A balanced perspective on small scale dredging

Contributed by Unknown
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There is an old adage that says, “If you shout something loud enough, long enough, and often enough……it becomes believable enough, by enough people….to pass as fact.”

Thus is the hope of environmentalists who claim that small scale dredging is harmful to fish. Environmentalists and other special-interest groups have recently been engaged in an all-out assault against small scale dredgers, alleging that this mining activity is harming fish. Well, actually, what they are saying is that this activity “may” harm fish, and on that basis alone, they are seeking to shut down the small scale dredging industry. Their allegations are rife with supposition such as “may”, “could”, “might”, “can”, etc. Now, there’s a good reason for this.

Generally, when someone is alleged to be causing environmental harm, there are two things. First of all, there is scientific evidence that environmental harm is being caused in the first place….a corpse if you will….a dead herd of buffalo, dead birds laying on the ground, defective eggs, mutant lizards, or in this case, dead or injured fish. Secondly, there is sound scientific proof that a particular activity or situation is causing this harm. Ironically, in the issue of small scale dredging, neither of these two factors is present. Neither environmentalists nor biologists who have monitored small scale dredging for decades have provided any scientific proof whatsoever that a small scale dredger has ever harmed a single fish! Let me repeat that.

Not… one… single… fish!

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You can bet your boots that if any such evidence did exist, it would have been bannered and exaggerated all over the news media. Environmentalists would be having a heyday with it. Instead, they are left completely empty-handed. Yet, they continue to press their assault against small scale dredgers, seeking a political solution while circumventing scientific discovery and the public review process in an effort that is completely devoid of a single fragment of proof. The fact is, that small scale dredgers actually help the fish in a number of very important ways. This will be discussed later.

Let us understand something here. Environmentalism is a wonderful thing. It has driven the cleanup of many of our rivers and harbors. It has exposed many pollution sites, and placed the responsibility for cleanup of these sites squarely in the laps of those responsible. And it has fostered protection for endangered species. Unfortunately, as with all good things, there are those who would abuse it. In addition to its great accomplishments, environmentalism has become a powerful and convenient tool for many “NIMBY“ (not in my back yard) activists. Environmentalists have often been successful in thwarting roadway and rural development projects, and in keeping Walmart out of town. Often, one of the first considerations of opponents to development is “let’s get the environmentalists in here and see if we can stop this.” Many of the involvements by environmentalists were not born of concern for the environment, but by political agenda. Opponents of an unwanted presence can challenge this presence with a powerful tool while cloaking themselves in righteous deed. The Endangered Species Act (ESA) which they frequently rely upon has virtually become the preeminent law of our nation, it is so powerful. Environmental laws, as presently written, often permit a small, radical-thinking, agenda-driven, and often misinformed minority to impose their philosophies upon the general masses with little accountability. And, we as human beings often find such power too seductive to sensibly meter. I am a dredger and an environmentally-conscious person. I admire environmentalists for the good that they do, but I cannot admire their sometimes misdirection, and their prostitution of environmental laws as a political tool.

First of all, it is highly obvious that environmentalists and their legal advocates generally know very little about dredging for gold or they would not make some of the outlandish claims that they do. They are largely unfamiliar with the scope and mechanics of a small scale dredge operation and apparently are hoping that the courts in which they plead their cause are equally unaware as well.

It is important to first understand how a dredge works.

DREDGE MECHANICS

A dredge is a small mechanical platform that is mounted on floats. It consists of a small engine, a water pump, an inclined sluice ramp, and sometimes an air compressor to enable the dredger to breathe underwater. A suction hose is attached to the front of the dredge. Water is propelled through this hose by an injection of water from the water pump. This pumped water is injected up the dredge hose at a very shallow angle, and thereby causes greater volumes of water to be propelled up the dredge hose by what is known as the “venturi principle”. None of the dredged water or material passes through any pump or mechanical device. The dredged material enters the front of the dredge, where it spreads out, slows down, and flows down over a series of small barriers known as “riffles”, and then out the back of the dredge. This section of the dredge is known as the “sluice”. It is now important to understand that gold is just about the heaviest thing found in a stream. Gold has a “relative weight” of 19. (Water has a “relative weight” of 1.) Therefore, gold is 19 times as heavy as water of equal volume.

Dredged water and streambed materials easily travel down this sluice mechanism and out the back of the dredge. Because gold is so heavy, it will drop out of the material flow and become lodged in these “riffles”. This is how miners capture the gold and not everything else. Other things that are relatively heavy, though not as heavy as gold, will also become lodged in the sluice. This includes “black sand” which contains quantities of iron, fishing lures, tools, metal trash, lead sinkers, nails, bottle caps, beer-can tabs, and just about any other form of human junk that is unearthed by the dredge. Also, another very heavy element, poisonous mercury from ancient mining methods and other industrial contributors is often captured in a dredge and can now be safely disposed of. As you can see, a dredge is somewhat of a “vacuum cleaner” and in addition to capturing gold can help significantly to remove many pollutants from a streambed. This “concentrated” material is usually removed from the dredge sluice at the end of the day and then taken back to a campsite or other location where it is “panned down” with a gold pan. The gold is captured and the trash and pollutants are properly disposed of.

SIZE AND SCALE:

Compared to the natural lay of a stream, dredging activity is quite insignificant. Even in the most heavily dredged regions the area affected by dredging is almost always less than even one percent of the area of a waterway. This has been established by surveys. A dredger who moves a single cubic yard of material has done a very hard day’s work. The streambed materials are often impacted and require difficult digging with tools to penetrate. Also, anything too large to go through the dredge hose must be dug up and manually moved aside and a dredger must stop a great many times per day to clear a dredge hose that has become plugged. In addition, a dredger must get fuel to the dredging location along with food and supplies. A dredger must also perform maintenance on his/her dredge and get into a wetsuit and secure all tools that they will need. Also, the water in the stream will often be colder in the early part of the day so a dredger often will not start before mid-day. A dredger must also stop occasionally to rest and consume food or drink and refuel their engine. A typical dredger will usually be accomplishing “productive work” between two and four hours a day in the stream. And, due to the exhaustive nature of the activity, along with things such as weather considerations, a dredger will seldom work every day.

The typical dredging operation involves working a hole down through the streambed material until they reach solid bedrock where gold, being the heaviest thing in the stream, has settled. Gold, as well as all other streambed material is moved downstream by raging winter floods. This gold will readily become lodged in cracks and crevices in the bedrock. It is primarily these imperfections in the bedrock that the dredger is looking for. The dredger suctions the easily-moved materials with the dredge hose. Anything that is too large for the dredge hose must be manually moved to one side. Once the bedrock is reached and cleaned, if reasonable gold has been found, the dredger will usually expand their hole off in another direction, dropping material back into the area they originally dug out. If the yield has not been worthwhile they will usually open another test hole some distance away. There are particular areas of a stream or river where gold is most likely to be found but it is still mostly a matter of chance.

Having provided a basic understanding of a small scale dredging operation, we can now examine some of the claims made by opponents of small scale dredging. These claims have been numerous and are mostly without scientific foundation. Once the allegations are proven false, they simply move on to a different allegation.

DREDGES FRIGHTEN FISH, AND CAUSE THEM STRESS.

Actually, the opposite is true. In a dredge hole six feet wide by six feet deep it is not uncommon to see over a dozen juvenile fish in the hole in close proximity to the operator. They are usually looking for edible tidbits that are unearthed by the dredger or they have ducked into the hole to rest from the currents. I have observed this countless times. There are hundreds of hours of media videotapes showing this.

The motor on a dredge is almost not audible underwater. Many times, the only way that a dredger knows that his/her engine has run out of gas is by the fact that their air supply quits and the dredge hose stops suctioning. This requires a mad scramble to the surface. The most prominent sound when operating a dredge is a “whooshing” sound made by aggregates going up the dredge hose. This is much like the normal rushing sound that you will hear underwater in any stream. Fish routinely swim all around a dredge and it’s operator looking for food. They are not a bit frightened of it. Fish are normally spooked only by fast-moving, ominous objects such as a kayak, canoe, or other watercraft, swimmers or waders, or an obvious predator.

DREDGES RAISE THE TEMPERATURE OF THE WATER, WHICH KILLS FISH.

This claim is completely false. First of all, the only thing that is warm or hot on a dredge is the engine. Absolutely no water comes in contact with the air-cooled motor or its hot exhaust. Dredges are not like outboard motors where the hot (and oily) exhaust is vented underwater and the engine is cooled by water. If a dredge has any effect on the temperature of water at all it probably cools it slightly due to the aeration and evaporation of the water as it flows over the riffles of the sluice.

Scientists have measured water temperatures of numerous streams and rivers above and below a dredge and were unable to measure any difference whatsoever with the instruments that were available to them.

DREDGING CREATES TURBIDITY IN THE STREAM

Of course it does. Any activity in a stream creates turbidity whether it be a fisherman wading in a stream, animals walking in the stream, a group of children frolicking in their favorite swimming hole, or a tree or rock falling into the stream. The important concerns are how severe the turbidity is, how widespread it is, and how prolonged it is.

First of all, dredging is only permitted within the wetted area of a stream. Dredging into a “loamy” area along stream banks and excessive clouding of the water is forbidden by dredging regulations. The streambed materials that are suctioned by a dredge are materials that are constantly washed by stream currents. Therefore, these materials are mostly free from the finer particulate material that can “cloud-up” the water and remain suspended for a prolonged period of time. Most of the material that comes out of the back of a dredge sinks immediately, within two or three feet. Some of the finer particles can travel further downstream in a narrow plume that is occasionally visible from above the water. Depending upon the speed of the flowing water, this visible plume largely dissipates within 25 to 50 feet downstream of the dredge and it is relatively rare for it to extend beyond 100 feet.

To get some idea of the level of turbidity that is usually created by a dredge we must understand some facts about dredging. A dredger cannot operate in water where there is an appreciable level of turbidity at all. When visibility is impaired, dredgers cannot see what they are doing. They cannot see the gold that is trapped in crevices, and rocks that are overly large will get suctioned by the dredge nozzle and plug the dredge hose. These plug-ups are very difficult to remove. In addition, dredgers cannot see the looming danger of boulders that could tumble in on them and injure or kill them.

It is common for dredgers to set up within 50 or 100 feet downstream of each other with no visibility problems, yet events such as dam releases or thunderstorms will cause the level of turbidity in the entire river to rise to the level that dredgers have to abandon their activity for several days. Even within the area of a normal dredge plume the level of turbidity is only a tiny fraction of what is created by naturally-occurring and long-enduring events such as storms and winter floods which fish routinely endure. One single thunderstorm creates many times the turbidity in a given river or stream than is created by all dredging activity for an entire year.

DREDGING POLLUTES A RIVER.

Absolutely false. A dredge adds nothing whatsoever to the waterway. The material that comes out the back of a dredge is the very same material that was lying on the bottom of the waterway. It has simply been moved a few feet. However, as mentioned previously, a dredge does remove many pollutants from a waterway. While we are on the subject of pollution, this would be a good time to discuss one of the most lethal pollutants in a waterway….. mercury. Mercury is a very heavy, highly toxic metal that exists in a liquid state and usually concentrates in “blobs” in any depression. Mercury will readily adhere to gold and various other metals and coat them. It will also cause small particles of these metals to bind together, much like the fillings that dentists put in our teeth.

One of the greatest concerns with toxic mercury is its ability to enter the food chain, such as in fish. It does not do this as a blob but rather as microscopic particles. When mercury is sitting in a waterway, disturbances and agitation such as tumbling boulders smashing this blob, or gravels scouring this blob, can cause a few microscopic particles to break away and become mobilized in the waterway. This is known as “flouring”. As long as this blob remains in the waterway, it is prone to flouring from constant disturbance until it flours away completely and becomes a toxic poison to many living organisms. The only way to stop this contamination is to remove these blobs of mercury and other mercury coated metals from the waterway. This is exactly what a small scale dredger does! A recent scientific study showed that a small scale dredge captured 98% of this toxic mercury from a waterway.

These are just a few of the marathon claims that environmentalists have alleged against dredgers, but they are among the most important. Now, let’s look at the other side of the coin. I previously mentioned that dredgers provide several benefits to fish. They do, and they are very important to the survival of fish and will be discussed in detail. Most of the discussion will be as it pertains to salmon, as it is this species that is at the heart of the present controversy. When a dredger searches for gold in a stream he/she basically creates three alterations to the streambed. These alterations are….. the dredge hole, a tailing pile, and a cobble pile.

THE DREDGE HOLE

Environmentalists do not generally give a lot of lip service to the dredge hole itself aside from the fact that it can be considered an eyesore and a challenge for persons wading in a rocky stream. Some even acknowledge that the dredge hole can have a benefit for fish. The annual spawning migration is a very strenuous trip for fish and there can be a significant mortality of fish during this migration. The fish become weakened by their constant struggle against strong water currents. Also important is the fact that fish migrate during the time of year when the water is near its warmest. Warmer water contains less oxygen, heightens the chance of disease, and saps the strength of fish. Fish will often pause in an area of river where a cooler side-stream enters the river to regain their strength. These areas are known as thermal refuges. Dredging is often prohibited within a certain distance of these refuges. In between these natural refuges, migrating fish will frequently duck into vacant dredge holes where the water is calm and the temperature is stratified with the cooler water being near the bottom. Frequently, a dozen or more adult fish can be observed using dredge holes. In many instances, fish seem to prefer dredge holes over natural refuges, possibly due to the depth and calm water. Although environmentalists reluctantly recognize this benefit for fish that is provided by dredgers, they fail to acknowledge the fact that some of these fish may not have survived the normal “holding period” in their migration before moving to their spawning grounds had they not been able to rest and escape predation in the calm, cool water of a dredge hole.

TAILING PILES

These are the piles of gravel-like aggregates that come out the back of a dredge. These tailing piles are also one of the present focuses of mining opponents who are desperately searching for a valid indictment of small-scale dredging. A streambed is an environment that is constantly being changed by water flow. Each year, the streambed erodes a little bit more and some of the streambed material is moved. This streambed material can range from fine silt to huge boulders and there can be other things that fall into the stream or river from its banks such as trees and brush. Streambed composition varies from place to place and from year to year.

When salmon spawn in the late fall, they try to select a streambed area that is shallow, relatively flat, free of fast currents, and comprised of loose gravel in which they can lay and bury their eggs. Successful reproduction by fish is highly dependent upon the available quantity and quality of these spawning sites. Once fish lay their eggs, these sites are known as (redds).

Since the composition of tailing piles is often similar to the loose, gravely material that spawning fish prefer, they occasionally select a tailing pile as their spawning site. The extent to which fish select tailing piles is dependant upon the availability of natural beds. A recent biological study in Northern California found that out of a total of 372 “redds”, 12 of them, or roughly 3 percent were on tailing piles. Elsewhere, it has been observed that when natural beds are scarce, the selection of tailing piles increases. In rare instances where spawning fish have entered streams in which the streambed has become compacted or silted-over and there are no natural beds available, tailing piles offer virtually the only suitable opportunity to successfully spawn.

There are two primary concerns with regard to the survival rates of the eggs within these redds. Scouring and siltation. Scouring occurs when the unstable material of a streambed is moved downstream. This movement is usually greatest during the winter floods. Siltation, or the covering of redds by silt, is of far more concern than scouring. Although the extent of mortality by scouring is not of a known quantity, mortality by siltation is often complete as the eggs and pre-emergent fish become smothered by silt. Some biologists have even suggested that a certain amount of scouring is actually desirable to limit silting in some of these spawning beds.

Due to the fact that newly created tailing piles may not have had the opportunity to go through a flood event and become flattened and stabilized, there is a potential for more movement and scouring in these piles than there would be in a natural streambed spawning site. This can possibly result in greater mortality for eggs that were laid in fresh tailing piles. It has been noted, however, that once these tailing piles have become flattened and stabilized by winter floods, they can remain viable as a suitable spawning site for a period of several years. This is extremely important in streams where there are few or no natural sites available. Even during the first winter when scouring would likely be at its greatest, these tailing piles afford at least some opportunity to successfully spawn in a stream that might otherwise provide none. And this opportunity can continue for several years. Also, these stabilized tailing piles likely are less susceptible to silting and scouring than natural streambed due to the fact that once they are flattened and stabilized these tailing piles generally remain slightly elevated above the surrounding streambed. And, these tailing piles start out as washed streambed material, therefore they are free of silt in the first place. It is not known how many of the “natural beds” that were counted in this study were actually former tailing piles that have become flattened.

In view of the fact that fish tend to select tailing piles very infrequently, and only as necessary, and that stabilized tailing piles can provide prolonged spawning opportunity where there would otherwise be little or none, it would seem only logical that the known benefits of this relationship far outweigh any possible harm. We must also keep in mind the fact that scouring in a streambed is not “selective” only to fresh tailing piles. The entire streambed is vulnerable to scouring during raging winter floods.

COBBLE PILES:

These are rocks that will not pass through the dredge hose and consequently are piled to one side by the dredger. They usually range in size from roughly 12 inches in diameter down to about 3 inches, depending upon the size of the dredge. Larger than this, the rocks are generally too heavy to pile. These piles represent a certain percentage of the aggregate removed from a dredge hole.

About the most frequent claim by mining opponents is that these piles may divert the flow of water and may “possibly” cause erosion of river banks. At this point in time it would seem proper to mention that dredging into riverbanks, undercutting riverbanks, and doing anything that would cause erosion of riverbanks is strictly forbidden by dredging regulations. There are heavy penalties for violating these regulations and every dredger knows it. Dredging regulations are provided annually when a dredger is issued his/her annual dredging permit. And, dredging operations are frequently monitored by enforcement personnel. Dredging is a tightly regulated and monitored activity.

Secondly, dredging is usually not done adjacent to riverbanks, but closer to the deepest part of the stream or river as this is where the gold has settled. In those places where the deepest channel is along the side of a river or stream, the bank is usually not composed of soil but rather by ledge or gravels. The soil was eroded away eons ago by the natural river currents. It should also be mentioned that these cobble piles are very porous so the water flows through them as well as around them. There is little chance of changing the course of a river or stream. This is a small cobble pile, not a diversion dam. It should be noted that virtually every year during high winter floods, huge boulders and the occasional tree trunk are washed downstream and become lodged in an area where they cause immense changes in the flow of a river or stream and erosion of the river banks. Dredgers, on the other hand, do not begin their activity until the time of year when the water level is lowest and the flow is the slowest, and any hydraulic forces are minimal.

During the heavy winter flooding of 2005/2006, much of the vegetation, trees, and soils were ripped away from the banks of the Klamath River for much of its length, leaving nothing but exposed bedrock. Vast sections of this river were unimaginably altered, and almost unrecognizable from the year before. Unlike the small, temporary alterations that dredgers create, this naturally occurring alteration will not be reversed by winter floods. It was massive, and it is permanent.

It is hard to imagine that a pile of rocks resting on the bottom of a stream or river could provide very much benefit to

anyone or anything, but it does. And this one is quite important. It is also a benefit that is carefully not mentioned by environmentalists.

Salmon generally spawn in the late fall in favorable gravel beds that they select as best they can. After a period of incubation, the small fish (fry) emerge from these gravels during the spring months. Many biologists regard this period immediately following emergence, (known as the “juvenile rearing” stage) as one of the most important stages in the life of a fish. It is important that as many of these (fry) as possible survive to the next stage, (smolt stage), which precedes their migration to the ocean. After this general emergence, at the beginning of summer, the dredging season begins.

Immediately after emerging, these fish are very small, they are relatively poor swimmers, and it is during this time that they are in great danger of predation. Fish lay eggs by the billions but only a very small fraction of them ever survive to adulthood. The juvenile stage is a period of very heavy losses. It is extremely important that these juveniles find food to grow as much as possible and it is infinitely important that they are able to find shelter from predation during this stage of their growth. This is where cobble piles come into the picture. Cobble piles provide an excellent refuge for these small fish. The passageways between rocks go deep within the pile, there is sufficient water flow to provide adequate oxygen, and they are virtually free from silt. Due to the varying sizes of the rocks and the resultant caverns, fish of various sizes can find a place within the pile that is most suitable for them. As the fish grow, they can select a different area of the pile. I personally dredged a barren, featureless section of the Klamath River that had been ravaged by the terrible 2005/2006 winter flood. Several mink and otter were present in the area and had virtually rid the area of all fish population except for a very few juveniles that had found refuge in our cobble pile. This pile was also rife with crayfish which would have otherwise been easy prey for these predators.

Shelter from local predation is not the only benefit of a cobble pile. Biologists note that these juvenile fish attempt to remain within a very localized area if they are able to do so, but during periods of high flow such as dam releases, thunderstorms, etc that cause elevated flow, these small fish are often swept away from their preferred safe location as they cannot always find refuge from these currents. This increases their risk of predation elsewhere. Cobble piles and dredge holes provide that needed shelter from these swift waters. These “artificial habitats” are very valuable to small fish. Biologists widely acknowledge the importance of “streambed diversity” to the survival and well-being of fish. Furthermore, these artificial habitats are comprised of natural materials, unlike in our oceans where these habitats are created by the intentional sinking of rusting, painted, and oily derelict ships.

OTHER BENEFITS PROVIDED BY DREDGERS.

There are a couple other benefits that dredgers provide that I will mention. One of them is rather insignificant and the other is quite important. During the fall migration of spawning adults, the water is warm and holds less dissolved oxygen (DO). There is pressure on the oxygen content by the struggling dwellers that live there. Dredges force voluminous amounts of water down over the sluice section, mixing this water with air and this helps to aerate the water and increase the oxygen content. This is, of course, miniscule compared to the area of a river and is a mere drop in the bucket compared to the aeration provided by natural rapids in the waterway and boulders that ripple the water, but every little bit helps. In a smaller stream, this effect would be greater.

One other benefit that is provided by dredgers is very important. It is not uncommon to find dozens of juvenile fish swimming around an operating dredge. They swim into the dredge hole as well as swimming through the dredge plume. They are there because as a dredger suctions streambed material, he/she unearths thousands of invertebrates and suspends them in the water. Finding adequate food is one of the most important aspects in the life of a juvenile fish. The faster the fish grow, the more likely they are to survive. This is another benefit that opponents of the dredging industry are careful not to mention. It does not take a genius to question the fact that when fish are being fed grain in a hatchery, it is considered an ultimate act of conservation, yet when native fish are feasting on their natural diet in the plume of a dredge it is somehow biologically unimportant. A dredger who spends a couple months in a given section of a river has provided a lot of food to the native fish population. Incidentally, biologists have observed that these invertebrates rapidly re-colonize, usually within three to four weeks.

Native, juvenile, and migrating fish must find sufficient food, shelter from predation, reprieve from harsh temperatures, a place to rest from swift currents during their exhausting migration, and suitable spawning habitat. Small scale dredging provides all of these. And, dredgers are the only waterway users who provide any of these important benefits that the fish so greatly need. It is almost unimaginable to me that environmentalists who are attacking dredgers aren’t the real friends of fish at all. If the environmentalists were truly concerned about fish and really wanted to do something to help them, instead of sitting around and suing everybody, they would get up off their fannies, jump in the water, dig pools, pile cobble for refuges, provide food, and spread out gravel for spawning beds in our streams….just like the dredgers do with their sweat, back, and labor. As this essay is being written, our government is spending millions of taxpayer dollars to, among other things, spread out countless tons of gravel for spawning habitat in the Trinity River in California. Incidentally, you wouldn’t believe the staggering amount of turbidity that is being created by the behemoth earthmoving machines that are being used for that project.

And some of the most avid accusers of dredgers are Indian tribes who sometimes “front” for environmental groups, and accuse dredgers of causing harm (without any proof) while their tribal members dip-net and harvest spawning adult salmon by the thousands as these fish are returning to their spawning grounds!!! I can think of a way to help these fish……...right now!!

Dredging is a very visible form of mining. Dredgers do not crawl into a hole in the side of a mountain. They do not dig in a pit that is surrounded by a privacy fence. Their activity is out there for all to see. One can usually look down onto a river and see their dredges floating on the water. There is often a visible plume trailing downstream from them. One can hear the distant drone of a lawnmower-sized engine, and if the stream is exceptionally clear one can sometimes see the dredge hole and cobble pile that are underwater. Dredgers frequently park vehicles beside a roadway, near to where they are working. To some, this intrusion into nature is disturbing. However, at the same time, dredging is perhaps the most reversible form of gold mining that there is. Virtually all traces of dredging activity are obliterated by the winter floods that occur after each dredging season The dredge hole is completely filled in, the cobble pile is leveled, and the tailing pile is flattened and spread out, offering itself as a potential spawning site for years to come.

Mining has been, and still is, important to the growth and wealth of our nation. But, even though our government has enacted mining laws to encourage the exploration and extraction of minerals and valuable metals from our public lands, and confers possessory rights to enable a miner to do so, it is an affront to some people to witness individuals removing valuable metals from public lands which theoretically belong to all of us. Many allege that small-scale dredging is merely a recreational activity. This is not true. Many small-scale dredgers derive part or all of their annual income from this endeavor. Mining laws do not differentiate by how much an individual enjoys this activity. Miners are all bound by the same rules. And, a great many businesses in communities that are nearby to mining activity depend very heavily upon the millions of seasonal dollars that flow into their communities from miners.

When examining environmental issues and trying to decide the proper course of action, we must carefully consider all of the important factors, not just the ones that suit our purpose. We must balance and fairly evaluate all of the scientific evidence, and not allow political agenda to overrule scientific fact. We must seek out the truth, the whole truth, wherever it leads us. During my recent research, I read a USGS paper that acknowledged that dredgers remove mercury from waterways in California. However, a more recent rewrite of that very same paper now omits that fact.

It is reasonable to expect that as members of our scientific community, biologists would be completely neutral in their approach and in their findings, and that their observations would be all-encompassing and that their opinions would be free of political influence. For the most part, this is true. However, upon reading the conclusions of numerous studies it is readily obvious that a few of these studies are slanted against the mining community to varying degrees. Some of these studies merely cite selective components of studies done by others and some of them herald the possibilities of harm while omitting or minimizing potential or known benefits. At least one of them was obviously conducted in a very narrow manner that guaranteed a certain outcome. This is not balanced science. It is natural to mankind to suspect to some degree that an intrusion into our “realm” may possibly be of an unwanted nature but science demands complete objectivity and a complete picture.

Many of these biologists know fully well the extent to which dredgers contribute to the wellbeing of fish. They know fully well that dredgers provide very important benefits to fish at just the right time of year when they are most needed by the fish, and then these alterations are completely obliterated by raging winter floods. They know fully well that the turbidity created by dredgers is a mere drop in a bucket compared to the millions of tons of mud, rocks, boulders, trees, stumps, brush, and other debris that are washed down our waterways during raging winter floods or a single thunderstorm for that matter, which fish routinely endure every year. They know that small scale dredgers are “occasional users” of our waterways, no more so than fishermen, boaters, swimmers, or the seasonal kayak and rafting outfitters who organize daily trips down our waterways involving hundreds of participants who picnic, wade, swim, and camp overnight on the shores of these waterways. And, unlike the highly regulated dredgers, these other waterway users are allowed to trample around in the waterway during a time when there are still incubating egg nests in the gravels!

So let’s be honest here, shall we? This debate isn’t about the environment, it’s about control and politics. The environment is simply the vehicle. There is an old saying that says, “When you are a hammer, the whole world looks like a nail.” Environmentalists, even when ill informed, will fight any and all battles in their efforts to establish themselves as the sole stewards of our public lands which belong to all of us, not just a self-appointed few. It is infinitely important that these public lands be set aside and remain equally accessible for the enjoyment and reasonable use by all of our citizens. We must cherish and sensibly safeguard these privileges, lest one day we no longer have them.

Many scientific papers and biological studies as well as personal experience were used in the preparation of this essay. These studies and papers are readily available on the internet. Thank you for taking the time to read this.