WHAT IS A SUCTION DREDGE?

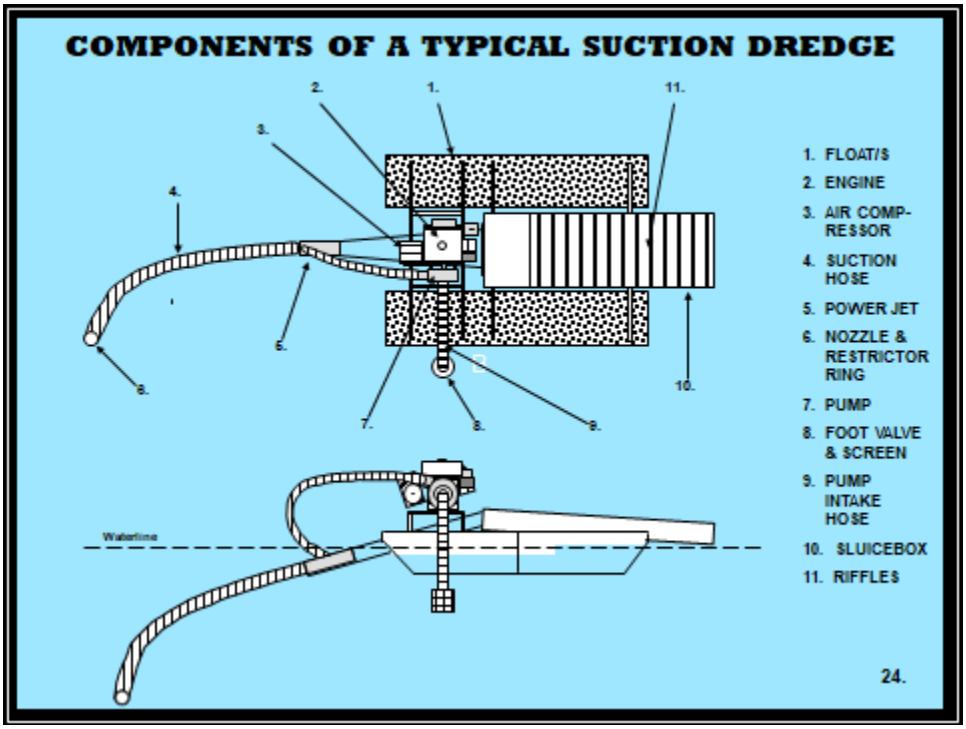
The image below shows a typical 5-inch suction dredge.

This dredge has an 8 HP engine driving a water pump and an air-compressor.

Such dredges add nothing to the water. No chemicals are used.

Anti-mining folks have described these machines as “huge” and “high-powered,” and yet they fit in most pickup trucks, and are powered by a typical lawn-mower engine.

The dredge works like an underwater vacuum cleaner. It has a hose hanging off the front that sucks up streambed material and delivers it to the sluice box floating on the dredge. Heavy material, such as gold, lead and iron are caught in the sluice box and the lighter material falls off the rear back into the stream. Absolutely nothing is added.



Suction dredges are highly portable. Most can be disassembled and easily packed into areas and reassembled, allowing miners to work virtually anywhere to depths of 20 feet or more without diverting the streams

The pump intake is screened so fish cannot get sucked into the motorized pump.

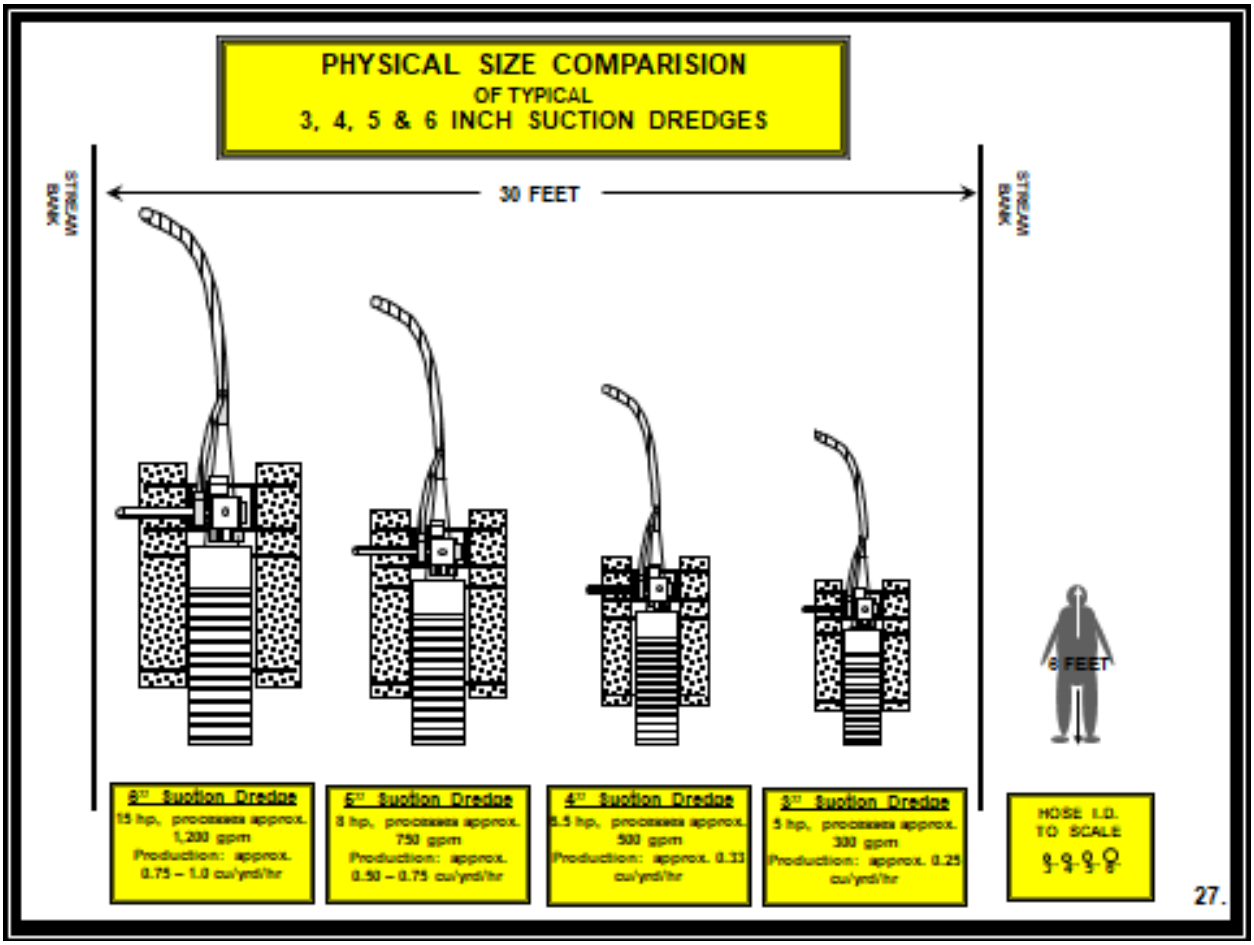
Suction is created in a special venturi-tube in-between the main suction hose and the sluice box.

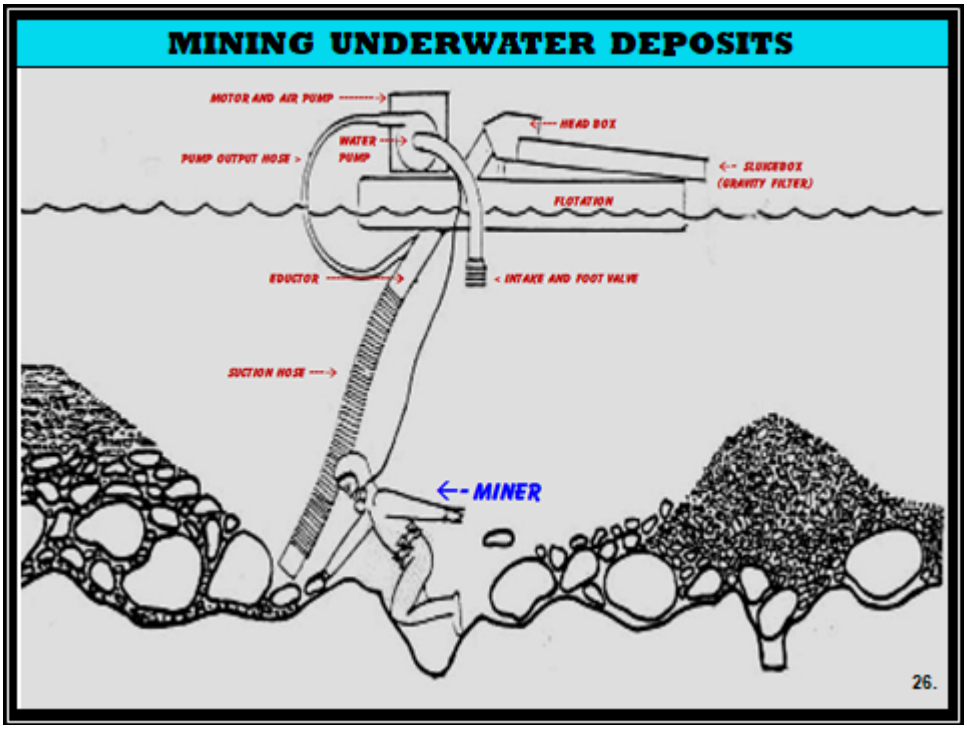
In cooperation with Washington State authorities, suction dredgers proved that non-cooked hot-dogs survived a dozen passages through a 4-inch dredge without any damage.

Suction dredges are classified by the diameter of the suction hose. A 4-inch dredge has a suction hose with a 4-inch inside diameter. By far, 4-inch dredges are the most commonly used by underwater miners due to portability, cost, and physical size. An experienced underwater miner can move and process about a third to a half-cubic yard per hour with a 4-incher. This is similar to how much material per hour can be moved with a shovel. The problem is that you cannot shovel underwater.

All dredges have a restrictor ring at the intake end of the suction hose. The ring is usually ½ to 1 inch smaller in diameter than the suction hose. This is to prevent rocks from getting stuck in the hose. A 4-inch dredge can normally pass a rock up to about 3-1/2 inches in diameter. All rocks

larger than the nozzle must be physically moved out of the way by the miner. Most of the work involved in suction dredging is in moving the larger sized rocks out of the way.





To left is a simplified drawing of a typical suction dredge operation. In most cases, the goal is to reach and clean the underlining bedrock

Once a hole is opened down to bedrock, the miner slowly works forward cleaning the bedrock as he/she moves

cobble rocks and boulders to the rear of the hole. Then those rocks normally become buried in tailings from the sluice box.

In this drawing, to scale, the miner is working in about ten feet of water.

SELF RECLAMATION: Unlike just about every other method of mining, the affects or disturbances from suction dredge mining are very short-term. They are nearly always 100% reclaimed by nature during the first winter high-water event. After one winter, except for maybe a few rocks out of place, even an experienced suction dredge miner cannot tell if the area has already been dredged.

Studies have shown that the naturally filled in dredge holes and dredge tailings can make good spawning habitat by supplying clean, loose well-oxygenated material needed for spawning beds.

Studies have shown that all the small underwater bugs repopulate the dredged area within 30-40 days in numbers higher than before.

Deep holes left from dredging create cool-water refuges that fish use during the warm summer flows during hot weather.

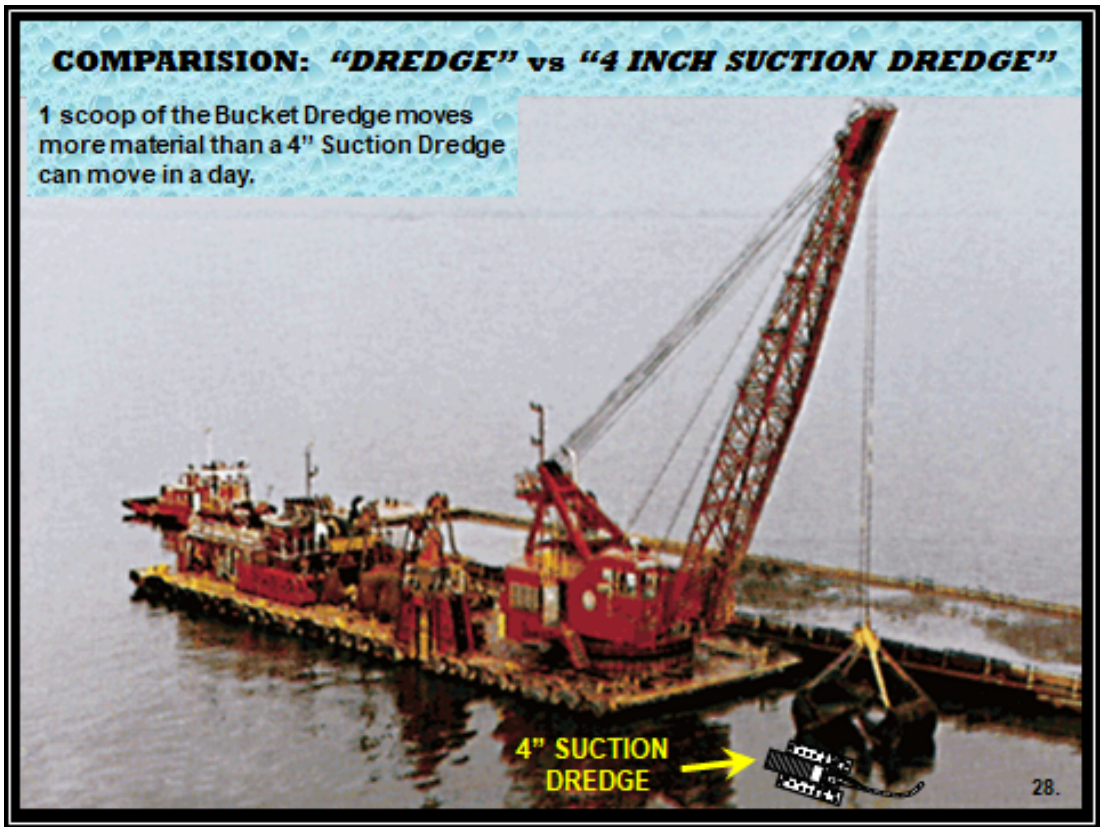
Rather than flee, fish flock to the dredge site as soon as the miner starts working. They swim all around the miner feeding on material loosened and exposed by the miner. Fish also congregate immediately below the suction dredge discharge, feeding on material coming out the sluice. The only real danger to fish is they might get fat!

Suction dredges or other in-stream small-scale placer mining perform a valuable service in that they recover and safely remove from some areas massive amounts of lead (mostly fishing sinkers), iron and rusty metal, tires, paddles, and all sorts of trash from the waters at no cost to the taxpayers.

In the rare chance the miner runs into any liquid mercury, a study conducted by California State Water Resources determined that modern suction dredges will safely recover and remove close to 98% (with the remaining maybe 2% lost back into the stream where it instantly starts to settle down through the sediment where it just came from. For the good we are doing by removing lead and mercury, we should be getting paid above any gold we might find!

But we are not asking to be paid. We just want to go back to work, again.

It is unfortunate that the word “dredge” is used for the underwater vacuum-cleaners we use. This is because the word brings to mind huge historical machines that were able to move hundreds of cubic yards per day or hour! Below shows such a typical commercial bucket dredge and a typical four-inch suction dredge.



How much money has America invested into removing lead and mercury from the environment?

Restoration of older buildings that have lead-based paint are considered hazmat sites.

Every year, States issue hundreds of thousands or millions of licenses which allow people to throw lead into our supposedly pristine waters that must be protected from mining. Yet, suction dredging is the only practical way to recover and remove all those heavy metals that are resting at the bottom of waterways.

How much lead?

In 2013, three suction dredges working in the Umpqua River in Oregon recovered seven 5 gallon buckets full of lead in less than one week at no cost to the public.