6/12/07 Workshop
Suction Dredge Mining
Deadline: 6/22/07 Noon

From: <ken@armstronglegal.com>
To: <commentletters@waterboards.ca.gov>
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Subject: Comment Letter - Suction Dredge Mining

June 8, 2007

State Water Resources Control Board
Division of Water Quality
P.O. Box 100 Sacramento, California 95812-0100

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Re: Comment Letter - Suction Dredge Mining

Dear Sirs:

I am an attorney at law in Mount Shasta, Siskiyou County, California and I have been a recreational prospector for over 30 years. I am extremely concerned regarding the review of suction dredge mining regulations, not only as an attorney, but also as a prospector myself. I wish to address the issues of the impacts of suction dredge mining and water quality and encourage you not to impose further regulations on suction dredge mining..

Water quality regulation rightfully concerns itself with the impacts of suction dredge mining in our rivers and streams.. Does suction dredge mining in any significant way increase turbidity, water temperature, the ambient water chemistry or negatively impact species by other means?

From a review of the significant scientific studies (see below) done over decades by a number of experts, including, but not limited to government authorities in the field, the simple answer is No. When suction dredge mining is performed under rational guidelines already in place, there is virtually no impact on the water quality nor the health of water-based species. Based upon the scientific evidence, there would seem to be no legal nor scientific basis for preventing or further regulating suction dredge mining.

Turbidity

Studies by the California Department of Fish and Game (CDFG) in 1997 (Footnote 1), reveal that suction dredge mining has a de-minimus effect on water quality. The majority of studies, including further studies by CDFG (Footnotes 2 - 5), universally found that suction dredge mining only minimally increased turbidity in streams and rivers, which dissipated/settled rapidly within 100 to 200 feet of the dredging operation.

These studies also revealed that any minimal increase in turbidity only lasted during the operation of the dredge, usually only for a few hours per day after which the watercourse immediately returned to its regular turbidity level. Within any waterway, sediment is primarily carried in suspension during periods of rainfall and high flow. This is an important point, as it indicates that a dredging operation has less, or at least no greater effect on sediment mobilization and mobility than a typical rain storm.

All of these research studies have concluded that only a local and minimal effect occurs, with it decreasing rapidly downstream. The studies have been wide spread, having been undertaken in Alaska, Idaho, California, Montana and Oregon.

The science supports de minimus status for < 6-inch suction dredges. Turbidity is de minimus according to the U.S. Army Corps of Engineers.

Effects from elevated levels of turbidity and suspended sediment normally associated with suction dredging as regulated in the past in California appear to be less than significant with regard to impacts to fish and other river resources because of the level of turbidity created and the short distance downstream of a suction dredge where turbidity levels return to normal" (CDFG, 1997 - Footnote 1).

Water Temperature

Studies show that suction dredge mining has no significant impact on water temperature.

'Dredge mining had little, if any, impact on water temperature." (Hassler, T.J., W.L. Somer and G.R. Stern, 1986- Footnote 5). In addition, the Oregon Siskiyou Dredge Study states, "There is no evidence that suction dredging affects stream temperature" (SNF, 2001 - Footnote 6).

Some are also erroneously arguing that suction dredge mining increases the width of the stream/river bed, thus increasing the surface area exposed to solar radiation resulting in an increase in temperature from this cause. The science is contrary.

The Siskiyou National Forest, Draft Environmental Impact Statement on Suction Dredging Activities by the U.S. Department of Agriculture, U.S. Forest Service, Siskiyou National Forest stated that:

Suction dredge operations are again confined to the existing stream channel and do not affect stream width. Stream temperature can also increase from increasing the stream's width to depth ratio. The suction dredge operation creates piles in the stream channel as the miner digs down into the streambed. The stream flow may split and flow around the pile decreasing or increasing the wetted surface for a few feet. However, within the stream reach that the miner is working in, the change is so minor that the overall wetted surface area can be assumed to be the same so the total solar radiation absorption remains unchanged. Suction Dredging results in no measurable increase in stream temperature (SNF, 2001-Footnote 6).

The CDF concluded in its report that, "Current regulations restrict the maximum nozzle size [of a suction dredge] to 6 inches on most rivers and streams which, in conjunction with riparian habitat protective measures, results in a less than significant impact to channel morphology" (CDFG, 1997-Footnote 1).

Water Chemistry

Some have criticized suction dredging has causing an adverse change in the chemistry make-up the water by changing the metal load in the water. Studies have been conducted for metal load in suction mined waters, including tests for pH, turbidity, electrical conductivity (a measure of the total dissolved concentrations of mineral salts), and stream discharge for the Fortymile River and many of its tributaries. Samples were collected at the same time for chemical analyses, including trace-metal analyses.

Water-quality samples were collected at three points 200 feet behind each of the two operating suction dredges. One sample was collected on either side of the plume, and one in the center of the plume. After a series of laboratory tests, it was determined that, "suction dredging appears to have no measurable effect on the chemistry of the Fortymile River." A significant note to this report was that," We have observed greater variations in the natural stream chemistry in the region than in the dredge areas." (Wanty, R.B., B. Wang, and J. Vohden. 1997 - Footnote 7).

A final report from the EPA stated that, "The data collected for this study help establish regional background geochemical values for the waters in the Fortymile River system. As seen in the chemical and turbidity data, any variations in water quality due to the suction dredging activity fall within the natural variations in water quality" (Prussian, A.M., T.V. Royer and G.W. Minshall, 1999 - Footnote 8).

Summary Regarding Water Quality Testing

The above mentioned scientific studies, as well an many other water quality research studies, were obtained at great expense to governmental agencies and private organizations. You should accept the results of these studies as determinative of the issue. Suction dredge mining, when conducted responsibly, causes no significant adverse water quality issues.

Related Issues

Siskiyou County has been a significant gold producing area, second only in California to the "mother lode" area near Sacramento. Siskiyou County is also one of the poorest California counties by income per capita. Tourism and recreation are substantial aspects of the county's economy. Siskiyou County businesses and individuals derive a substantial part of their income from recreational gold prospectors coming to the area. Imposing additional fees and burdensome regulations would severely hamper this county's economy, including the closure of hotels, restaurants and other business who cater to these prospectors.

Some individuals and organizations are simply against mining, because they simply don't understand the various aspects thereof. As an attorney and environmentalist myself, I advise the Mount Shasta Bio-Regional Ecology Center in Mount Shasta, CA, who are active with the protection of water quality and aquatic and land-based species protection throughout Northern California and Southern Oregon.

I have personally witnessed how environmental groups can ban together under a mistaken cause and fight to prohibit activities, like suction dredge mining, based upon their perception of activities of the past which resulted in negative environmental impacts and a desire not to see such happen again.

People, not familiar with the term "suction dredge mining" often misinterpret it to mean "hydraulic mining," which caused serious environmental problems in the past. For these people, it is simpler to be against all mining and be done with it.

Conclusion

It is the stated position of our Federal government, as well as the State of California, that the discovery and securing of valuable minerals is an essential part of our Nation's and State's interest. Gold is increasingly used in computers and electrical components as well as in many other aspects of manufacturing, science, space exploration as well as for countless other uses besides its obvious jewelry uses. Further restriction on seeking and recovering gold by suction dredging runs contrary to the goals of both the Federal and California governments as well as their respective economies.

Suction dredge gold recovery, as opposed to other forms of mining, imposes virtually no impact to water quality and the activity is sufficiently regulated already there is no rational basis for imposing further restrictions.

Respectfully submitted,

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Footnotes

1. CDFG, 1997. draft Environmental Impact Report: Adoption of Amended Regulations for Suction Dredge Mining. State of California, The Resource Agency, Department of Fish and Game.

2. Thomas (1985), using a dredge with a 2.5-inch diameter nozzle on Gold Creek, Montana, found that suspended sediment levels returned to ambient levels 100 feet below the dredge. Gold Creek is a relatively undisturbed third order stream with flows of 14 cubic feet per second. A turbidity tail from a 5-inch (12.7 cm) dredge on Clear Creek, California was observable for only 200 feet downstream. Water velocity at the site was about 1 foot per second (Lewis, 1962).

Lewis, 1962. Results of Gold Suction Dredge Investigation. Memorandum of September 17, 1962. California Department of Fish and Game, Sacramento, CA. North, P.A., 1993. A review of the regulations and literature regarding the environmental impacts of suction gold dredging. U.S. Environmental Protection Agency, Region 10, Alaska Operations Office. EP 1.2: G 55/993.

3. Turbidity below a 2.5 inch suction dredge in two Idaho streams was nearly undetectable even though fine sediment, less than 0.5 mm in diameter, made up 13 to 18 percent, by weight, of substrate in the two streams (Griffith and Andrews, 1981).

Griffith, J.S. and D.A. Andrews. 1981. Effects of a small suction dredge on fishes and aquatic invertebrates in Idaho streams. North American Journal of Fisheries Management 1:21- 28.

4. During a dredging test carried out by the California Department of Fish and Game on the north fork of American River, it was concluded that turbidity was greatest immediately downstream, returning to ambient levels within 100 feet. Referring to 52 dredges studied, Harvey (1982) stated "...generally rapid recovery to control levels in both turbidity and settable solids occurred below dredging activity.

Harvey, B.C., K. McCleneghan, J.D. Linn, and C.L. Langley, 1982. Some physical and biological effects of suction dredge mining. Lab Report No. 82-3. California Department of Fish and Game. Sacramento, CA.

5. Hassler (1986) noted "...during dredging, suspended sediment and turbidity were high immediately below the dredge, but diminished rapidly within distance downstream." He measured 20.5 NTU 4 meters below a 5-inch dredge that dropped off to 3.4 NTU 49 meters below the dredge. Turbidity from a 4-inch dredge dropped from 5.6 NTU 4 meters below to 2.9 NTU 49 meters below with 0.9 NTU above. He further noted "...water quality was impacted only during the actual operation of the dredge...since a full day of mining by most Canyon Creek operators included only 2 to 4 hours of dredge running time, water quality was impacted for a short time." Also "...the water quality of Canyon Creek was very good and only affected by suction dredging near the dredge when it was operated.

Hassler, T.J., W.L. Somer and G.R. Stern. 1986. Impacts of suction dredge mining on anadromous fish, invertebrates and habitat in Canyon Creek, California. California Cooperative Research Unit, U.S. Fish

and Wildlife Service, Humbolt State University. Cooperative Agreement No 14-16-0009-1547.

6. SNF, 2001. Siskiyou National Forest, Draft Environmental Impact Statement: Suction Dredging Activities. U.S. Department of Agriculture, U.S. Forest Service, Siskiyou National Forest, Medford, OR.

7. Wanty, R.B., B. Wang, and J. Vohden. 1997. Studies of suction dredge gold-placer mining operations along the Fortymile River, eastern Alaska. U.S. Geological Survey Fact Sheet FS-154-97.

8. Prussian, A.M., T.V. Royer and G.W. Minshall, 1999. Impact of suction dredging on water quality, benthic habitat, and biota in the Fortymile River, Resurrection Creek, and Chatanika River, Alaska, FINAL REPORT. US Environmental Protection Agency, Region 10, Seattle, Washington.