a nearby sluice, and is normally deployed by a scuba diver. The Mini dredge does the opposite. It moves large quantities of slurry a great distance (up to 900 feet).

# Piranha—Mini Dredges

**How far can the Mini dredge transfer sediment?** This depends upon the vertical elevation differential, and the type of sediment.

The vertical elevation differential, otherwise known as “static head”, is the elevation difference from the surface of the water body to the point of discharge. There are two important factors to point out here. First, it does not matter how far the sediment is below the water surface. Static head begins at the water surface. Secondly, it makes no difference if your discharge is going up and over a hill. The static head begins at the water surface, and ends at the open end of the discharge hose. For example: if your are dredging from a lake, and your discharge hose runs up over a 30 foot high dam, then down 20 vertical feet the other side of the dam, then your static head is 10 feet.

The type of sediment will have some effect on the production rate and on the distance that you are able to pump it. Most of our customers are dealing with either black stinky fluffy mud, or sand. The Mini dredge works well with both types of material.

In order to transport a slurry through a pipe or hose, it must maintain a minimum velocity to prevent the sediment from settling in the hose, eventually forming a restriction or plug. The term for this is “minimum critical carrying velocity”. The text book minimum velocity for mud is 3 to 5 feet per second. We prefer to utilize a more conservative value of 7 feet per second. The text book minimum velocity for sand is 5 to 7 feet per second. Again, we prefer to utilize a more conservative value of 9 feet per second.

Velocity is defined by the flow in gallons per minute, and the discharge hose diameter. 154 gallons per minute through a 3 inch hose translates to 7 feet per second, the minimum velocity for transporting mud. 198 gallons per minute represents 9 feet per second, the minimum velocity for sand. As you increase either the static head or the discharge hose length, you are simultaneously decreasing the flow and velocity.

To utilize the table below, estimate the total length of discharge hose. 15 feet of static head is roughly equivalent to 100 feet of hose. Add 100 feet for every 15 feet of static head. For example: you have 200 feet of actual discharge hose, and 30 feet of static head, then, utilize the 400 foot discharge hose value in the left hand column. Your flow will be 200 gpm, velocity 9.99 feet per second (plenty for both sand and mud), and your dredging capabilities will be 19 cubic yards per hour for sand, 22 yards for mud. If you phone us with your actual parameters, we will plot a precise computer generated graph of your dredge performance. Following is general performance data pertaining to our dredge model PS135E.

Discharge Length in Feet	Flow Gallons Per Minute	Velocity Feet per second	Sand Cu yd/hr	Mud Cu yd/hr
50	330	14.98	28	32
100	310	14.07	26	30
200	265	12.03	23	26
300	235	10.67	20	23
400	220	9.99	19	22
500	200	9.08	17	20
600	185	8.4		18
700	175	7.94		17
800	165	7.49		16

# Piranha—Mini Dredges

## Commonly asked questions:

**If I turn my dredge on in the morning and come back at the end of the day, will it have done my dredging for me?** That is like asking, if I get in the back seat of my car, will it take me to work? Come on people, this is a piece of machinery that requires an attendant.

**Here's another good one. I have an area overgrown with cattails. Will it chop up the cattails and dig up the roots?** The answer is no. A \$500,000 dredge would not do that. Dredges excavate sediment. That means sand, mud, decayed vegetation, sewage, gravel, shells, and virtually any type of sediment that is broken down into small particles that are not glued together. Dredges will not pump lily pads, moss, or any other stringy vegetation.

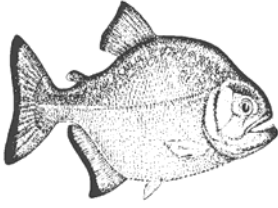
**Will it pump leaves?** The answer is yes, but there are some limitations. Our standard suction head has a strainer with 1 1/2 inch square holes the material must pass through before entering the suction hose. Leaves will have a tendency to collect on the strainer and starve the pump. We also offer a modified "leaf strainer" with 3 inch square holes. The "leaf strainer" allows a generous path for leaves to pass. However, it must be used with some caution. The standard strainer is designed to prevent large rocks, chunks of wood, etc, from damaging the pump. By utilizing the leaf strainer, you are eliminating this safe guard. Also, the dredge is intended to primarily excavate sediment with leaves scattered in the mix, and not the other way around. In other words, if you have clumps of leaves, or thick layers of leaves, you would be better off removing them by some other method.

**What about clay?** The term "clay" is actually a definition of particle size, although most people think of clay as goeey sticky mud that is difficult to wash off your shoes. An easy way to determine whether or not your material is suitable for the dredge, is to put a ball of it in a jar of water and shake it vigorously a few times. If it does not completely fall apart in the jar, then you are not going to be able to pump it.

**How about using it in salt water?** Salt water is fine but you will need to take extra care to hose the pumps and engines with fresh water after every use. The pontoon floats are made of high density polyethylene (HDPE), and are extremely resistant to salt, chemicals, and ultraviolet light. The frame has an oven baked urethane powder coated finish that is also resistant to corrosion and UV light. Also the pontoons are secured to the frame with stainless steel fasteners.

**How long will my pumps last?** That will depend upon the type of sediment you are pumping, and how extensively you use it. Sand is by far more abrasive than mud, and will wear your pump much more quickly. The key wear components in the dredge pump are made of highly abrasion resistant materials, are designed to withstand sand abrasion, and are relatively easy to replace with new parts. If you are utilizing it for intermittent cleaning of limited areas such as boat docks, waterfront, channels & canals, then you can expect it to run a long time before wearing anything out. On the other hand, if you are planning to pump sand for 10 hours a day for months, then you need to invest in one of our industrial dredges.





## Piranha

### Agitator Slurry Pump

#### Model PS-75-AJ

**3/4 HP / 2 Inch Discharge, 115v single phase**

**3-5 cubic yd per hour**

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**Model PS-75-AJ: Submersible sand/mud pump with mechanical agitator & water jet, 115v. Water jet is powered by your garden hose. 3 to 5 cubic yards per hour. We developed this pump for those who have small sediment removal tasks, where the expense & pumping capacity of our gas engine powered dredges is not justified. These pumps pass 3/8 inch solids, and work well in mud & sand removal applications where debris is not present.**

#### *Pump Construction*

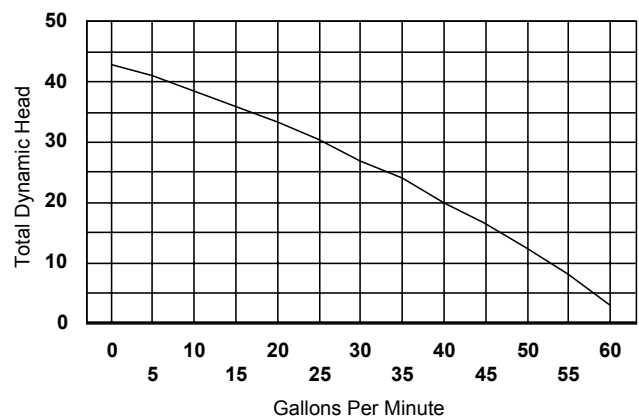
- Solids Size 3/8 inch
- Impeller High Chrome Iron  
Semi Vortex
- Agitator High Chrome Iron
- Volute Ductile Iron
- Seals Silicon Carbide
- Pump Weight 33 Lbs
- Dimensions: 11" W x 8.5" W x 15.5" H

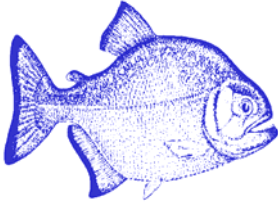


#### *Motor Specifications*

- Rating 3/4 HP
- Voltage 115 Volt
- Current F.L.A. 7.5
- Service Factor
- Thermal Overload Integral Switches
- RPM 3450
- Power Cable 30'

Piranha Agitator Pump  
Model PS-75-A/AJ





# Piranha

## Dredge Model PS135E

### 13.5 Horsepower

### 20-30 cu yd per hour



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#### Specifications:

##### Piranha Dredge pump:

8 horsepower, Honda air cooled 4 cycle engine, 3600 RPM  
Self Priming  
Maximum Flow: 350 gpm  
Suction: 3 inch  
Discharge: 3 inch  
Impeller: high chrome iron, semi-open, clog resistant  
Wearplate: stainless steel  
Volute casing: cast iron  
Mechanical seal: silicon carbide  
Solids Handling: 1.5 inch solids  
Pump weight: 140 lbs  
Fuel tank capacity: 1.5 gallons  
Engine run time: 3.25 hours per tank full

##### Piranha Agitator Pump:

5.5 horsepower, Honda air cooled 4 cycle engine, 3600 RPM  
Self Priming  
Suction: 1.5 inch  
Discharge: 1 inch  
Impeller: aluminum  
Volute: cast iron  
Mechanical Seal: silicon carbide  
Pump weight: 65 lbs  
Fuel tank capacity: 1 gallon  
Engine run time: 3.25 hours per tank full

Maximum practical dredging depth: 14 feet

Floatation platform: Tubular steel base and upper structure, urethane powder coated finish

Modular floatation pontoons: High density polyethylene, foam filled, UV & chemical resistant

With stainless steel fasteners

Suction hose: 3 inch by 20 feet

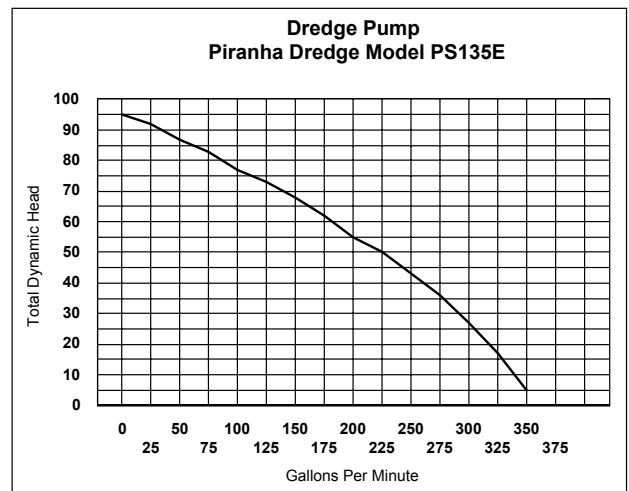
Discharge hose: 3 inch by 25 foot sections, w/quick disconnect couplings

Swamp capacity: 796 lbs.

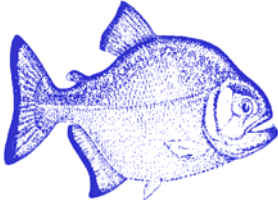
Total weight: 395 lbs.

Dimensions: 7'1" L x 4'9" W x 3'9" H

Draft: 10 inches



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# Piranha

## Dredge Model PS165E

### 16.5 Horsepower, 4 inch

### 30-40 cubic yd per hour



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#### Specifications:

##### Piranha Dredge pump:

11 horsepower, Honda  
Pull start  
Self Priming  
Maximum Flow: 550 gpm  
Suction: 4 inch  
Discharge: 4 inch  
Impeller: high chrome iron, semi-open, clog resistant  
Wearplate: stainless steel  
Volute casing: cast iron  
Mechanical seal: silicon carbide  
Solids Handling: 1.5 inch solids  
Pump weight: 165 lbs  
Fuel tank capacity: 1 3/4 gallons  
Engine run time: 2.5 hours per tank full

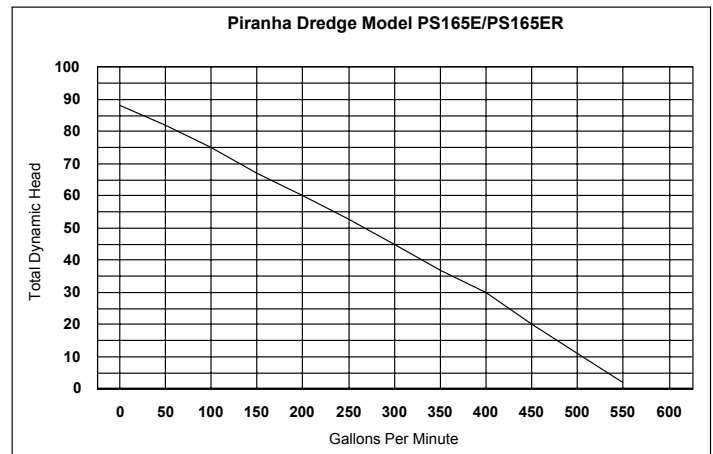
##### Piranha Agitator Pump:

5.5 horsepower, Honda air cooled 4 cycle engine, 3600 RPM  
Pull start  
Self Priming  
Suction: 1.5 inch  
Discharge: 1 inch  
Impeller: aluminum  
Volute: cast iron  
Mechanical Seal: silicon carbide  
Pump weight: 65 lbs  
Fuel tank capacity: 1 gallon  
Engine run time: 3.25 hours per tank full

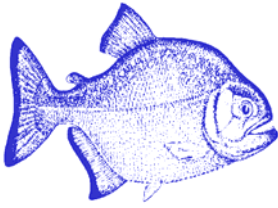
Maximum practical dredging depth: 14 feet  
Floatation platform: Tubular steel base and upper structure, urethane powder coated finish  
Modular floatation pontoons: High density polyethylene, foam filled, UV & chemical resistant  
With stainless steel fasteners

Suction hose: 3 inch by 20 feet  
Discharge hose: 4 inch by 25 foot sections, w/quick disconnect couplings

Swamp capacity: 796 lbs.  
Total weight: 420 lbs.  
Dimensions: 7'1" L x 4'9" W x 3'9" H  
Draft: 10 inches



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## **Piranha– Wireless Remote Control Dredge Model PS165ER 16.5 Horsepower, 4 inch Dredge Head Width: 4 feet**



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### **Specifications:**

#### **Piranha Dredge pump:**

11 horsepower, Honda  
Pull start  
Self Priming  
Maximum Flow: 550 gpm  
Suction: 4 inch  
Discharge: 4 inch  
Impeller: high chrome iron, semi-open, clog resistant  
Wearplate: stainless steel  
Volute casing: cast iron  
Mechanical seal: silicon carbide  
Solids Handling: 1.5 inch solids  
Pump weight: 165 lbs  
Fuel tank capacity: 1 3/4 gallons  
Engine run time: 2.5 hours per tank full

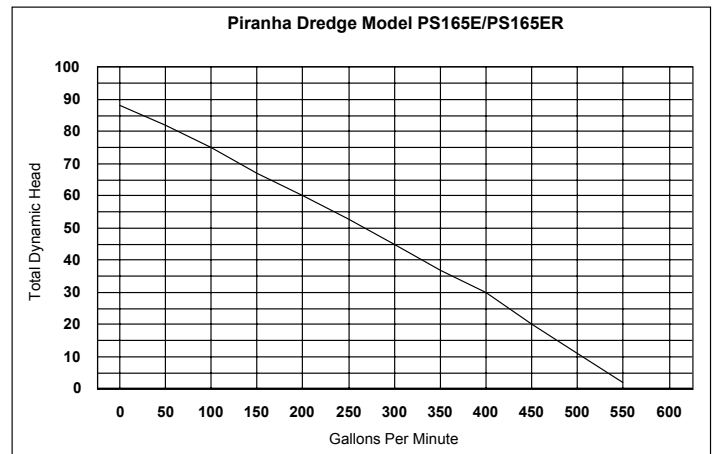
#### **Piranha Agitator Pump:**

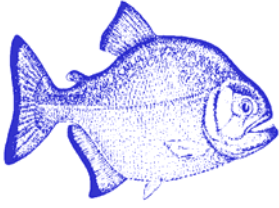
5.5 horsepower, Honda air cooled 4 cycle engine, 3600 RPM  
Pull start  
Self Priming  
Suction: 1.5 inch  
Discharge: 1 inch  
Impeller: aluminum  
Volute: cast iron  
Mechanical Seal: silicon carbide  
Pump weight: 65 lbs  
Fuel tank capacity: 1 gallon  
Engine run time: 3.25 hours per tank full

#### **Propulsion:**

Wireless remote controlled (range 150 feet), propeller drive, w/electronic compass autopilot  
24v, 2/ea deep cycle batteries, 115v battery charger

Maximum practical dredging depth: 12-14 feet  
Floatation platform: Tubular steel base and upper structure, urethane powder coated finish  
Modular floatation pontoons: High density polyethylene, foam filled, UV & chemical resistant  
With stainless steel fasteners  
Suction hose: 4 inch by 8 feet, 3/ea 5 feet hose extensions (23 feet total)  
Discharge hose: 4 inch by 5 feet  
Floating discharge: 6/ea 15 foot assemblies (additional floating discharge optional)  
Dredge weight: 850 lbs.  
Dimensions: 10' L x 4'9" W  
Draft: 10 inches





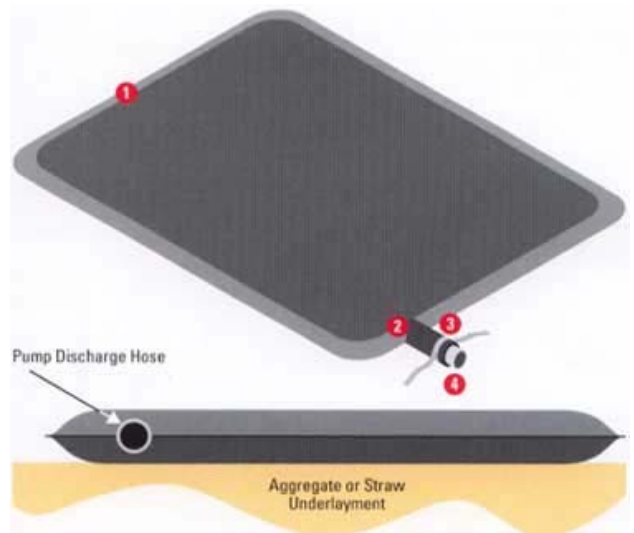
## Piranha Sediment Collection Bags

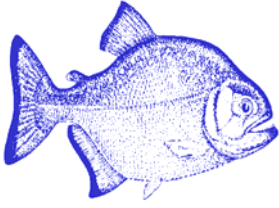
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Piranha sediment collection bags effectively collect: sand, silt, & fines. The bag collects the sediment, while the clean water gently filters out from all sides. The bags we keep in stock are 6 feet x 12 feet. Generally, you have successfully filled the bag when it is about 18-24 inches high with sediment (3.5 to 4.5 cubic yards).

The bags can be placed almost anywhere, including on a trailer for easy disposal. If you place the bag on a slope, you should drive several stakes in the ground on the downhill edge. Without support to prevent the bag from moving, it will roll down the hill. It is also helpful to place the bag on a porous surface, allowing the bottom surface area of the bag to drain. This utilizes the entire surface area of the bag.

There are many flavors of geo-textile material available to make sediment bags. There is always a trade off, water quality vs ease of filling. Material with small pores that filters the water thoroughly, requires a large surface area to purge the water, hence very large bags. Much more porous material, produces dirtier discharge water, but is less prone to pore clogging. The bottom line difference is that there is a trade off between clean discharge water & ease of filling the bags. Our stock bags are made of porous material because of their relatively small size, 6 feet x 12 feet. They fill easily with coarser sediment & debris. Very fine sediment, like black organic mud, requires smaller pores & much larger bags which are available upon request.





## Piranha—Mini Dredge Ordering

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Our Mini dredges are shipped to you completely assembled, and ready to go to work. You simply add gas & oil to the engines, fill the pump cases with water for the first time, attach the quick connections on the hoses, and you are ready to pump. No tools are necessary. We offer the dredges in several packages to cover most water front applications. We would be happy to customize your hardware configuration to your particular needs. The Mini dredge is a “high head” dredge pump, capable of discharging 500-900 feet. In nearly all applications, you will need more discharge hose (additional hose prices are at the bottom of the price list). All hoses come with camlock quick connect couplings.

### Dredge Models

**PS75AJ with discharge hose 2 in x 25 ft**

**PS135E**

**PS165E**

**PS165ER**

**(Economy model for deployment on your boat)** All the pumps & plumbing- less base frame & less pontoons, and with 10’ agitator pump suction hose. (PS135E & PS165E)

### Additional Hose:

Floating discharge hose (non-collapsible): **3 inch** x 25’ w/quick disconnect couplings, 3/ea hose floats.

Non-floating discharge hose (non-collapsible): **3 inch** x 25’ w/quick disconnect couplings.

Lay flat discharge hose (Goodyear): **3 inch** x 50’ w/quick disconnect couplings.

Floating discharge hose (non-collapsible): **4 inch** x 25’ w/quick disconnect couplings, 3/ea hose floats.

Non-floating discharge hose (non-collapsible): **4 inch** x 25’ w/quick disconnect couplings.

Lay flat discharge hose (Goodyear): **4 inch** x 50’ w/quick disconnect couplings.

**Sediment Collection Bags ( 6’x12’).**

### Suction Heads:

PS135E, PS165E, & PS165ER all come with two suction heads to be fixed to the end of the 16 foot wand. The **standard** head (right in photo) has 1 inch round holes which prevents large hard objects from entering that may not otherwise pass through the pump. Stainless steel construction, 1 inch dia holes. Excellent in penetrating deep layers of mud & sand where a minimal amount of debris is present, and minimizes the risk of large rocks entering the pump. The “leaf head” (left in photo) 1.5 inch square holes, expandable to 1.5 in x 3 in, and 3 in x 3 in. The leaf head passes larger “soft” leaves & vegetation, however, there is a risk of pump damage due to large rocks & hard objects.

