The Honorable Governor Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814
Fax: 916-558-3160

Dear Governor Schwarzenegger,

PLEASE VETO BILL SB670 (anti-suction dredging legislation)

My name is Claudia Wise; I retired in 2006 after 32 years of civil service with the U.S.EPA as a physical scientist/chemist. I have been a member of many scientific projects over the years starting my federal career in the Fish Toxicology arena and ending it with the Salmon Restoration division. I have worked on projects ranging from urban fish populations and fish avoidance testing to eelgrass habitat and global climate change. I have been and remain to be a strong proponent of protecting the environment.

On October 11, 2007 in regards to AB 1032 I wrote to you regarding another attempt by the legislature to get around a court order and unnecessarily put a large group of miners and businesses out of work with no scientific evidence to support their claims.

Dozens of peer-reviewed journal articles some commissioned by the USEPA, USGS, CDFG, Corp of Engineers, and many more from universities support suction dredging as having *de minimis* effects or no significant effect on the environment they are used in. Nothing has changed in peer-reviewed literature since that time to change this fact.

Suction dredge mining has little impact on the areas fish and biota. In relation to natural occurrences suction dredge mining is insignificant. To put the impact of suction dredge mining into perspective it was calculated that suction dredge mining disturbs only 0.7% of the sediment that is moved naturally in a year. The Siskiyou National Forest (SNF), where this study occurred, is a very prominent mining area in California.

According to the U. S. Forest Service, SNF, "There are 1,092,302 acres on the Siskiyou Natural Forest. Using a factor of 0.33 cubic yards per acre per year times 1,092,302 acres will produce a very conservative estimate that 331,000 cubic yards of material move each year from natural causes compared to the 2413 cubic yards that was moved by suction dredge mining operations in 1995. This would be a movement rate by suction dredge mining that equals about 0.7% of natural rates." (Cooley 1995).

California Department of Fish and Game already regulates the miners out of the waterways during important life events for the Salmon. That includes during spawning season when redds are present.

It is well known that suction dredging causes little or no environmental harm to fish and biota what many overlook are the many benefits that dredging provides such as increased spawning gravels, dredge made refugia, and yes, mercury remediation to name a few.

Suction dredging breaks up cemented riverbeds providing fish with loose gravel for future spawning grounds in areas fish presently are not able to use for spawning. Between 1996 and 1998, Quihillalt (1999) found 4% of redds where located on or within 1000 m of dredge tailings. He theorized that dredge tailings may be attractive sites for redd construction because tailings are often located near riffle crests where fish frequently spawn, and they provide loose, appropriately sized substrate. However, embryos in tailings may suffer high mortality during years of high river flows (1998) and be of no concern during years of low river flows (1996 & 1997).

During a later survey on the Klamath River during 2002 only one redd was observed on suction dredge tailings. Recreational suction dredge mining was present throughout the survey from the Highway I-5 Bridge to Happy Camp (Schuyler and Magneson. 2006).

Even with scouring effects to redds reported in scientific literature this gravel provides areas to spawn that would not otherwise be available to them. Any added benefit to increasing salmon productivity, using suction dredging, is a benefit to fish numbers. Even during years of high mortality due to high flow events if only a few of the embryos survive that may be more than would be expected without the benefit of added spawning gravels provide by the tailings.

I have been involved in temperature surveys on the Klamath River in California in regards to suction dredge activity and existing conditions of refugia. We have found natural refugia to be no better in many cases to that of dredge made refugia.

Dredge holes can provide a holding place for fish as they pass up the waterway on their migration path to and from the ocean providing a place to get out of the faster currents to rest. Some of these dredge holes may also be cooler due to ground water seepage if the holes are deep enough. This leads to development of additional areas of needed refugia.

Another Benefit the suction dredge community could provide the state with is mercury remediation. In talking with miners, the majority typically do not run into large pools or hot spots of mercury. However, their concerned for the environment is the same as other citizens. Miners have shown the willingness to hand over collected mercury to a collection facility if such a facility exists. The California State Water Board's Water Quality Division report (Humphreys, 2005) suggested the idea of paying the miner's for their efforts would help facilitate this plan. Collection facilities have been provided in the past with great response.

The California Water Board has spent a lot of time and money on mercury remediation projects with limited success, though in 2001 EPA Region 9 located in San Francisco, California did collect mercury from miners very effectively. Collections of mercury has been happening in Oregon and Washington through the states respective Division's of Ecology and with even greater success at miner's rallies.

Even though EPA Region 9 has ended this program and removed it's existence from the website EPA, Region 9 had a mercury "milk run" in 2000. Agency personnel were able to collect 230 pounds of mercury from miners and local dentists. The total amount of mercury collected was equivalent to the mercury load in 47 years worth of wastewater discharge from the city of Sacramento's sewage treatment plant or the mercury in a million mercury thermometers. (US EPA, 2001.)

Over the past four years, the Resources Coalition and other small-scale miners associations in Washington have turned in 127 pounds of mercury and eight pounds of lead for safe disposal with the help from the Washington Department of Ecology. Ecology staff attended miners' rallies in Oroville and Monroe, explaining the state's program for proper disposal of lead and mercury. (ENS 2007).

The mining community of today is, in my opinion, the only group that is in a position with the technology to help with the removal of lead and mercury at a very economical price to the public. Any residual mercury remaining after dredging is that much less to worry about residing in our Nations waterways.

In reviewing Humphrey's (2005) comments regarding possible problems associated with collecting mercury via suction dredging methods, it is right to look to the suction dredge community for help locating hotspots and removing mercury from the river systems. In my opinion the data provided in the report by Humphrey's (2005) did not demonstrate any clear conclusions that would prohibit the State from allowing this activity. On the contrary, in the discussion of results it was stated that a suction dredge in the American River was able to collect 98 percent of the measured mercury processed through the dredge. The amount of mercury collected may have been higher if the investigators had been using a dredge with the modern jet flare design. Even 98 percent is a huge plus for the environment and it would be irresponsible to not allow mercury to be removed from the rivers and streams whenever it is found.

In Humphreys report (2005), the author expressed concern for the loss of a small portion (2%) of the mercury from the back end of the sluice box. In the conclusions it was stated that the amount lost constituted a concentration more than ten times higher than that needed to classify it as hazardous waste. Yet 98 percent of the mercury was now secured and the process did not add any mercury to the system that was not already present. The small fraction lost, because of its density, would relocate back onto the river floor buried in the sediment close to where it was removed while dredging.

Mercury is continuously moved every winter in high storm events. Since the cessation of hydraulic mining, accumulated sediment from hydraulic placer mining has been transported to the Sacramento–San Joaquin Delta and San Francisco Bay by sustained remobilization (James, 1991). Providing a program to collect mercury from miners would aid the Water Board’s mission of reducing mercury contamination in the deltas and bays where mercury methylation is a large concern.

In the test described by Humphreys (2005) a small portion of floured mercury was collected in the sediments as it escaped the sluice box. This mercury whether floured before it entered the sluice box, or not, would still be in elemental form. Regardless of surface area it would be no more toxic then the other 98 percent that was suggested to be left in place.

Aside from grossly polluted environments, mercury is normally a problem only where the rate of natural formation of methyl mercury from inorganic mercury is greater than the reverse reaction. Methyl mercury is the only form of mercury that accumulates appreciably in macroinvertebrates and fish. Environments that are known to favor the production of methyl mercury include certain types of wetlands, dilute low-pH lakes in the Northeast and North central United States, parts of the Florida Everglades, newly flooded reservoirs, and coastal wetlands, particularly along the Gulf of Mexico, Atlantic Ocean, and San Francisco Bay (USGS 2000).

If not collected the mercury is guaranteed to end up farther down stream, and eventually in the delta or the bay, where methylation is a real environmental problem. In my opinion it would be a highly irresponsible management practice to leave a large portion of mercury in the rivers and streams because of unrealistic concerns for the lesser amount moving only a short distance away from an operating dredge. Most likely if floured the movement of fine mercury would extend no farther than 50-feet off the end of the sluice box. That would relate to the distance a turbidity plume might extend downstream from a small-scale suction dredge.

However, if the mercury was left in place the next storm event would surely move it downstream closer to, and eventually into, the bay and delta. In fact, according to Humphrey's study in 2005 mercury was seen moving down stream and re-deposited on bedrock already dredge cleaned. The important fact here is mercury was flowing down stream in a suction dredge free zone during lower river flows than what take place under high winter river conditions.

It is most important to reduce the total amount of mercury in the streams and rivers and its transport downstream into the bays and deltas. This is defined as a part of Total Maximum Daily Load ("TMDL") goals.

We know for certain that mercury is transported downstream throughout the winter season during high water events. Therefore, anytime there is the possibility for the removal of mercury by miners it should be undertaken and supported.

You justifiably vetoed that last bill because it was unnecessary and suction dredge mining is already regulated by the Department of Fish and Game. But here we are again….

There was no reason, last year, to sign AB1032 into law and there is no reason to sign Bill 670 into law this year. I respectfully ask that you not add further to the problems related to increased government regulation where none is warranted. Please allow

California Fish and Game to do their job. They are already regulating suction dredging adequately to protect fish. The court has ordered California Department of Fish and Game to prove suction dredging creates significant harm before changing the mining regulations.

I respectfully ask that you VETO bill 670.

Sincerely,

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REFERENCES

Cooley, 1995, USFS. Siskiyou National Forest Service Yardage Estimate, **A comparison of stream materials moved by mining suction dredge operations to the natural sediment yield rates.** In house Report.

Environment News Service (ENS). 2007. **Miners Remove Gold Rush Mercury from Washington Streams**. http://www.ens-newswire.com/ens/sep2007/2007-09-18-096.asp

Grove, Schuyler and M. Magneson. 2006. USFWS. Arcata Fish and Wildlife Office, **Mainstem Klamath River Fall Chinook Salmon Spawning Survey.**

Humphreys, R., 2005, **Losses and Recovery During a Suction Dredge Test in the South Fork of the American River.** Staff Report, State Water Resources Control Board, Division of Water Quality.

James, A.L., 1991**, Incision and morphologic evolution of an alluvial channel recovering from hydraulic mining sediment**: Geological Society of America Bulletin, v. 103, p. 723–736.

Quihillalt, Rick R and J. D. Glase., 1999. USFWS. Arcata Fish and Wildlife Office, **Mainstem Trinity River Fall Chinook Salmon Spawning Redd Survey, 1996 through 1998.** In house Report.

USEPA, 2001. **Mercury Recovery from Recreational Gold Miners.** http://www.epa.gov/region09/cross_pr/innovations/merrec.html

USGS, 2000. Mercury in the Environment, USGS Fact Sheet 146-00 (October 2000) **Environments Where Methyl mercury is a Problem.**