APPENDIX K: Private Citizen Comments (Je - L)

From: Jeff McFadden <jeffmcf00@hotmail.com>
To: Mark Stopher <mstopher@dfg.ca.gov>
Date: 11/19/2009 4:40 PM
Subject: SB 670 study comments

Mark:

The EPA did a study on recreational suction dredging and the envirnoment in Alaska and concluded "In general, our results are in agreement with other studies that have found only localized reductions in macroinvertebrate abundance in relation to small-scale suction dredging." This means, according to the Environmental Protection Agency, that dredging cannot be a cause for widescale salmon population declines as aserted by the Kuruk Indian tribe. http://www.akmining.com/mine/1999epa.htm

The Washington State Depertment of Ecology studied Effects of Small-Scale Gold Dredging on Arsenic, Copper, Lead, and Zinc Concentrations in the Similkameen River and concluded "Results of this study show that the concentrations of arsenic, copper, lead, and zinc discharged from small-scale gold dredges operating in the Similkameen River are not a significant toxicity concern for aquatic life." http://www.ecy.wa.gov/pubs/0503007.pdf

The United States Geological Survey, part of the U.S. Department of the Interior issued a press release in 1998 about suction dredging and in the first line of that document stated boldly, "The water quality of the Fortymile River-a beautiful, wild and scenic river in the remote part of east-central Alaska-has not been adversely impacted by gold placer mining operations according to an integrated study underway by the U.S. Geological Survey and the Alaska Department of Natural Resources." http://www.akmining.com/mine/usgspr.htm

The United States Army Corps of Engineers did a study and concluded, "Corps finding of de minimis (i.e., inconsequential) effects on aquatic resources for suction dredges with nozzle openings of 4 inches or less. This is an official recognition of what suction dredgers have long claimed; that below a certain size, the effects of suction dredging are so small and so short-term as to not warrant the regulations being imposed in many cases. The U.S. Environmental Protection Agency (EPA), in particular, has ignored this concept, although numerous studies, including the EPA's own 1999 study of suction dredging, repeatedly and consistently support the Corps finding de minimis effects. The reports consistently find no actual impact of consequence on the environment, and so almost always fall back to the position that "potential for impact exists". However, showing potential for harm, and showing that actual harm exists are two different things, and the studies to date have not shown any actual effect on the environment by suction dredging except for those that are short-term and localized in nature. Current regulatory efforts are proceeding despite this lack of evidence showing that harm to the environment is taking place. The regulatory agencies should be consistently and continually challenged by the dredging community to produce sound, scientific evidence that support their proposed regulations. To regulate against a "potential for harm", where none has been shown to exist, is unjustifiable and must be challenged." http://www.akmining.com/mine/corp9410.htm

Gleened from: http://www.akmining.com/mine/study.htm

How many studies are they going to have to do? It would save everyone a whole lot of time and money just by reading the reports already done on the issue!

-Jeff McFadden

From: Jeff McFadden <jeffmcf00@hotmail.com>
To: Mark Stopher <mstopher@dfg.ca.gov>
Date: 11/20/2009 8:44 PM
Subject: SB 670 observation/comment

Mark,

Isn't it ironic (some even say hypocritical) that this whole SB 670 issue is because of the big fear that dredging will put mercury into the waters (although its already there). So The Government is going to protect us from mercury they say. Yet they have no problem injecting millions of Americans with an H1N1 vaccine directly into the blood stream. But guess what? The H1N1 vaccine along with with many other vaccines contain Thimerosal - a compound that is 49.6% mercury by weight!

So mercury in the waters is bad, but injecting mercury directly into the blood stream with a hypodermic needle is ok...that's going to keep us from getting sick they tell us.

Wow. What hypocrites indeed. What's the real reason behind this ban on dredging?

-Jeff McFadden

I do not understand why Suction Dredging was shut off in California. I do know that this is about salmon, yet not all streams and rivers in the state have salmon runs. What happened? I did a bit of research before becoming involved in dredging and see no harm to fish or habitat. Thank you for the card about the Scoping meetings, I wish... I could have attended. ____ Suction Dredging should be allowed in the State. Jeff Schultz

I have been a Dredger in CA for 15 years off and on. I have abided by every new law as it was adopted. I intend to abide by any new law adopted in this process. But there comes a time when pure logic should lead the intellect to the proper perspective. I fear that the over zealousness of the anti-dredging groups has now gone beyond logic. Let me explain.

Decline of salmon and other fisheries:

The DFG's own 2009 'decision' to open a limited season for the improved Salmon populations before dredging was even shut down in CA (SB 670) logically implies that dredging was not the cause of the problem. But rather, the annual slaughter of these fish by commercial, Indian, and individual fishermen was the cause.

New spawning beds produced by dredgers help the re-population of fisheries. Much like mother nature in her annual high water and random floods do, by creating new loose gravel beds. Why would anyone want to discourage dredgers from helping fish spawn?
I've heard the argument that the tailing piles are unstable. Well, so are natural gravel bed formations, until they are washed down by subsequent winter flooding that stabilizes them.

Mercury is a natural element:

Free mercury occurs in nature and is put into the air by coal fired power plants in the thousands of tons every year. The government in its wisdom has ordered that all incandescent bulbs be replaced with compact florescent lights (with mercury in them) by 2014. They actually are forcing Americans to bring toxic mercury into their homes.

In 15 years of dredging I have never encountered free mercury in my dredge. Only the occasional flake with mercury well stuck to it (since they have an affinity for each other).
I suspect each year I encounter no more mercury stuck to gold than what you might find in 5-6 CFL's. The difference is, I am removing the mercury from a river and water supply, and the government is adding tons of it to landfills and the water supply by act of law. So who is causing damage to the environment?

Methylated mercury occurs naturally:

Does mercury sucked into a dredge get methylated? If it does, how much is produced?

Modern dredges with a flare (vs crash box) design can catch a speck of gold so small you can barely see it with the naked eye? If it can do this it can also catch extremely small amounts of mercury. It does this because there is so little turbulence in the operation.
Mercury is thus nearly completely recovered from the river. Rather than being a hazard, dredging is actually a win win for the environment. The study that showed methylated mercury in the water downstream of a dredge surely did not test the water 1 mile, 2 miles or 10 miles downstream. If they had, do you think that they could detect any change from normal background levels for that stream? There is an EPA standard for safe mercury levels in water and fish etc. Does dredging create/surpass this? Consider that every decade or two mother nature produces a record flood that churns up the entire bottom of a river or stream with massive material movement, which must easily produce a million times or more the amount of methylated mercury than gold dredging might have over that decade or two. Thus, of what significance is this issue?

I could go on and on. But I think you understand my point.

I only request that you let logical answers trump the science being offered when the science does not address the bigger and more appropriate questions.

Jeff Smith
77 Pryde Ave.
Biggs, CA.
95917
(530)868-1799

12-1-2009

From: <SMITHSGOLD@aol.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/2/2009 8:21 AM
Subject: Dredging

I have been a Dredger in CA for 15 years off and on. I have abided by every new law as it was adopted. I intend to abide by any new law adopted in this process. But there comes a time when pure logic should lead the intellect to the proper perspective. I fear that the over zealousness of the anti-dredging groups has now gone beyond logic. Let me explain.

Decline of salmon and other fisheries:

The DFG's own 2009 'decision' to open a limited season for the improved Salmon populations before dredging was even shut down in CA (SB 670) logically implies that dredging was not the cause of the problem. But rather, the annual slaughter of these fish by commercial, Indian, and individual fishermen was the cause.

New spawning beds produced by dredgers help the re-population of fisheries. Much like mother nature in her annual high water and random floods do, by creating new loose gravel beds. Why would anyone want to discourage dredgers from helping fish spawn?
I've heard the argument that the tailing piles are unstable. Well, so are natural gravel bed formations, until they are washed down by subsequent winter flooding that stabilizes them.

Mercury is a natural element:

Free mercury occurs in nature and is put into the air by coal fired power plants in the thousands of tons every year. The government in its wisdom has ordered that all incandescent bulbs be replaced with compact florescent lights (with mercury in them) by 2014. They actually are forcing Americans to bring toxic mercury into their homes.

In 15 years of dredging I have never encountered free mercury in my dredge. Only the occasional flake with mercury well stuck to it (since they have an affinity for each other).
I suspect each year I encounter no more mercury stuck to gold than what you might find in 5-6 CFL's. The difference is, I am removing the mercury from a river and water supply, and the government is adding tons of it to landfills and the water supply by act of law. So who is causing damage to the environment?

Methylated mercury occurs naturally:

Does mercury sucked into a dredge get methylated? If it does, how much is produced?

Modern dredges with a flare (vs crash box) design can catch a speck of gold so small you can barely see it with the naked eye? If it can do this it can also catch extremely small amounts of mercury. It does this because there is so little turbulence in the operation.
Mercury is thus nearly completely recovered from the river. Rather than being a hazard, dredging is actually a win win for the environment. The study that showed methylated mercury in the water downstream of a dredge surely

did not test the water 1 mile, 2 miles or 10 miles downstream. If they had, do you think that they could detect any change from normal background levels for that stream? There is an EPA standard for safe mercury levels in water and fish etc. Does dredging create/surpass this? Consider that every decade or two mother nature produces a record flood that churns up the entire bottom of a river or stream with massive material movement, which must easily produce a million times or more the amount of methylated mercury than gold dredging might have over that decade or two. Thus, of what significance is this issue?

I could go on and on. But I think you understand my point.

I only request that you let logical answers trump the science being offered when the science does not address the bigger and more appropriate questions.

Jeff Smith
77 Pryde Ave.
Biggs, CA.
95917
(530)868-1799

Nov. 9, 2009

Jerry E. Moore
P O Box 484
Cloverdale CA 95425

Mark Stopher
CA Dept of Fish & Game
601 Locust St
Redding CA 96001

Re: Suction dredging

Dear Mr. Stopher:

My wife and I, along with her cousin and her husband, recently purchased a small dredge for, more than anything, recreational use. I am and have all my 69 years been an avid fisherman.

To study the effects of dredging on the river fisheries is, I feel, appropriate. It does, however, seem that the logical method would be to do that as the dredges are in operation.

One of the reasons cited in opposition of dredging was the destruction of eels in the system. I have observed juvenile eels in and going thru our dredge on a number of occasions. None have been dead and none have any sign of injury. It must be remembered that they are subjected *only to fast moving water.*

Another point to be made is that large sums of dollars have been spent to place washed gravel in streams, exactly what comes off dredges, the finer sediments to be left on rock surfaces to be carried out with high river flows. As a lay person, the tailings I see look to be ideal spawning gravel. I make no claim to be an expert though I have been involved with Royce Gunter at the Lake Sonoma Hatchery in relocating excess steelhead spawners to other Russian River tributaries and have had some rudimentary training in identifying appropriate spawning areas as these fish were extremely "ripe", paired and spawned almost immediately.

In no way do any of us want to be detrimental to the streams. We do, however, feel that the restrictions in place prior to the moratorium sufficed. It seems the most equitable solution would be to remove the moratorium and do a study with the dredges in operation.

It is a fact that dredging is, in many cases, a family adventure of which there are already too few. To put a stop to it without evidence of some detriment to the rivers seems not only unfortunate but unnecessary.

Please allow us our favorite form of recreation and do a study with the dredges in operation.

Thank you for your time and attention to this matter.

Yours truly,

Jerry E. Moore

From: jessica hanscom <jessicahanscom@yahoo.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/1/2009 5:50 PM
Subject: suction dredging on the salmon river

i live on the salmon river and for my work i do a lot of walking on the river's edge, i work for the salmon river restoration council often collaborating with the forest service and fish and game. when it comes to suction dredging it is a very complicated and delicate matter. the locals around here have had this as a way of life for a long time. recently our rivers have been swarming with dredgers, most of them are not locals. we have claim jumpers coming in and buying up every claim that they can get their hands on and then selling or renting? them to other people from out of the area. when you walk down the salmon river now it is not uncommon to find a dredge or 2, or 3, at almost every accessible spot. along with unconscious dredging practices, the environmental impact from these long term encampments is bad too. I often wonder as i have seen more algae growing every year if maybe it is coming in on the bottoms of dredges and kayaks?the other

down fall is that with out garbage service provided by the forest service, these miners along with other sorts of recreationalists often times (unaware of our public garbage service 1 day, a week(10:30-1:30,)) just toss their garbage over the side of the road, it has been more of a problem since the garbage cans have been removed 4? years back.... you dont want to see or even imagine how some of these "visitors" leave behind their feces.-it's disgusting and unsanitary. lots of soap directly into the river, we find bars of soap, bottles of dish soap, shampoo,garbage, feces,and gas cans,fishing poles, all right at the rivers edge. I found a full 1 gal. bottle of mercuric acid right at a creek mouth. the water gets so murky in the summer that it can be undesirable to even go swimming and there is sometimes a film and bubbles floating on the surface. I'm not a dredger and i dont know exactly the process or what is used when people dredge,

but it doesn't seem like when i am down river from a dredge in use that the water seems like an equally healthy nor healthier habitat for the animals that live within it. the noise alone has got to have detrimental effects on the wildlife. I'm sure that there are ways to use dredging to the river's benefit. i feel like most of the locals that i know that dredge care about the river and the animals that make their homes here, they are putting that thought into how they dredge and how they leave the river. it is their home. i dont want to see dredging rights taken away from these peoples, these local people to whom this has been a way of life, an income, not just recreation, and I'm not sure how you would allow it for just them and not others. i really dont agree with how suction dredging has been the last few years. we have large groups camping out long term with multiple dredges on just about every mile of river...it sucks... (ha! ha!) it seems to

me that the mining laws that were written in the 1800's are a bit behind the times and need to be revised. thank you for your time.... jessica hanscom

From: Jill Grbavac <jill.grbavac@gmail.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/3/2009 3:47 PM
Subject: Please Ban Suction Dredging

I think our watersheds have enough to deal with without us disrupting them further. I'd like to request that the DFG ban suction dredging permanently.

Thank You,

Jill Grbavac
Eureka Resident
Former Mattole Salmon Group Staff

James D. Foley
Mining Rights Advocate
21935Highway 96
Klamath River, CA. 96050
(530)465-2211

Suction Dredging Ca. EIR NOP
California Department of Fish and Game
(Agency)
601 Locust Street
(Address)
Redding, CA 96001

- The ACT of JULY 26, 1866 or H. B. 365 declares that the mineral lands of the public domain, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and occupation by all citizens of the United States.

- In the Mineral Estate grant of 1866 the claim holder has exclusive possession of mineral land, to include the entire surface i.e. minerals, water, and timber as Congress expressly provided. How then can a claim holder not be in control of it to exclude interference by agency regulation?

- **30 USC 26.94** - Unpatented mining claims are "property" in the highest sense of such term, which may be bought, sold and conveyed and will pass by decent.

- **THE SUPREMACY CLAUSE**
  Article. VI.

  This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any thing in the Constitution or Laws of any State to the Contrary notwithstanding.

Any legislation or rule that seeks to prohibit any kind of mining will run afoul of the Federal Supremacy Clause. The preemption doctrine derives from the Supremacy Clause of the Constitution which states that the "Constitution and the laws of the United States...shall be the supreme law of the land...anything in the constitutions or laws of any State to the contrary notwithstanding." This means of course, that *any* federal law trumps *any* conflicting state law.

- **CDFG Quote:**
  "The SEIR and related review under CEQA will analyze new significant and substantially more severe environmental impacts that may be occurring under the existing permitting program that were not addressed by the Department during prior environmental review completed in 1994."

  Question:
  What are these impacts and what is the source of this information?
- Volumes of peer reviewed scientific studies have been published regarding the question of any adverse impacts due to suction dredge mining. Invariably these studies reach conclusions of;
  1. de-minimus effects, by U.S. EPA

  2. "Effects of dredging commonly appear to be minor and local." (Bret C. Harvey)

  3. "Studies to date have not shown any actual effect on the environment by suction dredging, except for those that are short-term and localized in nature. Effects were significant, but localized. Suction dredging effects could be short-lived on streams where high seasonal flows occur. The greatest potential for damage is at low flow.
  4. Many peer reviewed studies reach a conclusion of **"No significant impact."**

From: Jim Foley <jfoley@sisqtel.net>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/2/2009 8:00 PM
Subject: Attn. Mark Stopher
Attachments: Redding Scoping Meeting2.doc; Redding Scoping Meeting.doc; Part.004

Please accept the attached files as my comments re: Suction Dredging Ca.
EIR NOP 2009

James D. Foley
Mining Rights Advocate
21935Highway 96
Klamath River, CA. 96050
(530)465-2211

Suction Dredging Ca. EIR NOP
California Department of Fish and Game
(Agency)
601 Locust Street
(Address)
Redding, CA 96001

Atten: Mark Stopher

Please accept this document and all exhibits as my comments concerning the scoping process for Suction Dredging Ca. EIR NOP

ACT of JULY 26, 1866

H. B. 365

That the mineral lands of the public domain, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and occupation by all citizens of the United States. (See exhibit 1)

30 USC 26.94 - Unpatented mining claims are "property" in the highest sense of such term, which may be bought, sold and conveyed and will pass by decent.

Anyone found in conflict with the intention of Congress as expressed in the act of 1866 will be found personally liable to the miner they harmed.

For a number of reasons no agency of the government can affect the property conveyed in the grant. Agency is called agency because it is an agent, not a principal that can make any decisions not delegated. It may be easier to understand that because Congress disposed of all valuable mineral deposits, gave them away, every subsequent land disposal legislation must have a savings clause, saving from affect the land conveyed, disposed in 1866, even in FLPMA. So even if subsequent legislation could change prior legislation, every subsequent legislation covering this subject matter must “save” the

property Congress gave away, that it could not be affected by any body. That savings condition is expressed again in 43 USC 1732, the management authority in a number of places.

In the Mineral Estate grant of 1866 the claim holder has exclusive possession of mineral land as Congress expressly provided. How then can the claim holder not be in control of it to exclude interference by agency regulation?

CDFG Quote:
"The SEIR and related review under CEQA will analyze new significant and substantially more severe environmental impacts that may be occurring under the existing permitting program that were not addressed by the Department during prior environmental review completed in 1994."

Question:
What are these impacts and what is the source of this information?

Volumes of peer reviewed scientific studies have been published regarding the question of any adverse impacts due to suction dredge mining. Invariably these studies reach conclusions of;
1. de-minimus effects, by U.S. EPA (See exhibit 1.)

2. "Effects of dredging commonly appear to be minor and local." (Bret C. Harvey)

3. "Studies to date have not shown any actual effect on the environment by suction dredging, except for those that are short-term and localized in nature. Effects were significant, but localized. The size of the impact zone varies. A six-inch dredge is appropriate where substrate gravel size is large, but a large aperture may be disruptive in a small channel. Suction dredging effects could be short-lived on streams where high seasonal flows occur. The greatest potential for damage is at low flow
4. Many peer reviewed studies reach a conclusion of **"No significant impact."**

Even though cumulative effects and some other questions have not been thoroughly studied, there has been nothing to date to substantiate closure of the small-scale mining operations. Even with the absence of data, environmental groups were active to close down mining citing unsubstantiated possible discharge violations. The effects of suction dredging would appear to be less than significant and not deleterious to fish." By Joe Cornell (see exhibit 5)

"The effects of suction dredging would appear to be less than significant and not deleterious to fish" (CDFG, 1997). Nothing has been published in the scientific literature that should change the California Department of Fish and Game's position on small scale suction dredge mining.

Exhibit 1

Impact of suction dredging on water quality, benthic habitat, and biota in the Fortymile River, Resurrection Creek, and Chatanika River, Alaska

Prepared For:

US Environmental Protection Agency
Region 10
Seattle, Washington

Prepared By:

Aaron M. Prussian, Todd V. Royer, and G. Wayne Minshall

Department of Biological Sciences
Idaho State University
Pocatello, Idaho

FINAL REPORT
June 1999

Table of Contents

Summary

Part I - Suction Dredging in the Fortymile River
Introduction
Methods
Results
Discussion

Part II - Recreational Dredging in Resurrection Creek
Introduction
Methods
Results and Discussion

Acknowledgments
Literature Cited

Summary

This report describes the results of our research during 1997 and 1998 into the effects of commercial suction dredging on the water quality, habitat, and biota of the Fortymile River and recreational dredging on Resurrection Creek and the Chatanika River. On the Fortymile River, water chemistry, heavy metal concentrations, riverbed morphology, algal (periphyton) standing crop, and aquatic macroinvertebrate abundance and diversity were measured in relation to commercial suction dredging for both years. The focus of

our work on the Fortymile in 1997 was on an 8-inch suction dredge (Site 1), located on the mainstem and a 10 inch dredge located on the South Fork (Site 2a). Our research in 1998 included (1) resampling the 1997 sites on the mainstem and SF Fortymile to determine recovery after one year, (2) sampling a dredge site on the South Fork to examine for possible spatial variability in the effects of large-scale suction dredging on benthic communities (3) sampling a dredge site on the North Fork Fortymile to determine whether impact and recovery differ from conditions on the South Fork and the mainstem, and (4) again sampling unmined sites on the NF and SF to better document suspected background differences between the two forks in terms of macroinvertebrate communities. In all of the suction-mined sites studied, dredges were operated by experienced miners. Sampling was performed at fixed transects above and below the dredge locations. Additional sampling above the confluence of the North and South Forks revealed differences in background conditions in these two main tributaries.

At Site 1, dredge operation had no discernable effect on alkalinity, hardness, or specific conductance of water in the Fortymile. Of the factors we measured, the primary effects of suction dredging on water chemistry of the Fortymile River were increased turbidity, total filterable solids, and copper and zinc concentrations downstream of the dredge. These variables returned to upstream levels within 80-160 m downstream of the dredge. The results from this sampling revealed a relatively intense, but localized, decline in water clarity during the time the dredge was operating. The impact of suction dredging on water clarity and heavy metal concentrations may be greater or lesser than we measured, depending on the type of material the dredge is excavating.

The cross-sectional profiles indicate that the impact of the dredge piles relative to the width of the Fortymile River was small. After one year, dredge piles at Site 1 had largely disappeared following the scouring flows that accompany snow-melt in the Fortymile drainage. However, at Site 2, dredge piles were clearly discernable after one year. Macroinvertebrate abundance and diversity were greatly reduced in the first 10 m below the dredge at Site 1 during 1997, relative to the upstream reference site. For example, macroinvertebrate abundance was reduced by 97% and the number of taxa by 88% immediately below the dredge. The abundance and diversity of macroinvertebrates returned to values seen at the reference site by 80 to 160 m downstream of the dredge. A similar decline in macroinvertebrate abundance and diversity was observed at Site 2a. One year after dredging at both Site 1 and Site 2, recovery of macroinvertebrate diversity appeared to be substantial. The cumulative effect of suction dredging on the biota of the Fortymile is a function of the number of dredges operating concurrently, the size of the dredges, the strategy and effectiveness of their operators, and the rate and extent of re-colonization on the excavated dredge piles.

We compared conditions in the North Fork versus the South Fork of the Fortymile under the hypothesis that the greater background mining activity (of all types) on the SF would result in reduced macroinvertebrate abundance and diversity. We also expected that suction dredging would be relatively less harmful at already impacted sites than at sites that were less disturbed. An increase in macroinvertebrate density was found in the NF, relative to the SF, and this we attributed to the lower variability of benthic organic matter

and greater amounts of periphyton standing crop that occurred in the NF. We could discern no natural reason for this difference and therefore attribute this result to the greater disturbance in the SF from all forms of mining, historic and current.

The second component of this project is to examine the effects of recreational suction dredging on smaller streams in Alaska. In 1997, sampling was conducted on a single site on Resurrection Creek, a designated recreational mining stream on the Kenai Peninsula. In 1998, sampling was conducted on the Chatanika River, known to be popular for recreational dredging. The Chatanika River was sampled at a location north of Fairbanks. The results from Resurrection Creek indicated that there was no difference in the macroinvertebrate community between the mining area and the locations downstream of the mining area, in terms of macroinvertebrate density, taxa richness, EPT richness, or food resources. Results from the Chatanika showed slight downstream decreases in macroinvertebrate density, but all other measures remained similar to those of the reference area. In general, our results are in agreement with other studies that have found only localized reductions in macroinvertebrate abundance in relation to small-scale suction dredging.

Part I - Suction Dredging in the Fortymile River

Introduction

This report describes the results of research performed during 1997 and 1998 to determine the possible impacts of commercial suction dredging on the water quality, benthic habitat, and biota of the Fortymile River, Alaska (hereafter, Fortymile). Also described in this report are the impacts by recreational dredging on the Chatanika River and Resurrection Creek. This is the first study of its kind to describe the effects of suction dredge mining on river ecosystems in Alaska.

In stream ecosystems, aquatic macroinvertebrates have become the primary assessment tool for resource managers (see Barbour et al. 1996, Cairns and Pratt 1993). Several characteristics of aquatic macroinvertebrates, as a group, have led to their general acceptance as reliable indicators of ecological condition: (1) they are generally immobile (relative to fish), (2) they consist of a relatively large number of species that, collectively, display a range of sensitivities and responses to various types of habitat degradation, (3) they tend to be ubiquitous throughout streams and rivers, and (4) they are relatively easy to sample and identify. For these reasons, our assessment of the effect of suction dredging on the Fortymile, Chatanika, and Resurrection focused on macroinvertebrates. In addition to aquatic macroinvertebrates, water chemistry, streambed geomorphology, algal (periphyton) standing crop, and benthic organic matter (BOM) standing crop also were measured in relation to suction dredging for both years. The latter two components form the food base for stream herbivores and detritivores and are vital to the production and recovery of aquatic macroinvertebrates. Variations in the sampling method between years are described in the Methods section.

Historically, gold mining occurred throughout the Fortymile basin and several types of operations are still active, including placer mining, hydraulic mining, and suction dredging. Large scale placer mining also occurs in some sections of the Chatanika River and historically in the lower reaches of Resurrection Creek. Our research was limited to investigations on the effects of suction dredging. We addressed two general topics: (1) the effect of relatively large (8-10 inch) commercial suction dredges on ecological conditions in the Fortymile and (2) the general effect of smaller (2-6 inch) recreational suction dredges on benthic habitat and biota in the Chatanika River and Resurrection Creek. Part I of this report presents the results from the Fortymile; Part II describes results of small-scale mining within the recreational mining sites.

Suction dredging typically involves excavating the deeper, largely uninhabited sediments and depositing them on top of the ecologically more important surface substrates. Sorting and re-deposition of substrata moved through a dredge were expected to alter the streambed geomorphology and create "dredge piles" downstream of the dredges. Our effort here was directed toward determining the size (height, width) of the dredge piles, relative to the cross-sectional width of the river. This type of physical disturbance of benthic substrata generally reduces periphyton standing crop, BOM, and macroinvertebrate density. Thus, substrata moved through the dredge were expected to support less periphyton than substrata in undisturbed areas of the river (see Peterson 1996). Abundance and diversity of macroinvertebrates also were expected to be sharply reduced in dredged areas, as physical tumbling of substrata is known to kill and/or dislodge associated organisms (see Resh et al. 1988 for review), in addition to reducing the available food base.

The impact of commercial suction dredging on benthic organisms was evaluated in 1997 on the South Fork and the mainstem Fortymile River (Fig 1.). One site was also sampled in the North Fork near the confluence of the North and South Forks. In addition to resampling the 1997 mainstem and South Fork dredge sites in 1998, we expanded our sampling to include one dredge site on the North Fork and two additional dredge sites on the South Fork. We also sampled three reference sites unaffected by mining activity on the North and South Forks, including the 1997 North Fork Confluence site. Overall, our goals for 1998 were (1) to determine the potential for recolonization of the previous year's dredge spoils, (2) to expand the spatial scale of our sampling by including sites that were dredged early (June), and late (September) in the season, and in different geomorphic settings (inside and outside of a meander bend), (3) to sample dredged sites in a less-disturbed portion of the basin (North Fork) than our other sites, and (4) to compare impact and recovery potentials of dredge mining between more disturbed (South Fork), and less disturbed (North Fork) streams in the same basin.

The research on recreational dredging was designed to assess the potential impacts on the aquatic macroinvertebrate community in streams from geographically diverse locations and streams known to have annually repeated, relatively, intense mining occur in the same location. Several potential sites were examined but most proved to be unsuitable for study because of the absence of discrete areas of concentrated suction dredging confounded by other disturbances. Resurrection Creek contains a section of stream

designated for recreational mining activity by the State Department of Fish and Game and the U.S. Forest Service and is located on the Kenai Peninsula in Southcentral Alaska. The Chatanika River has no such designation that we know of, however it appears that mining is restricted to a section of river near Milepost 60 on the Steese Highway. The Chatanika River site is known to receive a sizeable amount of suction dredge activity throughout its available mining season.

Methods

Sampling Design - The majority of our work on the Fortymile in 1997 was conducted at a single site, with an 8-inch suction dredge operated by an experienced miner (hereafter, Site 1). Site 1 was located approximately 13 kilometers (8 miles) upstream of the Taylor Highway-Fortymile River Bridge (approximately 141° 30' W, 65° 17' N; Township 7 south, Range 32 east). Sampling was performed at fixed transects above, within, and below the dredge location (Fig. 2). Work at this site occurred from 14 through 17 August 1997, under baseflow conditions. Less intensive sampling also was conducted above and below a larger (10 inch) dredge located on the South Fork Fortymile also by a veteran miner (Site 2a), and near the mouth of the North Fork Fortymile (NF, Site 4). Sampling at Site 2a and in the NF was performed from 17-18 August 1997 and was restricted to recently dredged piles and un-dredged reference areas because the dredge was not active at the time, due to elevated water levels and turbidity following an intense rainstorm over an extensive part of the basin.

During 1998, we returned to both Site 1 and Site 2a to determine the degree to which the areas dredged in 1997 had recovered relative to the reference areas. At Site 1, the previous year's dredge piles were re-sampled using the same design as in 1997. At Site 2a, the area that had been dredged in 1997 was re-sampled and another location, of different mining history and geomorphic setting, was studied for the first time (2b). During 1998, we also sampled a dredge site located on the NF Fortymile (Site 3) to increase the spatial extent of the study and to determine if the NF and SF respond differentially to effects of suction dredging. Also in 1998 the reference site near the mouth of the NF was resampled and a comparable unmined site on the SF just upstream of the confluence was added for better evaluation of potential SF/NF background differences.

The Before-After-Control-Impact (BACI) approach is a powerful and generally accepted sampling design for detecting environmental impacts (e.g., Smith et al. 1993, Stewart-Oaten et al. 1986, Green 1979). For the present study, a BACI design was used for water chemistry and turbidity sampling at Site 1. Water samples were collected prior to and during dredge operation (Before and After) as well as upstream and downstream of the dredge (Control and Impact). Single measurements' were made at each of ten transects. It was not possible to employ a BACI design for periphyton and macroinvertebrate measurements because of the logistic problems associated with using an actual dredge and the limited amount of time available for sampling under baseflow conditions. Instead, samples at Site 1 were collected upstream and downstream of the dredge while the dredge was in operation. Five macroinvertebrate and periphyton samples were collected at each

transect, except the 0 m, 5 m, and 10 m transects. Sampling the 0 m, 5 m, and 10 m transects individually was not practical due to the narrow width of the dredge piles; collection of five samples across their limited width was not possible. Therefore, ten macroinvertebrate and periphyton samples were collected from the 0-10 m area to document conditions immediately below the dredge. At Site 2a, sampling was limited to recent dredge piles located 25, 35, and 70 m below the moored dredge, and a reference transect located 250 m upstream of the dredge. Although the dredge was not in operation during sampling at Site 2a, it had been in operation during the preceding week. Finally, the samples from the reference area at Site 2a were used with similarly collected samples from the mouth of the NF to compare conditions in the two forks of the Fortymile River.

In 1998, five macroinvertebrate and periphyton samples were taken from the reference, mined, 20 m, and 40 m locations at Site 1 to determine the extent of recovery after one year. No mining occurred at Site 1 during the 1998 study period. At Site 2a, samples were taken from the reference, 35 m, and 70 m transects. At Site 2b, slightly downstream of Site 2a, samples were taken from three locations that had been dredged along the inside of a meander bend. Ten samples were taken from an "Upper" location that had been dredged in late September 1997. Five samples were taken from two dredged areas slightly downstream of the upper location that had been dredged within the preceding week. We sampled a single dredge site on the NF that had been dredged with a 10 inch dredge within the previous 10 days of our sampling. Samples were taken at locations that had been dredged, no attempt was made to document the downstream extent of mining disturbance at this site because of inconsistent (patchy) dredge operations by the Site 3 dredge operators. Ten samples were taken from a location not affected by mining in the NF, as well as from each of three transects within the mined area. In addition to the dredged locations within the Fortymile basin, ten samples were taken from unmined locations in both the SF and NF near their junction with the mainstem (Sites 4 and 6). A second NP location was sampled on request by the US Geological Survey after an upwelling of groundwater containing arsenic and other heavy metals was located on the North Fork and is described in detail below. Ten samples were taken from this location and were compared to samples taken from upstream of the upwelling.

Field and Laboratory Methods - The methods used throughout this study are standard and widely accepted techniques in stream ecology. Published reference sources provide detailed instructions regarding these methods (Hauer and Lamberti 1996, APHA 1995, Cuffney et al. 1993, Porter et al. 1993, Platts et al. 1983). These references often provide multiple methods for sampling a given variable. We selected the techniques that were most applicable to our work on the Fortymile; specific details and modifications used on the Fortymile are described below.

Turbidity, the inverse of water clarity, and specific conductance, a measure of the amount of total dissolved mineral salts in the water, were measured on location with portable meters (Hach model 2100P and Orion model 135, respectively) immediately after collection of the water samples. The meters were calibrated on a regular basis, as indicated in the manufacturer's instructions. Water samples for alkalinity and hardness were stored in insulated containers after collection to minimize chemical and biological

activity in the water. For analysis, the samples were sent to the Stream Ecology Center, Idaho State University. The alkalinity and hardness of each sample was determined in the laboratory using standard titration methods (APHA 1995).

Samples for total filterable solids were filtered on location within 3 hours of collection. The filters containing the samples were stored in insulated containers to minimize bacterial degradation of filtered organics. Upon completion of the field sampling, the samples were sent for analysis to the Stream Ecology Center, Idaho State University. These samples were analyzed by determining the amount of mass lost on combustion at 550°C for 3 hours. The amount of mass lost on combustion is equivalent to the organic mass of the sample and is referred to as ash-free dry mass (AFDM). Standard procedures were used to determine the AFDM of the samples (APHA 1995). Total settleable solids were measured on-site immediately after sample collector using Imhoff cones; settleable solids were measured only while the dredge was in operation.

Water samples from the Fortymile River were collected for determination of heavy metal concentrations using the "clean hands/dirty hands" procedure as prescribed by the US Environmental Protection Agency. All materials (sample containers, filters, coolers, etc.) and protocols used in the collection of heavy metal samples were provided by US EPA. Samples were sent for analysis to the US EPA laboratory in Manchester, WA. In 1998, macroinvertebrates were collected to examine the potential of these organisms to concentrate heavy metals within their tissues. Macroinvertebrates were collected from four locations: Alder Creek, Polly Creek, and two locations on the NP Fortymile. Alder and Polly creeks are tributaries to the mainstem of the Fortymile; Alder served as the reference site and Polly as a site that has been mined historically and currently experiences some mining activity. On the NF Fortymile, the USGS has identified an area of upwelling groundwater that potentially is a source for dissolved heavy metals in that river. One of the NF Fortymile sites from which macroinvertebrates were collected was located above this possible heavy metal source, the other downstream of it. After collection, the invertebrates were immediately frozen and kept frozen until analysis. Analysis of the metal concentrations within the invertebrate tissues was conducted by James Crock at the USGS, Mineral Resources Program, Denver. To obtain a sufficient mass of tissue for analysis, all individuals from a site were combined; thus the results are based on a single measurement per site. The invertebrates were dried, pulverized, and weighed. The material was then transferred to a Teflon™ vessel and digested in 10 mL of concentrated nitric acid. One mL of the solution was diluted to 10 mL and analyzed using the USGS standard ICP-MS method. Mercury was determined using a cold vapor-atomic fluorescence spectrometry on a separate 1 mL aliquot diluted to 10 mL in sodium dichromate/nitric acid (James Crock, personal communication).

Description of streambed morphology was accomplished by developing cross-sectional profiles (see Platts et al. 1983) of the river at the transects described above (Fig. 2). Distance out from a fixed location on the bank was measured along a (Kevlar) cable stretched taut across the river. At numerous points across the width of the river, the distance from the cable to the water surface and the total water depth were measured.

All macroinvertebrate sampling was done with a Portable Invertebrate Box (PIB) sampler that was modified for use in water deeper than the height of the sampler. The PIB sampler encompassed 0.093 m2 of streambed (the sampler was approximately 30 cm on a side). The sampler was placed into position on the streambed and held in place by one operator while the second operator disturbed the substrata enclosed by the sampler to dislodge the organisms. A removable 250p.m mesh net was attached to the downstream end of the sampler to collect the dislodged organisms. Although designed to be used in deep water, the current velocity of the Fortymile precluded use of the sampler at most deep-water locations, particularly those in the center of the river. At some deep-water locations, SCUBA techniques were used to collect the samples; SCUBA was required for collection of approximately 5% of the samples collected within the sediment plume. In general, all macroinvertebrate samples were collected from near-shore habitats, approximately 2-30 meters from the bank. This is the same distance from the bank in which the dredge was operating.

Following collection, each sample was placed into a labeled plastic bag (Whirl-pak brand) to which approximately 10-15 ml of concentrated formalin was added to preserve the organisms. In the laboratory, the contents of each macroinvertebrate sample were spread-out in a white sorting tray and all organisms removed. The sorting was accomplished with the aid of a dissecting microscope of 10X magnification. The organisms were then identified to the lowest feasible taxonomic level, usually genus, using published taxonomic references, primarily Merritt and Cummins (1996), Wiggins (1996), and Stewart and Stark (1993). A reference collection was established and voucher specimens are located in the Stream Ecology Center, Pocatello at Idaho State University.

Periphyton samples were collected from individual rocks located just upstream of each macroinvertebrate sample. Processing was done immediately after collection of the rock and followed the procedures of Robinson and Minshall (1986). Briefly, the process involved removing all material within an enclosed area (3.14 cm2) from the rock surface. The removed material was then suctioned onto a pre-fired, glass microfiber filter (Whatman GF/F). Filters were frozen with liquid nitrogen in a modified dewar flask (Taylor-Wharton model 3DS) and sent to the Stream Ecology Center, Idaho State University for processing. Periphyton samples were extracted with reagent grade methanol (Holm-Hansen and Riemann 1978) and the 1997 chlorophyll-a content was determined with a spectrophotometer (Gilford Instruments model 2600). The 1998 chlorophyll-a samples were analyzed using a fluorometer in order to detect very low concentrations. Following centrifugation, approximately 3 ml of the sample was removed and used in the chlorophyll-a determination, the remaining material was used for measuring the AFDM of the sample as described above under total filterable solids.

Results

Water Chemistry and Clarity

At Site 1, dredge operation had no discernable effect on alkalinity, hardness, or specific conductance in the Fortymile (Fig. 3). Alkalinity ranged from <20 to >50 mg CaCO3/L,

regardless of whether or not the dredge was operating. Hardness ranged from approximately 80 to 115 mg CaCO3/L. Both alkalinity and hardness displayed a large amount of variability in the immediate vicinity of the dredge whether or not the dredge was operating. Values of alkalinity and hardness measured at 320 m below the dredge were similar during operation of the dredge to values measured when the dredge was not in use (Fig. 3). Specific conductance showed only slight spatial and temporal variation during our sampling. Values ranged from 131 to 135 µS/cm, with a small decrease immediately downstream of the dredge, when in operation (Fig. 3). Turbidity and total filterable solids (TFS) both displayed an increase below the dredge (Fig. 4). During operation of the dredge, turbidity increased from values around 1 NTU upstream of the dredge to values of approximately 25 NTU immediately downstream of the dredge. The elevated turbidity declined rapidly downstream and by 160 m (525 ft) turbidity had returned to values measured upstream of the dredge. No such increase in turbidity was recorded when the dredge was not in operation. TFS showed a pattern similar to that of turbidity, increasing from 3 mg AFDM/L upstream of the dredge to 46 mg AFDM/L immediately downstream of the dredge (Fig. 4). As with turbidity, TFS did not display an increase downstream of the dredge when the dredge was not operating. Regardless of whether or not the dredge was operating, a longitudinal increase in TFS was measured from 80 m to 320 m downstream of the dredge. At 160 m downstream of the dredge, values of TFS were 28 and 23 mg AFDM/L during operation and non-operation, respectively. Total settleable solids showed a pattern very similar to that observed for TFS (Fig. 5).

During operation of the dredge, specific conductance and turbidity were measured across the width of the Fortymile at 0, 5, 10, 20, and 320 m downstream of the dredge to identify the proportion of the river width affected by the dredge plume. Specific conductance was unaffected by the dredge plume which was located along the right bank, but did decrease near the left bank (Fig. 6). This decrease was most likely due to groundwater and/or a small tributary that joined the Fortymile on the left bank just upstream of the study area.

Unlike specific conductance, cross-sectional measurements of turbidity from within the dredge plume showed a large increase, relative to areas outside the plume (Fig. 7). However, at 320 m downstream of the dredge, cross-sectional variation in turbidity was quite low, ranging from 1.2 to 2.5 NTU. During this sampling, the dredge was operating in close proximity to the right bank. Under these conditions, the plume tended to remain near the right bank and did not extend to the center of the river. In terms of turbidity, approximately 7% of the river width was affected by the dredge plume for a distance of less than 320 m.

Heavy Metals

For the unfiltered samples, two metals, copper and zinc, showed distinct increases downstream of the dredge (Fig. 8). Total copper increased approximately 5-fold and zinc approximately 9-fold at the transect immediately downstream of the dredge, relative to the concentrations measured upstream of the dredge. For both metals, the concentrations declined to near upstream values by 80 m downstream of the dredge. The pattern

observed for total copper and zinc concentration is similar to that for turbidity and TFS (see Fig. 4), suggesting that the metals were in particulate form, or associated with other sediment particles. The results of sampling for dissolved heavy metals area are shown in Table 1. Zinc, arsenic, and copper displayed an average value downstream of the dredge that was greater than the average value measured upstream of the dredge (note that samples sizes are low, particularly upstream of the dredge). Copper displayed the greatest change, increasing by approximately 3-fold downstream of the dredge. Dissolved lead concentrations did not appear to be affected by operation of the dredge. Values of dissolved mercury actually were greater upstream of the dredge, suggesting that any effect of the dredge was likely within the range of natural variation. (The operator reported observing deposits of liquid mercury within the sediments he was working.) For both dissolved and total concentrations, budgetary limitations precluded multiple sampling across either space or time, thus the results of heavy metal sampling are only indicative of likely conditions.

Due to the low densities of macroinvertebrates in the dredge plume (and in the Fortymile in general) and the short exposure times, no macroinvertebrates were collected for heavy metal tissue analysis downstream of the suction dredge. However, results from the 1998 analysis of macroinvertebrate tissues suggest that these organisms are capable of concentrating heavy metals at least under conditions of chronic exposure. Although the data are preliminary in nature, several metals showed substantially greater concentration in the invertebrates from Polly Creek (mined) than from Alder Creek (reference), including mercury, zinc, molybdenum, and arsenic (Table 2). Other metals, such as copper and nickel, did not exhibit substantial differences between the two sites. The upwelling area identified by the USGS as a potential source of metals in the NF Fortymile did not appear to be influencing metal concentrations in macroinvertebrates. For the metals listed above, nickel was the only metal that showed a substantial increase (Table 2).

Channel Morphology

Site 1- Cross-sectional profiles were mapped to quantify the extent of the dredge piles relative to the width of the river. At Site 1 only the pile created most recently, 0 m downstream of the dredge, was visible with our profile mapping (Fig. 9). At the transects 5 and 20 m downstream of the dredge the piles were visually obvious due to the light color of the excavated material compared to undisturbed riverbed. However, the piles did not appear as distinct "mounds" in the measurements made at these transects. One year after active dredging occurred, the distinct mounds seen in Figure 8 at the 0 m transect were no longer apparent. There was no discernable dredge pile at the 5 and 20 m areas. Figure 9 is based on detailed mapping along the right bank of the river and is drawn to scale to represent the conditions within the streambed relative to the depth of the river in that area. There is a large width:depth ratio for Site 1 as indicated by Figure 10. Discernable dredging activity can be seen within the first 5 m from the right bank. The area that this particular dredge operation affected was about 6% the width of the river.

Site 2a- In August 1997 partial cross-sectional profiles were measured every 5 meters, beginning slightly downstream of dredging activity and continuing for 110 meters, to map a series of dredge piles along the right bank of the South Fork of the Fortymile (Appendix A). In July 1998 three transects were re-measured to map the change in location of the dredge piles (Fig. 1). The dredge pile at 30 m shows a shift towards the center of the stream, though the overall size remained essentially the same after one year. A profile of the 40 m transect produced similar results. Remaining partial cross-sectional profiles are presented in Appendix A.

Site 2b- In July 1998 a second site on the South Fork was included in our sampling to determine if there are spatial differences in dredging effects on biota. Cross sectional profiles were measured. Full cross-sectional profiles were completed for the "upper" pile in 1998 which had been dredged in September of 1997 (Fig. 12) and partial cross-sections were measured for the upper, middle, and lower locations (Figs. 13 and 14). Easily discernable dredge piles were observed and measured between 0, 5, and 10 m below a reference transect at the upper location for Site 2b. Partial cross-sectional profiles also were measured to determine the longitudinal extent of the upper dredge pile (Fig 13). According to our measurements, the upper dredge pile tapered off at about 35 m. Profiles for the middle and lower dredge areas show another dredge pile beginning between 80 and l00 m. The lower dredge pile begins at about 130 m and continues slightly past 140 m (Fig 14). The middle and lower dredge areas were mined about 7 days prior to our sampling at Site 2b.

Site 3- Cross-sectional profiles also were measured at Site 3 in the North Fork. Entire width profiles were measured every 20 m along this reach (Fig. 15) and partial profiles were measured at various distances between each full profile (Fig. 16). Dredging was active at the 0 m and 10 m locations and between the 40 and 60 m locations. There is a large width:depth ratio for Site 3. Figure 13 shows the size of the dredge piles relative to the entire width of the river for Site 3. The full width profile measured for Site 3 shows distinguishable channel forms where mining activity had occurred within 10 days of our sampling at 20 m, 60 m, and 80 m though the 80 m location may simply be due to natural bed forms. The lack of obvious dredge piles at the 0 m and 40 m locations are most likely because the dredge pile began slightly upstream of these locations. Dredge piles accounted for approximately 15% of the total channel width at Site 3.

The partial profiles show very distinct dredge piles 5 m downstream of mining activity which can be seen nearly 4 m from the right bank. 10 m downstream another relatively distinguishable streambed "rise" is discernable between 4 and 6 m from the right bank. There is no discernable effect on the streambed 15 m downstream of mining activity according to these profiles.

Periphyton Standing Crop

At Site 1, 1997 periphyton AFDM was greatest at the transect upstream of the suction dredge, with a mean value of 1.8 mg AFDM / cm2 (Fig. 17). Periphyton standing crop was reduced by approximately 2-4 fold at the transects downstream of the dredge. The

lowest value, >0.5 mg AFDM / cm2, occurred in the first 10 m immediately below the dredge. Unlike other variables, periphyton standing crop did not appear to recover at subsequent transects downstream of the dredge. At the 320 m transect, for example, AFDM was only 50% of the value measured upstream of the dredge. Chlorophyll-a concentrations are reduced to unmeasurable values within the areas dredged and 20 m below the operating dredge. Measured chlorophyll-a concentrations follow the results of periphyton standing crop biomass downstream of the operating dredge. After one year, chlorophyll-a concentrations and periphyton standing crop biomass in the mined area had returned to values near those from the unmined reference location, indicating that periphyton is unaffected by dredging the previous year at this location (Fig 18).

Both periphyton standing crop and chlorophyll-a at Site 2a showed little response to dredging in comparison to the upstream reference location in 1997. In 1998, mean chlorophyll-a concentrations were nearly identical at the reference location to those values in 1997; however, mean chlorophyll-a concentrations were greater at each of the dredged locations in 1998 than in 1997 (Fig 19). Periphyton standing crop in 1998 also increased 2-4 fold in the reference and 25 m locations and increased slightly less in the 70 m and 100 m locations after one year (Fig 19).

At Site 2b, periphyton standing crop biomass averaged between 3 and 4 mg/cm2 for all locations regardless of the year in which they were dredged. However, mean chlorophyll-a was 2.5 times greater in the "Upper" location, which had been dredged late in the previous year, than either of the other two nearby locations that had been dredged in 1998. The Upper location was dredged late in the 1997 mining season but sampled only during 1998. The greater amount of chlorophyll-a in the upper location, compared to the other two (1998) dredge piles is most likely due to the additional time of recovery (Fig. 20).

Comparisons between the NF and SF Fortymile were conducted to document differences in background conditions and the potential for recovery of mined areas in two tributaries with different mining pressures within the same basin. Mean periphyton biomass was three times greater in the NF site (Site 4) than in the SF site (Site 6) in 1997. Mean chlorophyll-a concentrations were 4 times greater in the NF than, in the SF for the same year (Fig 21).

Aquatic Macroinvertebrates

Site 1- The short-term influence of the suction dredge on macroinvertebrates appeared to be limited to the first 20-40 m downstream of the dredge. Two locations were examined upstream of the dredge at Site 1, the first was approximately 80 m upstream and the second approximately 200 m upstream. In terms of water velocity and substrate characteristics, the -200 m site was considerably more similar to the habitat downstream of the dredge than was the -80 m site. For this reason, only the -200 m transect was used as the reference for Site 1.

The abundance of macroinvertebrates at Site 1 was low, relative to large rivers in other parts of North America (e.g., Royer and Minshall 1996). A mean of 270 individuals per m2 was collected at the reference site; approximately 370 individuals per m2 were found at the site 160 m downstream of the dredge (Fig. 22). Diversity averaged 6-7 taxa per sample at the reference site and ranged from 1 to 7 taxa per sample at the sites downstream of the dredge. Taxa within the orders of Ephemeroptera (mayfly), Plecoptera (stonefly), and Trichoptera (caddisfly) are considered sensitive to habitat degradation and are used commonly in aquatic bioassessment. The mean number of EPT taxa was 5 per sample at the reference site and ranged from <1 to 5 per sample at the sites downstream of the dredge.

The abundance and diversity of macroinvertebrates at Site 1 was greatly reduced in the first 10 m below the dredge, relative to the reference site. Immediately below the dredge (0-10 m) macroinvertebrate abundance was reduced by 97%, number of taxa by 88%, and number of EPT taxa by 92%, relative to the site 200 m upstream of the dredge. The abundance and diversity of macroinvertebrates returned to values seen at the reference site by 80 to 160 m downstream of the dredge.

The relative abundance of all taxa collected from the Site 1 in 1997 are presented by transect in Table 3. The order Trichoptera was the most abundant, in terms of richness, with seven genera represented. Five genera of Ephemeroptera and two genera of Plecoptera were collected. Two families of Diptera were found, Simuliidae (blackflies) and Chironomidae (midges). Other groups included: one genus of Coleoptera (beetles), Acarina (water mites), Collembolla (springtails), Oligochatea (aquatic earthworms), and Ostracoda. For all transects, 50% or greater of all taxa were members of the Chironomidae and the Ephemeroptera.

The sampling conducted in 1998 indicated substantial recovery at Site 1 from the dredging that occurred in 1997, in terms of macroinvertebrate diversity. Diversity was notably reduced downstream of the dredge in 1997 (see above) but in 1998 the difference in diversity among the four transects was minimal (Fig. 23). For example, at the location 20 m downstream of the dredge macroinvertebrate diversity was approximately 6 taxa in 1997 but 17 taxa in 1998. A similar increase in the number of taxa was observed at all Site 1 transects that were sampled in both 1997 and 1998. Macroinvertebrate density and the number of EPT taxa also increased after one year (Fig. 24).

Site 2a- Sampling in 1997 revealed patterns at Site 2a similar to those observed at Site 1. Macroinvertebrate density at the reference transect was approximately 200 individuals per m2 (Fig. 25). At the transect 25 m downstream of the dredge, density decreased to approximately 20 individuals per m2 and then increased to about 100 individuals per m2 at the transect 70 m downstream of the dredge. The number of taxa at the reference transects was equal for Site 1 and Site 2a and showed a similar downstream pattern at both sites. The number of EPT taxa, however, was considerably less at Site 2a in 1997, although the downstream pattern was the same as that for Site 1. Recovery of macroinvertebrate diversity at Site 2a was nearly complete one year after dredging with approximately 20 taxa at each of the transects (Fig. 26). One year after dredging with a

10 inch dredge at Site 2a, macroinvertebrate density, richness, and number of EPT taxa also had recovered to pre-mining conditions (Fig. 27).

Site 2b- A second site was established on the South Fork of the Fortymile River in 1998 to evaluate the effects of dredging on a nearby site with different water flow and possibly substrate composition. This site was on the inside bank of a meander bend, about 800 m downstream of Site 2a. Site 2b was also used to evaluate the effects of dredging late in the fall on macroinvertebrate composition. In Figures 28 and 29, locations labeled "Upper" represent an area dredged with a 10-inch dredge in late September 1997. Locations labeled "Middle" and "Lower" represent adjacent areas mined within a week of our sampling in July 1998. Comparing Site 2a results with the Upper location of Site 2b revealed that there were in fact differences in macroinvertebrate density between the Upper site of Site 2b and the reference area of Site 2a. Mean macroinvertebrate density at the reference location of Site 2a was 26% of the "Upper" location of Site 2b, 40% of the "Middle" and nearly 30% of the "Lower" locations (Fig 28A). The number of EPT taxa per sample present in the Site 2a reference location were 74% that of the "Upper" location of Site 2b (Fig 29A). Likewise, the number of Diptera present in each sample from Site 2a were 72% those present at Site 2b (Fig. 29B) Diptera comprised between 40 and 80% of the macroinvertebrates per sample at all of our SF sites.

Site 3- We sampled a single dredge site on the North Fork in which a 10-inch dredge was operated by an experienced miner and was actively dredged within 10 days prior to our sampling. This site consisted of three dredged areas, one beginning at the head of our study reach (T0), the second stretching the length between 10 and 20 m from the T0 location (T10), and the third encompassing the distance between 40 and 60 m (T40) from the T0 location. The mined areas at 0 m, 10 m, and 40 m were compared to a reference location in an unmined area of similar substrate type and water velocity. We were not able to determine the distance downstream affected by dredging because of inconsistent dredge operations by the North Fork miners which were caused by relatively high flows over the duration of our sampling. The study reach chosen here allowed us to determine the short term recovery (>10 days) of these dredged areas in the North Fork. Our results suggest that all measures except macroinvertebrate density appeared to fully recover within 10 days since dredging. Macroinvertebrate density at the reference location averaged about 1600 organisms per m2 while densities within the mined areas averaged between 1200 and 1400 organisms/m2 (Fig. 30A). Macroinvertebrate taxa ranged from 10 to 12 per sample for all locations (Fig. 30B). Mean numbers of EPT taxa ranged from 5 to 6 per sample (Fig. 30C). Diptera, which comprised the majority of the macroinvertebrate community at all of the sites sampled, ranged from 60 to 80% in the NF sites (Fig. 30D).

North Fork/South Fork Comparison - Comparisons between the North Fork and South Fork were made to determine if the South Fork macroinvertebrate populations were depauperate due to degraded water quality from increased mining activity on the South Fork itself and some of its major tributaries. In 1998 we sampled a different reference location on the South Fork (Site 6, see Fig. 1) that was nearly 500 m upstream of its confluence with the North Fork and compared this data with those from an unimpacted

reference site several kilometers upstream on the North Fork (Site 5). We also compared this North Fork reference site to a location downstream of an upwelling of heavy metals noted by the USGS near the confluence of the North and South Forks (Site 4).

The upwelling of heavy metals between Sites 4 and 5 appears to have little effect on macroinvertebrate populations in the North Fork. The number of taxa, number of EPT taxa, and overall relative abundance of Diptera are nearly identical for both Sites 4 and 5. Macroinvertebrate density was nearly 2500/m2 downstream of the upwelling and nearly 1500/m2 upstream (Fig 31A). The number of taxa per sample at all locations ranged from 11 to 12 (Fig 31B). The number of EPT taxa ranged from 5 at the NF and SF reference areas, to 6 at the NF confluence area (Fig 31C). Diptera comprised 60 to 80 % of the macroinvertebrates at all locations (Fig 31D).

Although we did not sample the South Fork confluence site in 1997, there may be some degree of yearly variation in macroinvertebrate populations in the South Fork as seen from comparison of reference conditions from Site 2a (see Fig. 26). In the North Fork however, there appears to be less yearly variation in macroinvertebrate populations in the years that we sampled. Even though taxa richness was similar at the NF and 2a sites in both years, the relative dominance of taxa differed among the sites (Fig. 32). There was a greater difference in the taxa abundance of some taxa between years at the SF reference location whereas there is almost no change in the relative dominance of taxa in the NF site. The difference is seen in the shape of the curves. Table 4 shows that the Chironomidae (order Diptera) comprised over 75% of all the macroinvertebrates present in our samples at Site 4 in 1997 and 82% in 1998. Baetis comprised 0.5% in 1998, and 5.5% in 1997. In the SF Diptera comprised about 34% of the macroinvertebrates in 1997 and about 35% in 1998. However, Oligochaeta (Annelida) comprised 32% of the macroinvertebrates in 1998 and only 8% in a 1997. Baetis, a mayfly, comprised 1.3% of the macroinvertebrates in 1998 and 5% in 1997.

Benthic Organic Matter

Benthic organic matter (BOM) is a primary source of carbon and energy for organisms that live on and within the substrate of the river. In general, the amount of BOM found in the Fortymile was lower than values from many streams in the contiguous United States (see Minshall et al 1982), but are similar to other studies from the interior arctic and subarctic Alaska region (for example, see Miller and Stout 1989).

Site 1- In 1998, mean amounts of BOM within the mined area were slightly lower than those found at the reference and downstream (20, 40 m) areas. BOM at the 20 m location is also much more spatially variable than at the other locations (Fig. 33). This increased patchiness may be a result of the downstream redistribution of BOM from upstream dredged areas.

BOM concentrations at Site 2a in 1997 were similar between reference and mined locations, averaging 5 g per m2 at the reference location and 9 and 11 g per m2 at the 35 m and 70 m locations, respectively (Fig. 34). Mean amounts of BOM in 1997 at the

reference area was 15% that of 1998. In 1998, mean BOM at Site 2a ranged from an average of 33 g per m2 at the reference area to 25 and 37 g per m2 at the 35 m and 70 m areas, respectively. BOM at Site 2b ranged from 23 g per m2 at the locations mined in 1998 (Middle and Lower areas) and averaged 53 g per m2 at the location mined in the late fall of 1997 (Upper area). These values were similar to those from 1997 for Site 2a, indicating a yearly variation in BOM of between 15 and 30%. BOM from Site 3 averaged between 6 and 7 g per m2, and showed little difference in average amounts between locations (Fig. 35). However, the coefficients of variation in the mined locations showed considerable variability, particularly at the 35 m location.

Mean amounts of BOM in both the NF and the SF confluence locations show considerable differences. At the SF confluence site (Site 6), BOM was more spatially variable and averaged more than twice the amount found at the NF confluence site (Site 4, Fig. 36).

Discussion

The primary effect of suction dredging on water chemistry of the Fortymile River, as detected at Site 1, was increased turbidity, total filterable solids (TFS), and copper and zinc concentrations downstream of the dredge. Turbidity and TFS were substantially elevated downstream of the dredge and the plume of sediment-laden water created by the dredge was visually obvious. But, although the plume was visually dramatic it was spatially confined to within 160 m (= 525 ft.) of the dredge and was restricted to the portion of those days that the dredge was operating. Furthermore, the effect of the plume was limited to approximately 7% of the width of the river. The results from this sampling revealed a relatively intense, but very localized, decline in water clarity during the time the dredge was operating. Wanty et al. (1997) reported turbidity values of 19 NTU 30.5 m (100 ft) downstream of a 10 inch dredge located below Wilson Creek on the North Fork Fortymile River. Values returned to near background levels (3.7 NTU) within the next 30.5 m but remained slightly above background levels (2.2 - 2.3 NTU) as far as 150 m downstream (furthest sampling transect). Turbidity values downstream of an 8-inch dredge operating in the same vicinity were lower because less sediment was being disturbed and the sediments were coarser and hence settled more rapidly. The 19 NTU at 30.5 m is comparable to the value we found at 20 m at Site 1.

Wanty et al. (1997) examined dissolved metal concentrations 60.8 m (200 ft) downstream of a 10-inch and an 8-inch dredge and found no difference between the sides and center of the dredge plume. In our study, dissolved metals displayed no clear pattern in relation to the dredge suggesting the increased concentrations of total copper and total zinc at Site 1 were likely a result of metals associated with the sediments excavated by the dredge. As the metal-laden sediments were transported downstream and deposited on the riverbed, total copper and zinc concentrations declined. By 80 m downstream of the dredge, copper and zinc concentrations were similar to those measured upstream of the dredge (see Fig. 8). These results suggest the need for examining heavy metal accumulation on the riverbed, rather than instantaneous measures of heavy metal concentrations in the water column. The examination of heavy metal concentrations in aquatic macroinvertebrates

indicated that at some locations, such as Polly Creek, the chronic effects of mining may be reflected in the physiological condition of the biota. However, the degree to which metals within the tissues of the macroinvertebrates may influence life-history or other biological traits is unknown.

Discussions with local miners indicated that the amount of material in the plume is, in part, a function of the type of sediment that is being excavated from the riverbed. Thus, the impact of suction dredging on water clarity and heavy metal concentrations may be greater or lesser than that reported here, depending on the type of material being excavated. In general, the observed decrease in water clarity was unlikely to have altered ecosystem function in that area of the Fortymile. However, the increased sediment load and rapid reduction in light could cause aquatic organisms to drift (Allan 1995:221-237, Wiley and Kohler 1984), resulting in reduced macroinvertebrate abundance and/or delayed re-colonization of dredge piles. The effect of suction dredging on the abundance of drifting macroinvertebrates was not addressed in the present study, but drifting is likely an important mechanism in the interaction between macroinvertebrate abundance and suction dredging. In particular, organisms capable of drifting may be displaced, but not killed, by the dredging activities. Those organisms that are entrained by the dredge will not necessarily be killed. For example, Griffith and Andrews (1981) examined >3,600 organisms and reported less than 1% mortality for macroinvertebrates entrained through a 3-inch suction dredge.

The cross-sectional profiles indicate the impact of the dredge piles relative to the width of the river was small (see Fig. 10). Assuming widths of 2 m for the dredge pile and 80 m for the river, the dredge pile would represent 2.5% of the river width. Our results show that in all four of the dredge sites studied, there were substantial changes to the bed morphology where dredging had occurred, but there was no discernable change toward the center of the river. There also did not appear to be any downstream influence on bed morphology by dredged sediments, indicating that dredging strongly influenced immediately adjacent substrates but had little effect beyond, either laterally or downstream of the dredged area. Though no measurements of substrate composition were made directly in the Fortymile, it seems likely that suction dredging has little effect on the size and distribution of bed sediments. Local miners claim that much of the Fortymile River system has been mined in recent history and though this is an unsubstantiated claim, it appears reasonable as we observed no striking differences between sediment compositions within mined areas and those in reference areas particularly in the amount of deposited fines. We did observe that at Site 1, downstream gravels were covered with a fine sediment within the plume caused by the dredge. Given the shallow depth of bedrock and the intense scouring action by ice-flows and spring runoff, it is likely that sediments of all sizes may be well mixed and that fine sediments do not accumulate at the bed surface.

After one year discernable dredge piles remained at one of the two sites studied in both years, though reduced in size and in the South Fork site, shifting toward the stream's center. Thomas (1985) studied suction dredging in a stream in Montana and reported that spring flows eliminated dredge piles created along the stream margin. Likewise, Somer

and Hassler (1992) examined the effect of suction dredging in two northern California streams and observed that dredge piles existed only seasonally and did not persist beyond springtime high-flows. Based on our observations and results, it appears likely that the dredge piles at the locations we examined will remain in place no longer than 1 to 3 years. In many cases the stream channel will return to its pre-dredge condition in a year as a result of river freezing and the succeeding ice-action and springtime flows that accompany snow-melt in the Fortymile drainage.

The abundance and diversity of aquatic macroinvertebrates at a given site are closely related to the size, stability, and surface complexity of the substrata at that site (e.g., Minshall 1984, Hart 1978). In addition, the magnitude of impact a particular disturbance has on a macroinvertebrate community may be mediated by substrate size; small rocks are more easily tumbled (i.e., disturbed) than are larger rocks (Gurtz and Wallace 1984). Thus, the effect that suction dredging has on the macroinvertebrate community of the Fortymile depends on the characteristics of the substrata being disturbed. The rate at which dredge piles are re-colonized also will depend on stability of the individual substratum. A detailed study requiring a longer period of time than was available would be required to accurately determine the rate at which macroinvertebrates re-colonized dredged areas. Studies of smaller scale dredging impacts have shown complete recolonization within 30 days of the cessation of mining activity. Given the northern extent of the Fortymile region, the harsh climate and short time available for production and recolonization, the depauperate macroinvertebrate structure, and the likely low quality and quantity of available food resources typical of sub-arctic rivers, recolonization would likely be extended beyond 30 days. It also is possible that the initially low abundance and diversity of macroinvertebrate taxa in the Fortymile would cause rapid recolonization due to the low numbers of organisms required to call an area "substantially recovered". Without detailed recolonization studies for longer periods of time, it is difficult to "guess" at potential times of recovery.

As with water clarity, the effect of suction dredging on macroinvertebrate abundance and diversity at the locations we examined was confined spatially to a relatively small area downstream of the dredge. Other researchers also have documented the localized nature of suction-dredge effects (Somer and Hassler 1992, Harvey 1986, Thomas 1985), although each of these studies was conducted using smaller, recreational dredges. In the present study, both abundance and diversity were notably reduced for 10 m downstream of the dredge at Site 1. By 80 m below the dredge, however, abundance and diversity appeared unaffected by the dredge plume. Site 2a displayed a similar pattern, although the sampling was more spatially limited. The short-term, downstream impact of suction dredging on macroinvertebrates probably was limited to the same area in which the dredge plume was visible. Therefore, the percent of the riverbed being affected by the dredge was small: approximately 7% of the width for <80 m downstream. The cumulative effect of suction dredging on the biota of the Fortymile cannot yet be assessed fully, but likely will depend on the number of dredges operating concurrently and the distance between them, the size of the dredges, the strategy of the dredge operators, and the extent of re-colonization that occurs on the excavated dredge piles. Clearly, the effect

of suction dredging will not be the same for all locations in the Fortymile and/or sizes of dredge.

The results from 1998 indicate that substantial recovery of the macroinvertebrate community occurs within one year after suction dredging. At both Site 1 and Site 2a, the transects dredged in 1997 showed, in 1998, taxa abundance curves very similar to the reference transects (see Figures 23 and 26). Although suction dredging is a very intense, local disturbance to benthic organisms. the biological and chemical effects of suction dredging do not appear to extend for more than a year. However, conditions at these two sites after two years and at sites 2b and 3 after one year could not be determined prior to the termination of the project.

The comparison of conditions in the North Fork versus the South Fork suggests that macroinvertebrate density in this river system may be a function of annual variation in food resources and physical conditions, especially flow and suspended sediment (likely caused by additional mining activity in the SF tributaries). Results from 1997 suggested that greater food abundance (e.g., periphyton and BOM) in the NF corresponded to an approximately 5-fold greater density of macroinvertebrates. These comparisons were made under the assumption that the reference location at Site 2a was representative of the South Fork conditions. However, our 1998 comparison of the North and South Forks, using an undredged site in the SF nearest to the confluence of the two streams (Site 6) and that we believe is more representative of conditions in the tributary, showed no clear difference in biotic conditions between the two sites. The results suggest that conditions may vary markedly among locations and years and suggest that in addition to differences in food resources differences in physical conditions may be important. We suggest that other mining activities within the basin, primarily those in the South Fork tributaries may be important causes of decreased biotic integrity in some years and locations. However, suction dredge mining clearly reduces macroinvertebrate densities, diversity, BOM, and periphyton immediately below dredge activity regardless of the background conditions, though these effects are local and short lived.

Part II - Recreational Dredging in Resurrection Creek and the Chatanika River

Introduction

Recreational gold mining is a popular activity throughout much of Alaska and suction dredging is a common method used in recreational mining. Recreational dredges are smaller than those examined on the Fortymile and typically have intake lines of 2-6 inches in diameter. Despite the relatively small size of the dredges, streams that are popular with hobbyists may experience a more intensive mining disturbance than do larger rivers such as the Fortymile because of the concentrated and repetitive nature of the mining in these areas. Part II of this report describes the results of our research into the effects of recreational suction dredging in several Alaskan streams.

Methods

This research was conducted on Resurrection Creek located on the Kenai Peninsula in 1997 and on the Chatanika River, located along the Steese Highway north of Fairbanks, in 1998. Resurrection Creek is designated as a recreational mining site by the State of Alaska and the U.S. Forest Service and is open to recreational dredging from about May 15 through July 15 of each year. The Chatanika River is not officially designated for mining, but is a popular recreational site with few accessible areas that are open to mining during approximately the same time period.

Our sampling on Resurrection was conducted on 22 August 1997; approximately 5 weeks after recreational dredging in the Resurrection Creek had ended for the year. The general design was similar to that described above for sampling on the Fortymile. Four locations were sampled: (1) within the reach of stream that suction dredging is permitted, (2) approximately 500 m upstream of the dredged area, (3) approximately 35 m downstream of the dredged area, and (4) an area >500 m downstream of the dredged area. In each of these locations, five macroinvertebrate samples and three periphyton samples were collected. Water samples were collected at the location within the dredged area, but as active dredging was not occurring, these samples are indicative of conditions in the stream as a whole. All samples were collected, preserved, and processed as described above for samples from the Fortymile River.

Sampling on the Chatanika River occurred during July 1 and 2, 1998 approximately two weeks prior to the end of the mining season for that region. Because there was no designated downstream mining boundary as there had been for Resurrection Creek, a slightly different sampling regime was used. Samples were taken at approximate distances downstream of last distinguishable active mining location within the river. Transects at "Mined", 50, 100, 150, 300 and 500 m were sampled on two different days. However, an intense rain within the Chatanika basin on the second day caused the river to rise and alter conditions from the first day and therefore the samples beyond 100 m were discarded. Samples from the Mined ("0 m" transec location were taken from representative locations within the entire actively mined area. An area upstream of any active mining was used as our reference location. Substrate measurements were also made to document any changes in substrate size or sorting caused by mining. Approximately 25 stones were chosen at random from near the location of each macroinvertebrate sample. Each stone was measured to the nearest cm and embeddedness was determined. Embeddedness is the portion of stone covered by fine sediments and is an indication of the amount of interstitial filling.

One-way ANOVA was used to test for statistically significant differences among the four locations in Resurrection Creek. Prior to analysis, the data were transformed using either natural log (X) or arcsin (square root (X)) as appropriate (Zar 1984). Pairwise comparisons were conducted using the Tukey HSD test.

Results

At the time of sampling, total alkalinity, total hardness, and specific conductance in Resurrection Creek were 29 mg CaCO3/L, 69 mg CaCO3/L, and 110 µS / cm,

respectively. Mean benthic organic matter (BOM) ranged from approximately 15 to 30 g / m2 among the four sampling locations (Fig. 37), but ANOVA indicated no significant differences (p=0.252). Mean chlorophyll-a was greatest in the mining area and the location immediately downstream, but the differences among the means were not significant (p=0.182) (Fig. 37). Periphyton AFDM showed a pattern similar to chlorophyll-a, with the greatest mean values in the mined area, but here too the differences were not significant (p=0.064) (Fig. 37). The reach of Resurrection Creek in which suction dredging occurs is bordered by a campground and numerous foot trails along the stream. The riparian canopy along that section of Resurrection Creek appeared reduced, relative, to areas downstream, by the activities associated with recreational mining (e.g., stream-side camping). The reduced riparian shading (= increased solar radiation) may be responsible for the trend towards greater periphyton AFDM and chlorophyll-a observed in the mined area and the location immediately downstream. Additionally, these results suggest that activities other than the actual dredging, such as long-term camping, firewood collection, trampling of vegetation, etc., also may have an impact on streams open to recreational suction dredging.

The pattern seen with periphyton was not observed for macroinvertebrates in Resurrection Creek. Mean density was 3,700 individuals per m2 in the mined area, and ranged from 4,300 to 4,500 individuals per m2 in the other three locations, although the variability was large and the differences not significant (p=0.581) (Fig. 38). Total taxa richness from about 17 to 19 among the four locations (p=0.811). The number of EPT taxa was not significantly different among the sites (p=0.415), although the mean values increased from 9.5 at the upstream location to 11 taxa at the most downstream location (Fig. 38).

Results from the Chatanika River showed a trend toward decreasing macroinvertebrate density as well as less variable distribution of those macroinvertebrates with distance from active dredging (Fig 39). Average densities decreased from 6000 per m2 at the reference location, to 2000 per m2 150 m downstream of the mined area. The number of taxa per sample was more even among locations, ranging from 10 to 13 taxa per sample. EPT taxa per sample also showed a slight trend toward decreasing numbers downstream of the mined area, ranging from 6 EPT taxa at 150 m, to 8 EPT taxa at the reference area. Mean amounts of BOM were greater within the mined area (10 g/m2) than within the reference area (6 g/m2) or the 50 and 100 m areas (7 g/m2 each) (Fig. 40). Substrate measurements showed little change among locations, ranging from 11 to 15 cm. Substrate embeddedness also averaged 15 to 24 percent (Table 5). The mined areas showed no discernable trends toward any significant change from the reference area.

Based on density, taxa richness, and EPT richness, there was no difference in the macroinvertebrate community between the mined area and the locations downstream. The relative abundance of Plecoptera (stoneflies) was significantly greater at the two downstream locations than in the mined area (p=0.037) (Fig. 32). However, if the observed reduction was a result of recreational suction mining, downstream recovery was rapid (i.e., by 35 m).

In general, other studies on the effects of recreational suction dredging have reported only localized reductions in macroinvertebrate abundance (Somer and Hassler 1992, Harvey 1986, Thomas 1985). Studies that examined temporal recovery have found that macroinvertebrates return to pre-dredging densities within 30-45 days (Harvey 1986, Thomas 1985). Our sampling in Resurrection Creek occurred approximately 35 days after suction dredging had ended for the year. Thus, it is not surprising that the abundance and diversity of macroinvertebrates was not significantly different between the mining area and the locations downstream. Results from a concurrent but separate study not funded by the EPA in 1998 also suggest considerable redistribution of BOM downstream of mining areas and reduced numbers of macroinvertebrates (both richness and density) within those mined areas immediately following the end of the mining season (A.M. Prussian, pers. comm.).

The results presented here on the effects of recreational suction dredging on macroinvertebrates are derived from a one-time sampling of only two streams. All of the streams specified in the litigation, plus an additional 13 streams were examined for compatibility with the study design. The two sites presented here represent the best examples of concentrated mining activity we could find and should be considered "worst-case" scenarios because both streams receive considerable mining activity and have relatively well-defined downstream boundaries. The remaining sites suggested in the litigation were either not as intensively mined or do not contain easily identified mining boundaries. Together with the results of other studies, we suggest that the impacts by small-scale dredging activity are primarily contained within mined areas and persist for about one month after the mining season. However, other studies suggest a high degree of variability among streams in terms of impact caused by small-scale dredges (A.M. Prussian, pers. comm.) confounding our ability to draw broad conclusions for small-scale mining impacts on stream ecosystems in the State of Alaska. Additional study is needed to fully quantify the impact of suction dredge mining on the environment of Alaska before final conclusions are reached regarding the effects of this activity on Alaskan streams and their associated plant and animal communities.

Acknowledgments

This project could not have been completed without the help of numerous individuals. Gretchen Hayslip (EPA), Steve McGroarty (Alaska DNR), and Phil North (EPA) assisted in the planning and development of the study. Field sampling was accomplished with the help of Jeff Davis, Mike Monaghan, Eric Snyder, and Steve Thomas. Larry Taylor, Pat Scofield, and Scott Reed and Dave Hatch kindly allowed us access to their mining sites. In the laboratory, Angela Bright, Christine Fischer, Jamie Larson, Cary Myler, Cecily Nelson, Mark Overfield, Kelly Sant, Amanda Rugenski, Maria Blackhorse, Mark Sjostrom, Chris Seeley, and Jacklynn Johnson helped with sample processing and data entry. Taxonomic identification of the aquatic macroinvertebrates was performed with the help of Christina Relyea. Jim Crock and Larry Gough of the USGS facilitated sample processing and heavy metal analysis of the macroinvertebrates. The EPA laboratory in Manchester, WA conducted heavy metal analysis of suspended and dissolved samples. Judy Minshall and Marie Davis assisted with logistics and purchasing of field supplies.

Funding for this research was provided through a contract with the US Environmental Protection Agency.

Literature Cited

Allan, J.D. 1995. Stream Ecology. Chapman & Hall, London.

APHA. 1995. Standard methods for the examination of water and wastewater, American Public Health Association, Washington, DC.

Barbour, M.T., J. Gerritsen, G.E. Griffith, R. Frydenborg, E. McCarron, J.S. White, and M.L. Bastian. 1996. A framework for biological criteria for Florida streams using benthic macroinvertebrates. Journal of the North American Benthological Society 15:185-211.

Cairns, J., Jr. and J.R. Pratt. 1993. A history of biological monitoring using benthic macroinvertebrates. Pages 10-27 in (D.M. Rosenberg and V.H. Resh, editors) Freshwater Biomonitoring and Benthic Macroinvertebrates, Chapman & Hall, New York.

Cuffney, T.F., M.E. Gurtz, and M.R. Meador. 1993. Methods for collecting benthic invertebrate samples as part of the National Water-Quality Assessment Program, US Geological Survey, Open-File Report 93-406.

Green, R.H. 1979. Sampling design and statistical methods for environmental biologists. Wiley, New York.

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.

Gurtz, M.E. and J.B. Wallace. 1984. Substrate-mediated response of stream invertebrates to disturbance. Ecology 65:1556-1569.

Hart, D.D. 1978. Diversity in stream insects: regulation by rock size and microspatial complexity. Verh. Internat. Verein. Limnol. 20:1376-138 1.

Harvey, B.C. 1986. Effects of suction gold dredging on fish and invertebrates in two California streams. North American Journal of Fisheries Management 6:401-409.

Hauer, F.R. and G.A. Lamberti. 1996. Methods in stream ecology. Academic Press, San Diego.

Holm-Hansen, 0. and B. Rieman. 1978. Chlorophyll a determinations: improvements in methodology. Oikos 30:438-447.

Merritt, R.W. and K.W. Cummins. 1996. An introduction to the aquatic insects of North America, Kendall/Hunt Publishing, Dubuque, Iowa.

Miller, M.C., and J.R. Stout. 1989. Variability of macroinvertebrate community composition in an arctic and subarctic stream. Hydrobiologia 172:1,11-127.

Minshall, G.W. 1984. Aquatic insect-substratum relationships. Pages 358-400 in (V.H. Resh and D.M. Rosenberg, eds.) The ecology of aquatic insects. Praeger, New. York.

Minshall, G.W. 1982. Characterization and dynamics of benthic organic matter and invertebrate functional feeding group relationships in the upper Salmon River, Idaho (USA). Int. Revue ges. Hydrobiol. 67:793-820.

Peterson, C.G. 1996. Response of benthic algal communities to natural physical disturbance. Pages 375-402 in (R.J. Stevenson, M.L. Bothwell, and R.L. Lowe, editors) Algal Ecology, Academic Press, San Diego.

Platts, W.S., W.F. Megahan, and G.W. Minshall. 1983. Methods for evaluating stream, riparian, and biotic conditions. USDA Forest Service, General Technical Report INT-138.

Porter, S.D., T.F. Cuffney, M.E. Gurtz, and M.R. Meador. 1993. Methods for collecting algal samples as part of the National Water-Quality Assessment Program, US Geological Survey, Open-File Report 93-409.

Resh, V.H., A.V. Brown, A.P. Covich, M.E. Gurtz, H.W. Li, G.W. Minshall, S.R. Reice, A.L. Sheldon, J.B. Wallace, and R.C. Wissmar. 1988. The role of disturbance in stream ecology. Journal of the North American Benthological Society 7:433-455.

Robinson, C.T. and G.W. Minshall. 1986. Effects of disturbance frequency on stream benthic community structure in relation to canopy cover and season. Journal of the North American Benthological Society 5:237-248.

Royer, T.V. and G.W. Minshall. Development of biomonitoring protocols for large rivers in Idaho. Report to State of Idaho, Division of Environmental Quality, Boise, 55 pages.

Smith, E.P., D.R. Orvos, and J. Cairns, Jr. 1993. Impact assessment using the before-afterontrol-impact (BACI) model: concerns and comments. Canadian Journal of Fisheries and Aquatic Sciences 50:627-637.

Somer, W.L. and T.J. Hassler. 1992. Effects of suction-dredge gold mining on benthic invertebrates in a northern California stream. North American Journal of Fisheries Management 12:244-252

Stewart-Oaten, A., W.W. Murdoch, and K.R. Parker. 1986. Environmental impact assessment: "psuedoreplication" in time? Ecology 67:929-940.

Thomas, V.G. 1985. Experimentally determined impacts of a small, suction gold dredge on a Montana stream. North American Journal of Fisheries Management 5:480-488.

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.

Wiggins, G.B. 1996. Larvae of the North American caddisfly genera (Trichoptera),University of Toronto Press, Toronto.

Wiley, M. and S.L. Kohler. 1984. Behavioral adaptations of aquatic insects. Pages 101-133 in (V.H. Resh and D.M. Rosenberg, eds.) The ecology of aquatic insects. Praeger, New York.

Zar. J.H. 1984. Biostatistical Analysis, second edition. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Exhibit 3

In 1993 the U.S. Army Corps of Engineers (Corps) and U.S. Environmental Protection Agency (EPA) were subject to a court decision that forced them to issue new rules regarding suction dredging in Alaska. A challenge to this decision resulted in a new

decision in May 1999 that the Corps, at least, was not required to regulate suction dredging in most cases. Unfortunately, the same decision states that because of another court decision, Rybachek v. EPA, 904 F.2d 1276 (9th Cir. 1990) resuspension of materials by placer miners as part of gold extraction operations is an "addition of a pollutant" under the CWA (Clean Water Act) subject to EPA's regulatory authority. The final result of all this legal action is that the Corps issued General Permit 88-02P for Alaska that covers most suction dredge activities automatically

The main reason this SPECIAL PUBLIC NOTICE 94-10 is presented here is to show the Corps finding of de minimis (i.e., inconsequential) effects on aquatic resources for suction dredges with nozzle openings of 4 inches or less. This is an official recognition of what suction dredgers have long claimed; that below a certain size, the effects of suction dredging are so small and so short-term as to not warrant the regulations being imposed in many cases. The U.S. Environmental Protection Agency (EPA), in particular, has ignored this concept, although numerous studies, including the EPA's own 1999 study of suction dredging, repeatedly and consistently support the Corps finding de minimis effects. The reports consistently find no actual impact of consequence on the environment, and so almost always fall back to the position that "potential for impact exists".

However, showing potential for harm, and showing that actual harm exists are two different things, and the studies to date have not shown any actual effect on the environment by suction dredging except for those that are short-term and localized in nature. Current regulatory efforts are proceeding despite this lack of evidence showing that harm to the environment is taking place. The regulatory agencies should be consistently and continually challenged by the dredging community to produce sound, scientific evidence that support their proposed regulations. To regulate against a "potential for harm", where none has been shown to exist, is unjustifiable and must be challenged.

Public Notice
US Army Corps of Engineers

Alaska District Regulatory Branch
Post Office Box 898
Anchorage, Alaska 99506-0898
Date: 13 SEPTEMBER 1994

James D. Foley
Mining Rights Advocate
21935Highway 96
Klamath River, CA. 96050
(530)465-2211

Suction Dredging Ca. EIR NOP
California Department of Fish and Game
601 Locust Street
(Address)
Redding, CA 96001

- The ACT of JULY 26, 1866 or H. B. 365 declares that the mineral lands of the public domain, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and occupation by all citizens of the United States.

- In the Mineral Estate grant of 1866 the claim holder has exclusive possession of mineral land, to include the entire surface i.e. minerals, water, and timber as Congress expressly provided. How then can a claim holder not be in control of it to exclude interference by agency regulation?

- **30 USC 26.94** - Unpatented mining claims are "property" in the highest sense of such term, which may be bought, sold and conveyed and will pass by decent.

- **THE SUPREMACY CLAUSE**
  Article. VI.

  "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any thing in the Constitution or Laws of any State to the Contrary notwithstanding."

Any legislation or rule that seeks to prohibit any kind of mining will run afoul of the Federal Supremacy Clause. The preemption doctrine derives from the Supremacy Clause of the Constitution which states that the "Constitution and the laws of the United States...shall be the supreme law of the land...anything in the constitutions or laws of any State to the contrary notwithstanding." This means of course, that *any* federal law trumps *any* conflicting state law.

- **CDFG Quote:**
  "The SEIR and related review under CEQA will analyze new significant and substantially more severe environmental impacts that may be occurring under the existing permitting program that were not addressed by the Department during prior environmental review completed in 1994."

- **Question:**
  What are these impacts and what is the source of this information?

- Volumes of peer reviewed scientific studies have been published regarding the question of any adverse impacts due to suction dredge mining. Invariably these studies reach conclusions of;
  1. de-minimus effects, as published by the U.S. EPA.

  2. "Effects of dredging commonly appear to be minor and local." (Professor Bret C. Harvey)

  3. "Studies to date have not shown any actual effect on the environment by suction dredging, except for those that are short-term and localized in nature. Effects were significant, but localized. Suction dredging effects could be short-lived on streams where high seasonal flows occur. The greatest potential for damage is at low flow.
  4. Many peer reviewed studies reach a conclusion of **"No significant impact."**

From: "James Hardy" <fatz40@frontiernet.net>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/29/2009 2:57 PM
Subject: Scoping

To:
Mark Stopher,

Dear Mark,
I have been dredging for about 15 years off and on, and while I can't supply you with any scientific data, I would like to offer a suggestion. Would it be possible for you to send out a questionnaire to all who purchased dredging permits in the past, let's say 5 years? Ask some real specific questions such as: How often do we use our dredge, what percentage of time out is used for actual dredging as opposed to moving rocks etc, etc. Have you ever encountered mercury, when ,where and in what quantity? Have you ever found lead, and what do you do with it if you do?
I think you would be surprised at the answers. There are many more questions I'm sure that could be more specific to what you are doing and we would all be willing to help out.

Thanks,

Jim Hardy

From: Jim Madden <upi.gold@yahoo.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/3/2009 5:16 PM
Subject: Draft EIR
Attachments: Mark Stopher.doc

Hi Mark,
Nice to see you at the Fresno scope meeting.

I have attached a memo on the processing mercury.

Jim Madden
650 589 8081

Mark Stopher
Hi,
I am writing in response to the Draft EIR.

On the subject written in the Draft EIR about mercury being used around the campfire to process gold recovery. You should know that this is not a practice that any miner engages in. The process of removing gold particles from black sand is not one that is done during the mining season. The miners screen down their concentrates and use various recovery methods such as the Blue Bowl, Spiral gold wheels to recover 30 mesh size and above particles. Gold pans recover the larger particles. It is not productive time for one to work at dredging and rock removal all day and try to recover micron gold from the concentrates. One is usually very tired from their daily activities and this is not a job for a tired miner to perform. We always take home the smaller mesh particles in 5 gallon buckets and store them for the winter when we have more time at home to work on removing the micron gold.

The miners who run larger dredges and accumulate more quantities of concentrates usually have milling tables that will process out the micron gold. Usage of mercury during this process is far from efficient. Studies have shown that mercury becomes contaminated and its ability to wet precious metals is greatly diminished. This for one reason is why we do not use mercury in the recovery process.

The low cost shaker tables and micron mill wave tables can remove micron size gold with great efficiency and very little manpower. These devices are low enough in cost that most recreational and professional miners can afford them.

On another side note, Black sands contain other precious metals and Rare Earths. There are a number of companies in and out of state who buy the miners concentrates and utilize processes in their warehouses to do a complete recovery of all elements.

So to answer the question. No we miners do not use mercury in the field to process fine gold recovery.

Jim Madden
Editor United Prospectors Inc. newsletter
Assistant membership director

35 years as a recreational gold miner
Amateur scientist.

From: "jim moir" <moir1010@frontiernet.net>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/8/2009 10:17 AM
Subject: http://www.redding.com/news/2009/nov/08/are-gill-nets-decimating-klamath-and-trinity/

The article in the Redding news about gillnetting is very interesting. Gillnetters are the cause of salmon population decline. Jim Moir

INFO

November 14, 2009

Mark Stopher
Dept. of Fish and Game
601 Locust Street
Redding, CA 96001

Jim Nash
301 Rolling Hills Dr.
Yreka, CA 96097

Re: EIR process on California Suction Dredging

To Whom It May Concern:

I have dredged off and on for at least 15 -20 years. I have even taught my boys to mine. Never did we ever harm the area where we mined, in the water or out. As young as my boys were they were amazed how the small fish would come into the hole where we were dredging. Even salmon would come in the hole. Over the years we noticed more and more fish would come into the hole. They learned how the sun would create moss in the shallow areas where the water was warmer and the fish preferred the deeper cooler holes we created with our dredge.

As a miner we are not out there to rape the land of its riches. Why can't certain people understand this? They would rather take the issue to the courts or people that don't have the slightest idea what is going on out in the rivers when we are mining.

I, my friends and my family consider ourselves Native Americans too. We were born and raised in these counties and remained here do to our love of the rivers, mountains, and trees. No one will protect an area better than those of us who call that area home.

To the best of my knowledge no one has ever come to either of the mining organizations I belong to, The Lost Dutchman Assoc. or The New 49er, and asked to observe the type of dredging we do. In fact all my years in the river I have only seen helicopters and brand new government vehicles patrolling the river to ascertain if we as miner are conforming to the new rule they have set forth. Only after collecting our money for permits are they now checking to make sure we are in the right place at the right time of year with the right equipment.

I honestly feel that the Native American Tribes in our area have been targeted by environmental lawyers seeking money. Let's face it right now the Native American Tribes have a steady stream of money coming to them. Not to mention playing on their sympathies for wrongs done to their ancestors. "We will fight for you, look the fish population is declining, and we will stop the dredgers from making holes in your river." What they seem to forget is that one of the basic principals in the Native American beliefs is that the land should not be owned by man, it is there to provide for everyone.

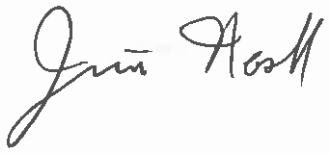
I hope in the future they will take a good look at who they have speaking on their behalf, because most of the Native American in my area do not agree with what is going on. They have always been happy to share the river for all of us to enjoy. They have always held precious their exclusive fishing and hunting rights and have not abused them like in some areas where the salmon caught in their traditional ways are sold on the street out of the back of a pick-up truck. The Native Americans I know gather together with their bounty and celebrate the catch. Teach their children about their heritage.

The mining done on the river currently is done as a recreation, not like the mining done in the 40's, 50's and 60's where large scale dredges were used and the flow of the river was diverted, commonly known as wing damming, to expose rich earth. Yes I agree that type of mining was harmful to the environment.

The two organizations I referred earlier in this letter, The Lost Dutchman's Assoc. and The New 49's, are committed to teaching the proper way to conduct recreational mining, they stay up to date on all regulations and conduct classed to show their members how to mine with respect to the river.

Recreational mining is one of the ways a great number of us enjoy this area and have family outing with our kids and grandkids that does not involve cell phone or video games but teach these kids what nature has to offer and how to respect the beauty of our area.

In closing I would like to invite the government officials the lawyers and the scientist to vacate your offices, come up here. park your trucks, ground your helicopters put on a wet suite and get in the water. We will show you first hand what a dredge does in the water and how the fish welcome the new shelters we make for them.



From: "JimBurke" <executivejim@gmail.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/5/2009 12:31 PM
Subject: Suction Dredging Permitting Program

Ladies and Gentleman, In all of your infinite wisdom, why don't you just go ahead and ban all forms of mining. Not that this country and the state of California were not built on mining. While your at it, why don't you stop all fishing and quit stocking and declare the whole boundary of your area of operations a natural sanctuary. Oh wait, you already have. O yeah and for such a top heavy organization, go ahead and vote yourselves a fat pay raise, with the monies you have hijacked from us, for how well you serve the people. With the grand state of the economy, this wise economic decision must have come from up on high. Lastly go pee in the corner of a round room. Going to hell in a hand basket on the fast track are we?

SUCTION DREDGE PERMITTING PROGRAM
Subsequent EIR - CEQA Scoping Comment Form

Name:	John F. Kiltoff
Mailing Address:	~~4075 Campers Court #3 Redding, CA 96097~~ 1299 So. Main St. Ste. C box 125 Yreka, CA 96097
Telephone No. (optional):	
Email (optional):	Kiltoff60@Juno.com

Comments/Issues: (1.) I have been dredging in California and various states since 1984, using small dredges and up to 6 inches. To my knowledge I have never killed a single fish with a dredge. The fish are smart enough not to get too close to the suction Nozzle. They feed off the small bugs that inhabit the river bottom and feed on them when they are stirred up by the dredge. I am also a fisherman so I have no desire to damage any fish habitats.

Most of the time I find the river bottoms very hard material and the rocks are covered with algae. The only way large fish can spawn is to find soft gravel beds where they can deposit their eggs, not on the hard surface of the river bottoms. Suction dredging helps break up the river bottom giving fish a better place to spawn.

The only rivers that run clear and have little algae are where natural floods occur and the river bottom is scrubbed clear in the high flood water.

Please use additional sheets if necessary.

SUBMIT WRITTEN COMMENTS (POSTMARKED BY 12/03/09) TO:

Mail: Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

Email: dfgsuctiondredge@dfg.ca.gov

Website: www.dfg.ca.gov/suctiondredge

Questions? Please call us at (530) 225-2275

Comments / Issues continued:

(2.) Nearly all the rivers in California have dams which restrict the natural flow of the river. These rivers are full of algae because of this unnatural restriction. Removal of the dams would restore the natural flow of the river and create the best habitate for the fish. Commercial over-fishing should be restricted also. ~~This would~~ These 2 implementations would solve many many problems

No salmon exist on much of the American River, The Bear or the Feather because of the dams with no fish ladders. This also true on the Northern Part of the Klamath river and the streams associated with those rivers. The dams prevent the salmon from going up the rivers and streams to spawn.

The algae that covers the gravel bars and the rocks would also prevent salmon from spawning if they could get up the dams. Removal of the dams would clear up the algae problems.

As well as dam removal, restriction of the Commercial Over-fishing would help restore the salmon population.

Again, I want to emphasize: Suction Dredging has no impact on the fish.

From: John Faughn <john.faughn@gmail.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/5/2009 6:41 AM
Subject: Mark Stopher / suction dredge permitting program

Dear Mr. Stopher ,
I hope that you are not one of the many politicians / bureaucrats , that just go on auto pilot , going along with whatever the program is , as pointed out from above .
This country is in desperate need of leaders , that use the facts to make decisions , rather than , as stated above .
Studies already exist , that point out that under water suction dredging does the reverse of what most opponents claim [we take out many metals / those of value , but much of what is harmful , lead , mercury ect. . also many things that are beneficial to fish , such as aerate the water , stir up food for the fish] .
And the big issue , there has been little to no reporting of any harm to fish [we are regulated to stay out / away , durning spawning ect.] .
To be lead by the nose , to spend moneys / tax's , for what has been already done , is a waste .
If there were real interest in helping fish , than go after those that go after fish , especially large quantity , indians & commercial fishing .
It defies logic , that the leaders against mining [which does no harm] are the biggest offenders of fish .
John Faughn
PO box 14182
St. Paul , MN. 55114

P.S. Wanting to make more trips to California , to spend money , but can not under these circumstances .

To Whom It Concerns:

I'm a retired professional with my academic major being an emphasis of science and biology. Originally, I came from New York and came to California beginning in 1990 in order to pursue recreational gold mining as a form of relaxation and as a profitable hobby. I chose to mine on the Scott River due to its beautiful surroundings and the fact that it has been an underdeveloped location for small-scale river dredging for gold. Having invested over 19 yrs of my life into this hobby, you cannot imagine my emotional distress at having it pulled away from under me by the same politicians I believed would defend my right to let me use my personal private property at my discretion within reason. I have always believed that as long as I was being a good neighbor to my downstream neighbors, that my activities would not be viewed as harmful. I have personally removed hundreds of pounds of mercury and lead from the river through the course of my mining years. Taking into account the small area in which I dredged, which could be measured over the course of only several hundred feet of river front, I cannot begin to imagine the ecological impact of something that has been sitting around for decades and has been proven to be a potent neurotoxin as well as an agent of infertility of in fish species. Cloudy water as a result of mining which lasts for only a few minutes cannot compare as such to this.

With respect to the environmental impacts of my own activities, I have always strived to leave as little impact on the river as possible while practicing my hobby in a safe manner. I have personally witnessed the earth shaping effects of one spring flood over the course of a mere week, and have never witnesses anywhere near that cumulative effect over the course of 19 yrs of dredging activity on the river as a whole. Every year that I dredged, even the smallest of changes I may have made to the water flows of the river were altered in an instant by a single day of spring flows. I

have personally witnessed the benefits to nature from my activity by the amount of fish I have seen commingling in the deeper pools of water I created as a result of my dredging activity. These man-made depressions in the river surface generally were 10+ feet deep and were like a magnet to any fish in the area. I never witnessed any changes in water quality as a result of my activity that lasted more than the few minutes it took for the river to naturally reshape the debris piles from my dredging. In the meantime, I was creating survival zones for fish that were strangled by the low river flows common during dredging season. In an essence, I was helping to preserve life instead of allowing nature to brutally destroy it.

I believe most of the long term damage that has been done to the river can be tied to unregulated contaminants and pumping from the river that was a result of local farming activity. Low levels of fish in the river can be tied to the unregulated harvesting of fish by local tribes in the area. Similarly, the more pronounced forest fires in recent years have significantly increased the amount of erosion and debris that has flowed into the river. The recent escalation in illegal marijuana production by cartels and locals alike has resulted in pesticide contaminants entering the river from the hillsides.

I see myself and my hobby as the whipping boy for a statewide agenda aimed at targeting small-scale activities that are politically feasible to eliminate. I do not see myself as a threat and do not believe the sum total of dredging activities on all rivers in the region can compare to one flood or one erosion event tied to a fire or denuded hillside. I would hope that the real threats the river ecosystem could be targeted and stop playing on uneducated voters lack of "green" credibility or sense. I consider myself a friend of the environment and a watchman on the wall who sees the damage caused by local industry firsthand.

Sincerely,

John Morone

Winter Address
John Morone
81519 Castlerock Court
La Quinta, Ca 92253
760-2897118

Summer Address
27729 Scott River Rd
Scott Bar CA 96085
530 4963284

COMMENT ON 2009 SEIR DOCUMENTS ON SUCTION DREDGING

John Oates
424 Red Cedar Drive,
Redding, California, 96003

Section 1 –Introduction

The 1994 EIR is the only sound base from which all future EIR changes must be based upon. As the promulgated document , and with the color of law for over 15 years, it should have been the beginning point. This current SEIR documents are flawed beyond repair with preconceived illogical deductions proved wrong in the 1994 EIR.

-Background

The failed 1997 SEIR was a perfect example of special interest groups attempt to immediately amend / overturn/ repeal the 1994 EIR even before the ink had dried on the documents. The open and notorious actions documented by Mr. Richard S. Zambiec, USDA Forest Service Minerals Officer, and further pursued by Senator Maurice Johannessen , are a perfect example of the DFG bowing to " special interest groups that don't believe miners should be working on the rivers in California. Included in this comment are supporting documents, #A & #B, from the Senator and agencies included in this conspiracy to deny us our further due diligence under CEQA and the immediate attack on our rights.

The 1994 EIR process provided a workable document and was managed by Mr. Bill Maxwell and legal council by Ms. Stephanie Tong. Their unrelenting dedication lead to a 15 year equitable compromise that protected the environment and dredgers.

-Objective

After sitting through an absolutely insane 1 ½ hour rant that was purported to be a meeting (what happened to an exchange of ideas?) the department , Mr.Stopher ,gleefully announced that the timeline of HIS(?) EIR will be met no matter what. Also how he was going to extend the DEIR comment period to 45 days which it already was as required by CEQA. This insane hard line stand completely violates the letter of the law and crushes any meaningful discourse that would have occurred. The comment period of this SEIR has already negated any possibility of collecting any data to refute the absurd allegations leveled at the dredgers of California. The DFG has had over 1-1 /2 years since the judges ruling in 2006 and over a MILLION dollars to compile this comic book of prejudice and we're allocated less than 2 weeks to respond?? No science allowed just the steamroller wave of half facts, innuendo, could, might and other states facts and figures because they are MUCH more outrageous than the truth in California dredgers actions. The DFG would have you believe that the facts and figures of tickets, responses, terms, covenants and conditions within our realm of use are unobtainable from THEMSELVES? Again straight out misdirection to deceive, as service to their influential special groups wants and needs.

Another moment of covered smiles and chuckling followed Mr. Stopher as he spewed forth the states stand," that all user groups must support the program that administers it. AND the EIR process must not use general funds to complete this study. My contention is BUT IT MUST BE FUNDED THROUGH USER FEES. AND WITH ALL USERS BANNED THERE ARE NO FEES AND HENCE THE EIR CANNOT BE

FINISHED OR EVEN PROCEED EQUITABALLY. This gleeful announcement was the ONLY animated happy moment for ALL the folks employed by the DFG at the meeting albeit rant/lecture. Therefore the only conclusion that makes any sense is—spend down the money as fast as possible and kill the EIR as a non funded project so the dredgers are locked out of the rivers and streams of California. This mirrors the underhanded actions Mr. Stopher and Mr.Turek took to the illegal permanent closure of the Sacramento River Cantara Spill area through open and notorious violation of our civil rights, 1994 EIR process and common law.

-Introduction-2.1.1-3

The only function the DFG serves to dredgers is to ticket and issue permits and nothing else. A 6" nozzle is NOT the maximum size nozzle in California-it is a 8", again wrong information to cloud the issues. In the last sentence there is no such thing as a RECREATIONAL USE definition. A dredger is a owner and state licensed operator of reclaimation equipment and nothing more or less.

In 1984 my California company PESCO products introduced the only commercially available environmentally friendly dredge designs. Utilizing headerless boxes, deaireation flaps, flarejet introduction systems, over under classification and solids return underwater also to increase fines retention, prevent aeration and decrease turbidity. The design has been utilized in the industry for over 25 years and is indeed the industry standard and bulk of sales also. The archaic figure 2 of a dredge with a ancient crashbox header is yet again another example of misdirection. They are no more relevant than a late 1800's bucketline dredge than what is the industry standard of today.

Yet another example of misdirection is the Keene hype chart, table 2.1, that has absolutely no base in fact. It is advertising hype only. The SEIR preparers have spent huge amounts of time to gleam misinformation to fluff up, exaggerate, and misdirect the truth of dredge capacities using the most libelous commercial hype. The studies utilized throughout this SEIR-mainly Steams and Hassler prove beyond any doubt that the capacity of actual in stream dredge capacities in indeed less than 1/10 of the advertising hyperbole presented within as scientific fact.

Table 2.2 is yet another example of absolute misdirection utilizing non scientific methods and just hyperbole. Please explain how the study of Griffith and Andrews scientific math meet this insane allegation? How does 0.43-0.55 m3 instantly transmit to your 1.8m3 and 13m3 an hour when the study states 0.76 divided by 100=0.0076 + 0.049=0.056 m3 hourly production? Both Stern and the Hassler studies refute this absurdity stated in this table.

2.2 chart is a manufactures advertising hyperbole and the SEIR has forgotten math, truth and utilizes, as usual, the irrelevant as science- again.

2.2.2- 8" is the norm as per 1994 EIR in all major rivers and 6" for streams. Securing equipment is done with boat anchors below the water level.

Processing- in 37 years of dredging I have never seen a single dredger playing on the river using mercury. We pick out the larger nuggets and process the concentrates at home utilizing recovery equipment.

2.4.2 There is no requirement to notify the BLM to dredge and this again is more misinformation.

2.6- They are not nor have they ever been any industry standards for any dredging operations. There are never any structures allowed on BLM or Forest Service lands. In

the 37 years that I have been dredging, I have never seen a miner carry a safe for gold storage.

Section 3 Methodology

The illegal 2007 uncertified SEIR is not a source of anything legal in knowledge and should not be represented as such. Idaho studies are in different geology, hydrology, altitude, and regulations. Citations in other states are irrelevant and why does DFG hide the facts on California dredging citations.

Section 4.22-There are no studies so there is no science and the liberal use of sometimes, can and might does not constitute a legal precedence.

Summary of 4.2.3-You readily admit there is little information and the 2005 Water Board mercury dredge study does not constitute any scientific evidence. The study violates all rules governing scientific testing. Utilizing antiquated equipment the SWRCB study came to the conclusion that even an old dredge removes 98% of the mercury. According to the EPA, and there resultant studies, this constitutes the legally accepted BAT rule-as the best available technology at this time. It is very interesting that I have videos and pictures of friends and myself dredging this exact same area for years with a 8" dredge and what do you know NO MERCURY.

Section 4.3.2-All impacts of dredging are adequately addressed in the current 1994 EIR under our season and size protocols. Other states information is completely irrelevant to this EIR for scientific evidence.

Ironically the study that was to be done by the USGS on effects of dredging and mercury removal was tragically stopped by the STATE and is now being conducted as a lab experiment with a couple of buckets of dirt. For some reason the state, DFG , wants to utilize this artificial study as the basis of scientific fact. Again as the SWRCB hypothetical study, this attempt is not being conducted in any scientific manner for yet another scam in a long list of bad intentions. I do believe there was a glimmer of hope for some truth here but my conversations with the USGS have killed all hope of any real scientific evidence on dredged mercury removal. The EPA rule of science technology being BAT precludes utilizing antiquated equipment in a non monitored and sealed environment to conduct any study for any scientific truth. With over 40 years experience in water treatment , hazardous materials and wastes I can attest to this fact. Having been responsible, at over a dozen facilities in multiple states, to their respective state agencies for processing many MILLIONS of gallons of water and wastes. Dealing with EPA, OSHA, CALOSHA, Nevada State Haz/Mat board in Carson City , and dozens of state, county and regional water boards have been my area of responsibility since the 60's. Dredging is the only way to remove mercury and clean the tragic spills of yesteryear.

Biological resources-Yet again the convoluted versus the real. You can—you might—you have the capacity—again show me the tickets, citations, anything. This illogical SEIR would compare the miniscule 3,400 dredgers use of a average 10 days versus the 57,000,000 million visitor days to national forests alone. Then add on another 2.5 million fishermen at over 22 average days. Then ATV and dirt bike users 40+ days a year by the 4+ million registered bikes. Now comes the campers, kayakers, rafters, backpackers ,hunters, and PLEASE don't forget the tree hugging environutz. Even minimizing figures your looking at 34,000 dredge days versus 100,000,000+++ other user days. As always the prey singles out the smallest quarry and kills it first. The same logic applies here, kill

the smallest user group and work up the outdoor users chain till there is a chain across all the forests, rivers, and valleys.

Dredging effects 4.3.4 would have you believe our miniscule usage is relevant to the forests health. In comparison it is stated within these corrupt files that a single road increases erosion over 100 times. The 1995 Forest Service study on the subject of "A comparison of stream materials moved by mining suction dredging operations to the natural sedimentation yield rates " is yet another great example of our non-impact. The Siskiyou National forest estimates their annual sedimentation rates are over 331,000 cubic yards was moved in a single year—EVERY YEAR. The dredgers were monitored closely all year and 2413 cubic yards were moved and this miniscule amount equaled O.007 of the NORMAL BACKGROUND RATE.

Next you are given to believe that we camp differently than all other outdoor users. We live in filth, trash, and wallow in spilt gas and hazardous materials. Our impact is less than 1/100 of 1/100 of a percent of the combined used days. The SEIR would also have you believe that we ONLY are responsible for tearing up the banks, hills and riparian habitat. Forget the millions of fishermen slogging through the creek killing everything they step on all day. Forget the millions of campers, kayakers, and all others using the forests as their own personal trash bin and toilet. SHOW ME THE TICKETS and not some other states absurd tickets. You are the DFG and yet you CONVENIENTLY just can't seem to find YOUR own evidence but prefer to utilize some other states figures to your advantage. The direct damage is the 100's of millions of user days and NOT us. The more you restrict—the more you concentrate user usage damage. Then we are to blame—I think not. I have the old training manual used by the DFG to train wardens on the SPECIFIC DANGER OF DREDGERS—oh the nasty filthy garbage spewing miners. To prejudice a officer of the law as a matter of fact with lies and hate to target us is illegal. Yet common practice for over half the force. There is no science again –just maybe, might, will, ad nauseatum. Talk about cultural effects is absolutely without merit and no science has been applied or inferred by this insipid category. There is not a user in 100,000 who has ever even seen a dredger much less have their outdoor experience tainted by our evil presence.

Mineral resources 4.5 Specifically states that most dredgers operate in streams of water previously mined. Indeed in over 50+ years of mining, gem & mineral collecting and fossicking I have yet to go ANYWHERE in this state and not found evidence of prior habitation and workings. This inept SEIR would have you believe that California is some pristine wonderland when the opposite is the absolute truth. The greenest anti mining organization on this planet is the National Geographic Society. There debut of the newest Planet Earth series just happens to deal with mans footprint on the earth. THEY-not us miners-state specifically that the salmon demise was sealed long before the white man ever set foot on this continent. The true culprit was the Indians torching annually millions of acres to increase feed to attract animals to kill. This enabled them to see prey easily, facilitate the dragging home and ease of motion through the forest and plains. The proof has been thoroughly analysized and this led to the ecosystems collapse for the salmon. The SEIR would have you believe that you can patent and remove public lands and make them your own. There has been a 100% moratorium for over 14 years now and will never be again. Again misdirection as the norm. The table 4.2 is yet another smoke screen as the ancient information is no longer relevant but the absolute worst possible scenario

from over 10 years ago. The summary is absolute lies. I and many MANY miners claim our gold production and business expenses to the State Franchise tax board and the IRS and are NOT the tax cheating criminals outlined in this summary.
The absurd allegations presented as relevant information from 1983 for gods sake is absolutely a lie today. How do cash expenditures from 26 years ago become relevant to anything??
NOW the real deal No information is reviewed that was available concerning the actual costs of cleanup of suction dredgers camps. WHY?? Quite simple—THERE WERE NONE-SHOW ME THE TICKETS. And again a 1983 study says 12% of dredgers had no permit. The massive influx, largest in dredging history, was going on and every ding dong with a buck was a instant ignorant miner and you want to damn us with this insane archaic misinformation??
I am amazed at the falsified cost of $1.5 million the dept spews as relevant information. The deptartment issues permits and issues tickets. Where is this insane amount of cash being spent and once again-SHOW ME THE TICKETS. Summary is like all others smokescreen and no solid information just hyperbole , innuendo, and slanderous accusations with no base in facts.

The Recreation 4.7 is definitely the most ludicrous of all. The 100,000,000+ visitor days have been ruined by my physical presence. What about the 100's of tons of trash the BLM has hauled off my Whiskey Creek claims from the tourists. We miners are the most responsible stewards of public lands there are. I had a claim on the South Fork American by Lotus, hence sold. I sold because I could not pick up rafter and kayakers trash and feces fast enough to even stay there any longer. The Trinity Rivers miners founded the annual Trinity River cleanups. Miners started the Trinity River Restoration with grants we applied for. The job resource center was miner founded and the Chairmen of the Trinity County Grand Jury was a dredger, Lynn Gunn RIP. Who was conveniently murdered a few days after being voted in as chairman of the Grand Jury after being a member for years . Your own archaic table concerning usage prove beyond any doubt that we have impact minimus and not relevant to any user group.
The cancer on the Klamath is not and never will represent anything in conjunction with responsible stewardship of public lands. Again Dean Swickard and this SEIR have produced absolutely no evidence of any sort to prop up their insane allegations of a 100 calls to miners camps. We do not conflict with anyone—they conflict with us with there stupid assertion that we diminish their outdoor experience. We clean up their filth, trash and left to live with their habitat destruction on our mining claims each and every year. Our noise cannot be compared to 100's of millions of drunk rowdy dirt bikers, fishermen, rafters screaming and hunters blasting anything that moves and much more. This assertion that we are the problem is absolutely insane. I don't even fish and I know of no miner who does. Who can kill their daily companions underwater and live with themselves---fishermen—all 2.5 million plus the massive trawlers with many miles of nets and god lets not forget the Indian gillnets, by the 100 , that decimate the annual salmon runs for fun and profit. But damn those dredgers for having the audacity of trying to have a little fun and find a little gold whilst we create native spawning gravels. The summary is a hoot. Again no information just misinformation and hyperbole about the poor fishermen, whose whole intent and desire is to kill fish.

Aesthetics 4.8 This is yet another in a line of stupid assertions. The forest, plains and rivers were desecrated long before the white man ever put foot on this continent .Over a 100,000,000 user days for all other users crawling, dragging, blasting through on atvs, dragging there feet through the rivers and streams of our state is great but damn those piddly few miners who persist throughout the mess and harassment. Summary matches all others as pure hyperbole and no scientific or socioeconomic evidence. Air and Noise. Here again is the same old tired hyperbole that our mere presence produces the worst pollution of any user group even though we're outnumbered 100,000 user days to1. All other user groups are not delivered by the fairies but pollution producing gas guzzling monsters that offend us. Why are we the party considered to injure when we are indeed the victims?

A miners summary of the hypothetical hyperbole filled SEIR.

In 1988 the DFG posted notice of a meeting with dredgers to finally follow the CEQA demands. In that massive auditorium there showed up 7 people from the whole state. 5 dredgers and 2 land rights activists. DeWayne Johnston was the presiding speaker and we all moved up to the front and had a great talk amongst ourselves. Our aspirations at the time was to open talks to assist the DFG in reclamation projects and establish a permanent working committee to address all issues to do with dredging. At that time the Miners Alliance was formed between our founders Lynn Gunn, Dan Morrison, Steve and Karen Cassidy and myself John Oates. We all served as proud productive members of the Dredge committee associated with the 1994 EIR process. Through many hours of exchange it soon became evident that miners rights groups were engaging in obstructionist practices. We shelved the legal mumbo jumbo and moved into the arena of openings, closures and joint projects that were of mutual benefit to all sides and the ecology of the state. DFG biologist had a huge list of projects that our assistance was required. Just 1 HUGE example was the impacted gravels south of the 49er highway on the Mokelumne River above Power Inn Road. The area is devoid of fish and impacted hard as a freeway. This was to be a joint project, 1 of many, that was proposed to prove our reclamation worth and also an experiment in mercury removal. The politicos adamant refusal to accept over a dozen river openings and many projects let to the committee demise.. Our permanent dredge committee was ruined and all the goodwill and desire to cooperate on future projects were killed. The Miners Alliance and our many associates continue to interact with many government agencies and projects for the betterment of the wildlife in the state of California. Our culture, history and very means of support have been torn asunder through a multi-million dollar multi-year attack in both the legislative and judicial branches of government. We have now the exclusive right to be deemed GUILTY TILL PROVEN INNOCENT—maybe-sometime. Even standing CEQA law and the righteous 1994 EIR be damned.

Normally as custom I would end any comment with respectfully yours BUT there is absolutely no respect anymore for this illegal takings and it WILL cost the state MANY MILLIONS.

John R.Oates Cofounder and Board Member of the Miners Alliance

Mercury Recovery from Recreational Gold Miners

The Challenge:

Looking for gold in California streams and rivers is a recreational activity for thousands of state residents. Many gold enthusiasts simply pan gravels and sediments. More serious recreational miners may have small sluice boxes or suction dredges to recover gold bearing sediments. As these miners remove sediments, sands, and gravel from streams and former mine sites to separate out the gold, they are also removing mercury.

This mercury is the remnant of millions of pounds of pure mercury that was added to sluice boxes used by historic mining operations between 1850 and 1890. Mercury is a toxic, persistent, and bioaccumulative pollutant that affects the nervous system and has long been known to be toxic to humans, fish, and wildlife.

The Solution:

Taking mercury out of streams benefits the environment. Efforts to collect mercury from recreational gold miners in the past however, have been stymied due to perceived regulatory barriers. Disposal of mercury is normally subject to all regulations applicable to hazardous waste.

In 2000, EPA and California's Division of Toxic Substance Control worked in concert with other State and local agencies to find the regulatory flexibility needed to collect mercury in a simple and effective manner. One approach was to add mercury to the list of materials that are collected at regularly scheduled or periodic household hazardous waste collection events sponsored by local county agencies.

Another mercury collection approach was to set up collection stations in areas where mercury is being found by recreational miners.

The Results:

In August and September, 2000 the first mercury "milk runs" collected 230 pounds of mercury. Not only was mercury received from recreational gold miners, but others such as retired 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. This successful pilot program demonstrates how recreational gold miners and government agencies can work together to protect the environment.

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Downieville Ranger District

15924 Highway 49
Camptonville, California
95922-9707

File Code: 2810

Date: JUN 07 1995

received
7-3-95

3A 404

Dear

This letter will confirm our telephone conversation during which I told you how Steven N. Taylor, Senior Fishery Biologist for the California Department of Fish and Game Regulations Program, responded to my question as to why the California Department of Fish and Game was once again proposing to amend Sections 228 and 228.5 of Title 14, California Code of Regulations, Re: Suction Dredge Mining.

I asked Mr. Taylor this question on April 26 or 27 at the U.S. Forest Service Region 5 Minerals Officers Meeting at the Expo Inn in Sacramento after he stated that he did not know very much about mining, but knew a lot about writing Regulations.

Mr. Taylor stated that the reason for the proposed Regulations was "because the Department (of Fish and Game) is getting a lot of pressure from influential special interest groups that don't believe miners should be working in the rivers". He then went on to say that the proposed regulations would be a good starting point to get this situation under control even though the Department had little scientific evidence that dredging in the rivers and streams really has a long term negative impact on the fish and other aquatic life.

Richard S. Zembiec
Minerals Officer

8

REPRESENTING THE COUNTIES OF
COLUSA, GLENN, SHASTA, SISKIYOU
SOLANO (EXCEPT VALLEJO), SUTTER,
TEHAMA, TRINITY, YOLO,
PORTIONS OF BUTTE AND
SACRAMENTO

California State Senate

SENATOR
K. MAURICE JOHANNESSEN
FOURTH SENATORIAL DISTRICT

COMMITTEES
BUSINESS & PROFESSIONS
VICE CHAIR
AGRICULTURE & WATER RESOURCES
FINANCE, INVESTMENT & INTERNATIONAL TRADE
NATURAL RESOURCES & WILDLIFE
VETERANS AFFAIRS

July 26, 1995

Kassandra Fletcher, Deputy Director
Department of Fish and Game
1416 Ninth Street
Sacramento, California 95814

Dear Kassandra:

I am enclosing a copy of a letter on United States Department of Agriculture letterhead, signed by Richard S. Zembiec. I have received many letters of complaint and inquiry to this letter. It brings to my mind several questions as well.

First, just last year, the Department imposed many new rules and regulations on the suction miners. Why is the Department looking to modify these regulations again so soon?

Second, why were the attempts to make further changes done by another division within the Department instead of those who were already familiar with the situation?

Third, many complaints have been expressed by miners of the notification process of public hearings in regard to proposed changes. Specifically, were all those groups and individuals involved in last year's process notified of the hearings surrounding these most recent changes?

Fourth, if the Department determined that new regulations were possibly needed, why did it stop pursuit of these new changes?

Fifth, what Department personnel were specifically involved in last year's efforts and this year's process?

PLEASE REPLY TO

☑ STATE CAPITOL
ROOM 2066
SACRAMENTO, CA 95814
(916) 445-3353

☐ 410 HEMSTED DRIVE
SUITE 200
REDDING CA 96002
(916) 224-4706

☐ 2967 DAVISON COURT
SUITE A
COLUSA CA 95932
(916) 458-4161

☐ 1170 NORTH LINCOLN STREET
SUITE 106
DIXON CA 95620
(916) 678-3195

Last, but not least, I would like to know what steps are being taken to determine the facts in regard to the statements attributed to Mt. Steve Taylor specified in Mr. Zembiec's letter. If those statements are determined to be accurate, what is the Department's position on those statements?

As always, your prompt and concise response is appreciated.

Sincerely,

K. MAURICE JOHANNESSEN

KMJ:jsd
CC: Tim Leslie
Tom Woods
Earl Wintle

From: Cedar Seeger <cedarseeger@hotmail.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/2/2009 6:19 PM
Subject: Suction Dredging Comment input
Attachments: F&G Suction Dredge.doc

Please include my comment in the scoping. See attached.

Thank you.

Respectfully,

John Seeger

12/3/09

Mark Stopher
Calif. Dept of Fish and Game
601 Locust St.
Redding, CA 96001

Re: Suction Dredging

To Whom it may concern:

I own 154 acres of private land on both sides of the Salmon River in Forks of Salmon Calif. I have lived and worked in Siskiyou County on Salmon River for many years. I have sadly watched the decline of salmon and steelhead over the years. I have also seen the result of unmanaged suction dredging on the Salmon River.

Certainly many scientific studies have been done and evidence provided to substiantiate the validity of an outright ban based on water quality and fisheries issues which I fully support based on the evidence I have seen with my own eyes.

My biggest concern after the decline and degradation of the fisheries are the legal, environmental and social issues created by the suction dredgers themselves. The USFS does not appear to have the mandate or funding to manage the onslaught of unsupervised occupation of river bars, flats and roadside semi permanent encampments on Federal lands. These dredgers are often armed and belligerent and I am simply on my own to defend my property. Camping, driving in riparian areas, backhoes in the river bed, no toilets, fuel storage and spillage, noisy generators, littering and disdainand trespass on the rights of local landowners and residents is the norm. I understand that many of these

people are well meaning folks out to try to get some “free”gold but as the as the price of gold has risen so too has the pressure posing a severe problem for both government and locals. I don’t see either USFS or F&G having the resources to keep up with the encroachment pressure driven by the recession either now or in the future. That money can be spent in far more beneficial ways than trying to manage the “New Gold Rush” to Californian waters.

This leads me to concur that the unregulated, unmanaged permitting of suction dredging as practiced in the Sate of California and in National Forests in and of itself constitutes malfeasance and creates a dangerous and harmful situation to not only the immediate river environment, but to the local citizens who live, work, pay taxes and defend their homes and property from willful trespass by frustrated dredgers who have often been sold bogus mining claims for large sums of money by scam artists.

In closing, as a witness and landowner on the un-dammed Cal Salmon River, I go on record as unequivocally OPPOSED to any further issuance of dredging permits on California streams and rivers until the Calif. State Fish and Game Commission can point to the recovery and resurgence of the salmon and steelhead fishery. Also to provide a law enforcement presence that is determined to effectively manage the laws and regulations it is charged with in these isolated communities and elsewhere, holding gold miners and other resource extractors to the same laws, regulations, reporting and standards as every other business in California that is within the riparian zone of the waters of the State.

Respectfully,

John Seeger
Forks of Salmon Land Holding LLC.

Jon B. Grunbaum BS, MS
219 East Fork Indian Creek Road
PO Box 727
Happy Camp, CA 96039
530.493.2522
knothere@sisqtel.net

Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

December 2, 2009

SUBJECT: Suction Dredge Permitting Program

Dear Mark Stopher and the California Department of Fish and Game (CDFG):

Please consider my comments as you develop new suction dredging permitting rules:

In relation to suction dredging, water quality, aquatic habitats, and fish I have the following background. For the last 15 years I have been employed full time as a Fishery Biologist by a Federal agency to monitor fish populations and assess fish habitat and water quality along 90 miles of the mid-Klamath River and tributary streams from Beaver Creek to the Salmon River. Before that, from 1989 until 1994, I was employed by a Federal agency as technical and field coordinator for research on the effects of land use on aquatic habitats and fish populations. During 20 years in the field I frequently observed suction dredges being operated and the resultant effects of suction dredging on water quality and aquatic habitats. I am still currently employed as Fisheries Biologist for a Federal agency, however, the comments I am submitting in this letter are my own opinions. I am writing this letter on my own time as a concerned private citizen and my comments are not intended to and do not represent the position of the Federal agency that employs me.

In the Klamath River system (and other places I suspect), suction dredging is particularly impacting water quality and aquatic habitats because the suction dredging occurs during the dry seasons when stream flows are low and there is not enough water to easily dilute or spread the sediment plume/turbidity/pollutants generated by suction dredging. Increased turbidity and disturbance levels from suction dredging can have direct adverse effects on fish where these impacts occur synergistically with existing poor water quality conditions including high water temperature and high levels of other pollutants or stressors. As you know, Klamath River streams where most suction dredging occurs are on California's 2006 Section 303(d) List of Impaired Waterbodies due to high water temperature, low dissolve oxygen, and excessive nutrients.

In my experience, impacts of suction dredging are often greater than what is assumed in the California Department Fish and Game (CDFG) regulations and supporting environmental analyses even if implemented according to the permit. For instance, the turbidity plume from

suction dredging can exceed the 300 feet that is assumed by CDFG (Hassler et al. 1996, Prussian et al. 1999). CDFG should recognize that suction dredging consistently results in unanticipated or unaccounted for impacts to water quality and aquatic habitats. Examples of common impacts not accounted for in current environmental impact analyses are:

- spills and leaks of gas and oil from suction dredges and gas cans that have floated away
- dredges that came un-tethered and break up in the river polluting the water with gas and oil – this is not uncommon on the Klamath River where wrecked dredges are continually being removed from the river during summer River Clean-Up projects
- constructing authorized and unauthorized roads, trails, and campsites in riparian areas
- additional environmental degradation caused by not following the rules - the CDFG should recognize that a small but consistent percentage of permitted suctions dredgers do not follow the rules for one reason or another and this contributes to the impacts caused by permitting suction dredging. Often the damage caused by not following the rules is not discovered in time to prevent the impacts because CDFG and other regulatory agencies are too understaffed to properly monitor compliance

The CDFG should restrict or prohibit suction dredging where the beneficial uses of water can be adversely affected. These areas include near domestic and municipal sources of course, but also should include water quality necessary to support threatened and endangered aquatic species. Maintenance of salmon and steelhead (and other aquatic fauna) is the primary beneficial use of water in many California streams. Harvey and Lisle (1998) and Washington Department of Fish and Wildlife (2006) currently provide the best comprehensive reviews of suction dredging on water quality and fish habitat. Both these reviews conclude with warnings of potential adverse effects to fish habitat and populations form suction dredging.

Based on 20 years of working on streams and observing suction dredging operations, my professional training in stream ecology and fisheries biology, existence of suction dredging studies demonstrating potential adverse effects to aquatic habitats and fish, the considerable uncertainty of suction dredging effects on fish in various locations and under various environmental conditions, the substantial unanticipated or unaccounted for environmental impacts, and the suction dredging reviews of Harvey and Lisle (1998) and the WDFW (2006) who concluded that suction dredging should be assumed to harm declining aquatic species unless it can be proven otherwise, I do believe that suction dredging can and does adversely affect water quality and fish habitat, and can lower the stream carrying capacity for fish and other aquatic species. To protect salmon, steelhead, sturgeon, lamprey and other aquatic species in the mid-Klamath River and tributaries, I agree with the Expert Report of Peter B Moyle (one of the Nation's most prominent and respected fishery scientists) who recommended that **"suction dredging should be banned in tributaries to the Klamath River, 500 meters above and below cool-water refuge areas (stream mouths) on the mainstem Klamath River, the Klamath River from the Trinity River confluence to Green Riffle, Canyon Creek and all other Scott River tributaries, and the Salmon River including the north and south forks and all tributaries"** until further analyses prove that suction dredging would not contribute to the decline of listed or sensitive aquatic fish species. As the agency charged with protecting California's fish and wildlife resources, the only prudent suction dredge permitting alternative for CDFG is to forbid suction dredging in the critical habitat of any listed or sensitive aquatic

species until further analyses and/or studies show that suction dredging would not harm these species.

On a personal note, I think it is an absolute shame to permit a few people to de-spoil our streams and riparian areas, especially since most suction dredging is recreational.

Thank you for considering my concerns.

Sincerely,

_____

Jon B. Grunbaum

From: "gail" <knothere@sisqtel.net>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/2/2009 8:38 PM
Subject: my comments on CDFG suction dredge permitting program
Attachments: Suction dredge comment letter 12012009_esign.doc

Hello,

Attached are my comments on CDFG's suction dredge permitting program.

thank you, Jon Grunbaum

Jon B. Grunbaum BS, MS
219 East Fork Indian Creek Road
PO Box 727
Happy Camp, CA 96039
530.493.2522
knothere@sisqtel.net

Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

December 2, 2009

SUBJECT: Suction Dredge Permitting Program

Dear Mark Stopher and the California Department of Fish and Game (CDFG):

Please consider my comments as you develop new suction dredging permitting rules:

In relation to suction dredging, water quality, aquatic habitats, and fish I have the following background. For the last 15 years I have been employed full time as a Fishery Biologist by a Federal agency to monitor fish populations and assess fish habitat and water quality along 90 miles of the mid-Klamath River and tributary streams from Beaver Creek to the Salmon River. Before that, from 1989 until 1994, I was employed by a Federal agency as technical and field coordinator for research on the effects of land use on aquatic habitats and fish populations. During 20 years in the field I frequently observed suction dredges being operated and the resultant effects of suction dredging on water quality and aquatic habitats. I am still currently employed as Fisheries Biologist for a Federal agency, however, the comments I am submitting in this letter are my own opinions. I am writing this letter on my own time as a concerned private citizen and my comments are not intended to and do not represent the position of the Federal agency that employs me.

In the Klamath River system (and other places I suspect), suction dredging is particularly impacting water quality and aquatic habitats because the suction dredging occurs during the dry seasons when stream flows are low and there is not enough water to easily dilute or spread the sediment plume/turbidity/pollutants generated by suction dredging. Increased turbidity and

disturbance levels from suction dredging can have direct adverse effects on fish where these impacts occur synergistically with existing poor water quality conditions including high water temperature and high levels of other pollutants or stressors. As you know, Klamath River streams where most suction dredging occurs are on California's 2006 Section 303(d) List of Impaired Waterbodies due to high water temperature, low dissolve oxygen, and excessive nutrients.

In my experience, impacts of suction dredging are often greater than what is assumed in the California Department Fish and Game (CDFG) regulations and supporting environmental analyses even if implemented according to the permit. For instance, the turbidity plume from suction dredging can exceed the 300 feet that is assumed by CDFG (Hassler et al. 1996, Prussian et al. 1999). CDFG should recognize that suction dredging consistently results in unanticipated or unaccounted for impacts to water quality and aquatic habitats. Examples of common impacts not accounted for in current environmental impact analyses are:

- spills and leaks of gas and oil from suction dredges and gas cans that have floated away
- dredges that came un-tethered and break up in the river polluting the water with gas and oil – this is not uncommon on the Klamath River where wrecked dredges are continually being removed from the river during summer River Clean-Up projects
- constructing authorized and unauthorized roads, trails, and campsites in riparian areas
- additional environmental degradation caused by not following the rules - the CDFG should recognize that a small but consistent percentage of permitted suctions dredgers do not follow the rules for one reason or another and this contributes to the impacts caused by permitting suction dredging. Often the damage caused by not following the rules is not discovered in time to prevent the impacts because CDFG and other regulatory agencies are too understaffed to properly monitor compliance

The CDFG should restrict or prohibit suction dredging where the beneficial uses of water can be adversely affected. These areas include near domestic and municipal sources of course, but also should include water quality necessary to support threatened and endangered aquatic species. Maintenance of salmon and steelhead (and other aquatic fauna) is the primary beneficial use of water in many California streams. Harvey and Lisle (1998) and Washington Department of Fish and Wildlife (2006) currently provide the best comprehensive reviews of suction dredging on water quality and fish habitat. Both these reviews conclude with warnings of potential adverse effects to fish habitat and populations form suction dredging.

Based on 20 years of working on streams and observing suction dredging operations, my professional training in stream ecology and fisheries biology, existence of suction dredging studies demonstrating potential adverse effects to aquatic habitats and fish, the considerable uncertainty of suction dredging effects on fish in various locations and under various environmental conditions, the substantial unanticipated or unaccounted for environmental impacts, and the suction dredging reviews of Harvey and Lisle (1998) and the WDFW (2006) who concluded that suction dredging should be assumed to harm declining aquatic species unless it can be proven otherwise, I do believe that suction dredging can and does adversely affect water quality and fish habitat, and can lower the stream carrying capacity for fish and other aquatic species. To protect salmon, steelhead, sturgeon, lamprey and other aquatic species in the mid-Klamath River and tributaries, I agree with the Expert Report of Peter B Moyle (one of the Nation's most prominent and respected fishery scientists) who recommended that **"suction**

dredging should be banned in tributaries to the Klamath River, 500 meters above and below cool-water refuge areas (stream mouths) on the mainstem Klamath River, the Klamath River from the Trinity River confluence to Green Riffle, Canyon Creek and all other Scott River tributaries, and the Salmon River including the north and south forks and all tributaries" until further analyses prove that suction dredging would not contribute to the decline of listed or sensitive aquatic fish species. As the agency charged with protecting California's fish and wildlife resources, the only prudent suction dredge permitting alternative for CDFG is to forbid suction dredging in the critical habitat of any listed or sensitive aquatic species until further analyses and/or studies show that suction dredging would not harm these species.

On a personal note, I think it is an absolute shame to permit a few people to de-spoil our streams and riparian areas, especially since most suction dredging is recreational.

Thank you for considering my concerns.

Sincerely,

/s/ Jon B. Grunbaum
Jon B. Grunbaum

From: "Joe A" <MojaveJoe@verizon.net>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/29/2009 10:11 AM
Subject: Suction Dredge Permit Program

Mark Stopher

California Department of Fish and Game

601 Locust Street

Redding, CA 96001

RE: Suction Dredge Permit Program - Can Logic Trump Science?

When can Logic trump Science? Whenever science cannot provide answers to the most basic and logical questions.

I have been a dredger in CA for over 20 years. I have abided every new law as it was adopted. I intend to abide by any new law adopted in this process. But there comes a time when pure logic should lead the intellect to the proper perspective. I fear that the overzealousness of the anti-dredging groups has now gone beyond logic. Let me explain.

Decline of salmon and other fisheries:

The DFG's own 2009 'decision' to open a limited season for the improved Salmon populations before dredging was even shut down in CA (SB 670) logically implies that dredging was not the cause of the problem. But rather, the annual slaughter of these fish by commercial, Indian, and individual fishermen was the cause.

New spawning beds produced by dredgers help the re-population of fisheries. Much like mother nature in her annual high water and random floods do, by creating new loose gravel beds. Why would anyone want to discourage dredgers from helping fish spawn?

I've heard the argument that the tailing piles are unstable. Well, so are natural gravel bed formations, until they are washed down by subsequent winter flooding that stablilizes them.

Mercury is a natural element:

Free mercury occurs in nature and is put into the air by coal fired power plants in the thousands of tons every year. The government in its wisdom has ordered that all incandescent bulbs be replaced with compact florescent lights (with mercury in them) by 2014. They actually are forcing Americans to bring toxic mercury into their homes.

In 20 years of dredging I have never encountered free mercury in my dredge. Only the occasional flake with mercury well stuck to it (since they have an affinity for each other).

I suspect each year I encounter no more mercury stuck to gold than what you might find in 5-6 CFLs. The difference is, I am removing the mercury from a river and water supply, and the government is adding tons of it to landfills and the water supply by act of law. So who is causing damage to the environment?

Methylated mercury occurs naturally:

Does mercury sucked into a dredge get methylated? If it does, how much is produced?

Modern dredges with a flare (vs crash box) design can catch a speck of gold so small you can barely see it with the naked eye? If it can do this it can also catch extremely small amounts of mercury. It does this because there is so little turbulence in the operation.

Mercury is thus nearly completely recovered from the river. Rather than being a hazard, dredging is actually a win win for the environment. The study that showed methylated mercury in the water downstream of a dredge surely did not test the water 1 mile, 2 miles or 10 miles downstream. If they had, do you think that they could detect any change from normal background levels for that stream? There is an EPA standard for safe mercury levels in water and fish etc. Does dredging create/surpass this? Consider that every decade or two mother nature produces a record flood that churns up the entire bottom of a river or stream with massive material movement, which must easily produce a million times or more the amount of methylated mercury than gold dredging might have over that decade or two. Thus, of what significance is this issue?

I could go on and on. But I think you understand my point.

I only request that you let logical answers trump the science being offered when the science does not address the bigger and more appropriate questions.

Thank You,

Joseph Albrecht

PO Box 1674

Helendale, CA 92342

Ph 760-985-5213 cell

Joseph Albrecht

PO Box 1674, Helendale, CA 92342.... phone: hm 760-952-1057 cell 760-985-5213

November 30, 2009

Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

RE: Suction Dredge Permit Program – Can Logic Trump Science?

When can Logic trump Science? Whenever science cannot provide answers to the most basic and logical questions.

I have been a dredger in CA for over 20 years. I have abided every new law as it was adopted. I intend to abide by any new law adopted in this process. But there comes a time when pure logic should lead the intellect to the proper perspective. I fear that the overzealousness of the anti-dredging groups has now gone beyond logic. Let me explain.

Decline of salmon and other fisheries:

The DFG's own 2009 'decision' to open a limited season for the improved Salmon populations before dredging was even shut down in CA (SB 670) logically implies that dredging was not the cause of the problem. But rather, the annual slaughter of these fish by commercial, Indian, and individual fishermen was the cause.

New spawning beds produced by dredgers help the re-population of fisheries. Much like mother nature in her annual high water and random floods do, by creating new loose gravel beds. Why would anyone want to discourage dredgers from helping fish spawn? I've heard the argument that the tailing piles are unstable. Well, so are natural gravel bed formations, until they are washed down by subsequent winter flooding that stablilizes them.

Mercury is a natural element:

Free mercury occurs in nature and is put into the air by coal fired power plants in the thousands of tons every year. The government in its wisdom has ordered that all incandescent bulbs be replaced with compact florescent lights (with mercury in them) by 2014. They actually are forcing Americans to bring toxic mercury into their homes.

In 20 years of dredging I have never encountered free mercury in my dredge. Only the occasional flake with mercury well stuck to it (since they have an affinity for each other). I suspect each year I encounter no more mercury stuck to gold than what you might find in 5-6 CFLs. The difference is, I am removing the mercury from a river and water supply, and the government is adding tons of it to landfills and the water supply by act of law. So who is causing damage to the environment?

Methylated mercury occurs naturally:

Does mercury sucked into a dredge get methylated? If it does, how much is produced?

Modern dredges with a flare (vs crash box) design can catch a speck of gold so small you can barely see it with the naked eye? If it can do this it can also catch extremely small amounts of mercury. It does this because there is so little turbulence in the operation. Mercury is thus nearly completely recovered from the river. Rather than being a hazard, dredging is actually a win win for the environment. The study that showed methylated mercury in the water downstream of a dredge surely did not test the water 1 mile, 2 miles or 10 miles downstream. If they had, do you think that they could detect any change from normal background levels for that stream? There is an EPA standard for safe mercury levels in water and fish etc. Does dredging create/surpass this? Consider that every decade or two mother nature produces a record flood that churns up the entire bottom of a river or stream with massive material movement, which must easily produce a million times or more the amount of methylated mercury than gold dredging might have over that decade or two. Thus, of what significance is this issue?

I could go on and on. But I think you understand my point.

I only request that you let logical answers trump the science being offered when the science does not address the bigger and more appropriate questions.

Thank You,

Joseph Albrecht
PO Box 1674
Helendale, CA 92342
Ph 760-985-5213 cell

From: Joseph Greene <greenejc_39@yahoo.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/20/2009 10:18 AM
Subject: Comments Regarding the Update of the Environmental Impact Report (EIR) on SUCTION DREDGE MINING in California
Attachments: __2009 1119, EIR COMMENTS TO CALIFORNIA DEPARTMENT OF FISH and GAME.doc

Please accept my following comments and those in the attached MS Word document as testimonial in support of suction dredging. I hope the attached information is helpful in establishing a scientifically sound Environmental Impact Report.

My association with problems of mining and surface water contamination began as early as 1974 in the Coeur d' Alene mining district relative to the Kellog, ID mine and smelter.

I am very familiar with suction dredge mining and other forms of gold mining. I have, over the past 15 years or more, observed and participated in suction dredge mining operations. My exposure to mining techniques have occurred on the Umpqua River, Calapooia River, Quartzville Creek, Stratton Creek and Carberry Creeks in Oregon, the Klamath River and Stanislaus Rivers in California, and Humbug Creek, San Domingo Wash in Arizona and the Majuba Mountains, Black Rock Desert and Rye Patch areas of Nevada.

Some 25 of my 30 years of government service have related to biological research. A lifetime of biological testing on toxicity and nutrient pollution in the aquatic environment provides a sound basis for appreciating the magnitude of impacts associated with the asserted environmental contaminants, and gives a quantitative perspective generally lacking in general biologists, which leaves them less able to ascertain which environmental effects are significant and which aren't.

I would like to comments on statements attributed to Dr. Peter Moyle recently and in previous legal declarations. Dr. Moyle has had an eminent career in the fisheries sciences. He is well published and respected. However, I believe he is entirely out of his realm regarding factual information about suction dredging. I believe this is proven by his words.
In a Lake County News article written November 17, 2009 by Elizabeth Larson Dr. Moyle was cited as follows:
"Dr. Peter Moyle, professor of wildlife, fish and conservation biology at the University of California, Davis' Center for Watershed Sciences, has conducted studies on the practice and concluded that it has a negative impact.

"It is too soon to tell if the moratorium has had a positive impact on salmon populations and in fact this will always be hard to demonstrate because no one is studying the issue," Moyle told Lake County News in an e-mail message. (my comment: So Dr. Moyle has studied the issue while stating, "no one is studying the issue???:.)

Moyle said the state's fisheries agencies, such as DFG, are "woefully short" of funds and manpower to do their jobs. "Also there are multiple factors affecting the fish populations so separating causes is difficult," he wrote.

"But given the severely threatened nature of summer steelhead, spring chinook salmon, and coho salmon populations it is best to assume that dredging (and associated activity) is having a negative impact unless it can be proven otherwise.As studies show, there are lots of reasons to suspect an impact is there," Moyle noted. "

I find this guilty until proven innocent attitude disturbing coming from a scientist. However, Dr. Moyle has been consistent in his position of denying the rights of suction dredgers to perform their mining operations while clearly stating that he has no scientific cause effect relationship that suction dredging has ever harmed a single fish.

In a legal declaration submitted in the case of the Karuk Tribe vs. the California Department of Fish and Game in the Superior Court of California Dr Moyle held to the same position as follows: "In his declaration, Dr. Moyle states, "I agree with the thrust of Harvey and Lisle (1998), that it should be assumed that dredging is harming declining species unless it can be proven otherwise".
I believe the weight of the available scientific literature establishes that this is NOT the case. In particular, in April 2003 Dr. Peter B. Bayley, of the Department of Fisheries and Wildlife, Oregon State University, Corvallis, OR published a final report titled "Response of fish to cumulative effects of suction dredge and hydraulic mining in the Illinois subbasin, Siskiyou National Forest, Oregon". Dr. Bayley stated that, "Harvey and Lisle (1998) opine that "effects of dredging commonly appear to be minor and local", but stress that cumulative effects of several operations at larger scales have not been investigated. This is one reason this study has been undertaken. Because most suction dredge mining activity in the Rogue basin and the Siskiyou National Forest was concentrated in the Illinois River drainage, the study described here was limited to the drainage of that subbasin." Dr. Bayley concluded, "Localized, short-term effects of suction dredge mining have been documented in a qualitative sense. However, on the scales occupied by fish populations such local disturbances would need a strong cumulative intensity of many operations to have a measurable effect. Local information reveals that most suction dredge miners more or less adhere to guidelines that have recently been formalized by the Forest Service and generally in the Oregon." Dr. Bayley's study and other works confirm that even when analyzed from a cumulative effects perspective, there is no reason to believe that suction dredge mining is deleterious to fish.

Dr. Moyle goes on to state, "It should be ASSUMED there is harm, unless it can be proven otherwise. One reason for taking this conservative position is that we simply do not know the effect of dredging on many species." He went on to further state that, "Even for salmonids, information on the effects of dredging, with the exception of a few studies such as Harvey (1989), is largely anecdotal or in non-peer reviewed reports". Dr. Moyle continues with the statement, "In particular, coho salmon, spring-run Chinook salmon, and summer steelhead are particularly vulnerable to the immediate effects of dredging and have been reduced to low numbers in the Klamath Basin so need special protection".
This is mere opinion without scientific supporting data, for as previously described, Dr. Moyle has in substance acknowledged that he does NOT have any documentation to support these assertions. As far as I can tell, the perception of Dr. Moyle and others of the condition of salmonid stocks is rooted in misconceptions concerning the relative importance of fresh water habitat as compared with ocean conditions and harvest which are of much greater importance in the population dynamics of these fish.

Joseph C. Greene

Research Biologist, USEPA, Retired

California Department of Fish and Game
601 Locust Street, Redding, CA 96001
dfgsuctiondredge@dfg.ca.gov

November 19, 2009

Subject: **Comments Regarding the Update of the Environmental Impact Report (EIR) on SUCTION DREDGE MINING in California**

Dear Board Members,

Thank you for allowing me this opportunity to comment on the water quality aspects of small-scale suction dredge mining.

As I have searched the scientific literature for studies on the effects of small-scale suction dredge mining on the environment I have learned that the preponderance of the published

research studies have been directed towards assessment of its effect on the biology of the streams and rivers. In nearly every instance the results have concluded that the effects were less than significant.

In water quality terms some studies have discussed turbidity, water temperature, and suspension of heavy metals into the overlying water. I will focus my water quality comments on these three areas. But first I would like to put this issue in to perspective.

GEOGRAPHICAL SCALE OF SMALL-SCALE SUCTION DREDGING

It has been observed that environmentalists opposing suction dredging use data gleaned from reports that studied effects of environmental perturbations that are occurring on a system-wide basis. For example, they would characterize the affects of turbidity from a suction dredge as if it would impact downstream organisms in a manner that system-wide high water flow events might. This approach is entirely inconsistent with the way in which suction dredges operate or generally impact their downstream environment.

The California Department of Fish and Game (1997) described typical dredging activities as follows' "An individual suction dredge operation **affects a relatively small portion of a stream or river**. A recreational suction dredger (representing 90-percent of all dredgers) may spend a total of four to eight hours per day in the water dredging an area of 1 to 10 square meters. The average number of hours is 5.6 hours per day. The remaining time is spent working on equipment and processing dredged material. The area or length of river or streambed worked by a single suction dredger, as compared to total river length, is relatively small compared to the total available area."

In the Oregon Siskiyou National Forest Dredge Study, Chapter 4, Environmental Consequences, some perspective is given to small-scale mining. "The average claim size is 20 acres. The total acreage of all analyzed claims related to the total acres of watershed is about ***0.2 percent***. The average stream width reflected in the analysis is about 20 feet or less and the average mining claim is 1320 feet in length. The percentage of land area within riparian zones on the Siskiyou National Forest occupied by mining claims is estimated to be only ***0.1 percent***." The report goes on to say, "Over the past 10 years, approximately 200 suction dredge operators per season operate on the Siskiyou National Forest" (SNF, 2001).

A report from the U.S. Forest Service, Siskiyou National Forest (Cooley, 1995) answered the frequently asked question, "How much material is moved by annual mining suction dredge activities and how much does this figure compare with the natural movement of such materials by surface erosion and mass movement?" The answer was that suction dredges moved a total of 2,413 cubic yards for the season. Cooley (1995) used the most conservative values and estimated that the Siskiyou National Forest would move 331,000 cubic yards of material each year from natural causes. Compared to the 2413 (in-stream) cubic yards re-located by suction mining operations the **movement rate by suction dredge mining would equal *about 0.7% of natural rates***.

It has been suggested that a single operating suction dredge may not pose a problem but the operation of multiple dredges would produce a cumulative effect that could cause harm to aquatic organisms. However, “No additive effects were detected on the Yuba River from 40 active dredges on a 6.8 mile (11 km) stretch. The area most impacted was from the dredge to about 98 feet (30 meters) downstream, for most turbidity and settleable solids (Harvey, B.C., K. McCleneghan, J.D. Linn, and C.L. Langley, 1982). In another study, “Six small dredges (<6 inch dredge nozzle) on a 1.2 mile (2 km) stretch had no additive effect (Harvey, B.C., 1986). *Water quality was typically temporally and spatially restricted to the time and immediate vicinity of the dredge* (North, P.A., 1993).

A report on the water quality cumulative effects of placer mining on the Chugach National Forest, Alaska found that, “The results from water quality sampling do not indicate any strong cumulative effects from multiple placer mining operations within the sampled drainages.” “Several suction dredges probably operated simultaneously on the same drainage, but did not affect water quality as evidenced by above and below water sample results. *In the recreational mining area of Resurrection Creek, five and six dredges would be operating and not produce any water quality changes* (Huber and Blanchet, 1992).

The California Department of Fish and Game stated in its Draft Environmental Impact Report that “Department regulations do not currently limit dredger densities but the activity itself is somewhat self-regulating. Suction dredge operators must space themselves apart from each other to avoid working in the turbidity plume of the next operator working upstream. *Suction Dredging requires relatively clear water to successfully harvest gold* “ (CDFG, 1997).

ELEVATED TURBIDITY AND SUSPENDED

Suction dredging causes less than significant effects to water quality. The impacts include increased turbidity levels caused by re-suspended streambed sediment and pollution caused by spilling of gas and oil used to operate suction dredges (CDFG, 1997).

"Suction dredges, powered by internal combustion engines of various sizes, operate while floating on the surface of streams and rivers. As such, oil and gas may leak or spill onto the water's surface. ***There have not been any observed or reported cases of harm to plant or wildlife as a result of oil or gas spills associated with suction dredging"*** (CDFG, 1997).

The impact of turbidities on water quality caused by suction dredging can vary considerably depending on many factors. Factors which appear to influence the degree and impact of turbidity include the amount and type of fines (fine sediment) in the substrate, the size and number of suction dredges relative to stream flow and reach of stream, and background turbidities (CDFG, 1997).

Because of low ambient levels of turbidity on Butte Creek and the North Fork American River, California, Harvey (1986) easily observed increases of 4 to 5 NTU from suction dredging. Turbidity plumes created by suction dredging in Big East Fork Creek were visible in Canyon Creek 403 feet (123 meters) downstream from the dredges (Somer and Hassler, 1992).

In contrast, 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).

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).

"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."

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."

The US Geological Survey and the Alaska Department of Natural Resources conducted a survey into dredging on Alaska's Fortymile River, which is a river designated as a wild and scenic corridor. The study stated, "One dredge had a 10-inch diameter intake hose and was working relatively fine sediment on a smooth but fast section of the river. The other dredge had an 8-inch intake and was working coarser sediments in a shallower reach of the river. State regulations require that suction dredges may not increase the turbidity of the river by more than 5 nephelometric turbidity units (NTU), 500 feet (=150m) downstream. In both cases, the dredges were well within compliance with this regulation."

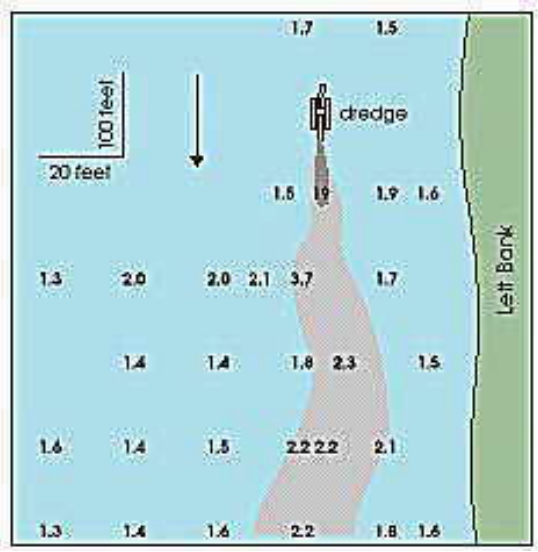


Figure 2. Results of turbidity survey behind an operating 10-inch suction dredge (site #1 on fig. 1). All numbers shown are in NTU, or nephelometric turbidity units; the standard unit of turbidity. The right bank of the river is off the edge of the figure. The approximate shape of the plume is shown in gray. Note that the figure is exaggerated 5x horizontally, so the plume is actually much narrower than it appears in the figure. To comply with State regulations, dredges may not increase the turbidity of the river by more than 5 NTU, 500 feet behind the dredge.

http://www.akmining.com/mine/usgs1.htm

Samples were collected on a grid extending downstream from the dredges as they were operating and compared to measurements made upstream of the dredges. One dredge had a 10-inch diameter intake hose and was working relatively fine sediments on a smooth but fast section of the river. The results of the turbidity survey for the 10-inch dredge are shown on figure 2. Turbidity values behind the 8-inch dredge were lower, because the smaller intake was moving less sediment material, and because the coarser sediments being worked by the 8-inch dredge settled more rapidly

The turbidity values found in the dredge studies fall within the range of turbidity values found for currently mined areas of the Fortymile River and many of its un-mined tributaries. Figure 3 shows the ranges of turbidity values observed along the horizontal axis, and the number of samples that fall within each of those ranges. For example, 25 samples had turbidity between 1.0 and 1.5 NTU, 22 of which were in a dredged area. The

highest turbidity value was from an un-mined tributary to Uhler Creek; the lowest from a number of different tributaries to the North Fork. As seen on the figure, there is no appreciable difference in the distribution of turbidity values between mined and un-mined areas.

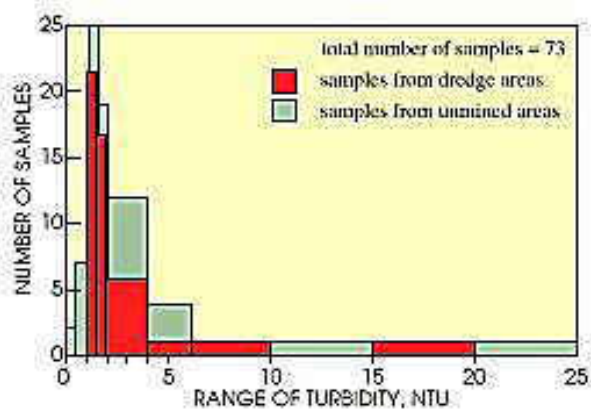


Figure 3. A comparison of turbidity values between mined and unmined areas shows that the suction dredge mining does not affect the turbidity of the Fortymile River system under the conditions studied. The highest turbidity values from the dredge areas are within 200 feet (60 m) of the back of the two operating dredges which were studied.

http://www.akmining.com/mine/usgs1.htm

In American studies, average turbidity levels have been shown to be between 5 and 15 NTU 5 meters below dredges. But even the maximum turbidity level measured in a clay pocket (51 NTU) fell below 10 NTU within 45 meters. Turbidity increases, from even large dredges on moderate sized streams, have shown to be fairly low, usually 25 NTU or less, and to return to background within 30 meters. The impact is localized and short lived; indicating minimum impact on moderate and larger waterways.

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 rain storm."

All of these research studies have concluded that only a local significant 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 $\leq$ 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).

Furthermore, individuals that have not, in fact, operated suction dredges may not realize that it is a self-limiting operation. The dredge operator must be able to see his work area to operate safely and manage the intake of the dredge nozzle. ***If high levels of turbidity***

were to flood the dredger's work area and render him "blind" he would have to move the operation to another location.

INCREASING WATER TEMPERATURE

Responsible suction dredge miners do not dredge stream banks (it is illegal). Dredging occurs only in the wetted perimeter of the stream. Therefore, it is unlikely suction dredging will cause a loss of cover adjacent to the stream.

Solar radiation is the single most important energy source for the heating of streams during daytime conditions. The loss or removal of riparian vegetation can increase solar radiation input to a stream increasing stream temperature. ***Suction dredge operations are confined to the existing stream channel and do not affect riparian vegetation or stream shade*** *(SNF, 2001).*

Suction dredging could alter pool dimensions through excavation, deposition of tailings, or by triggering adjustments in channel morphology. Excavating pools could substantially increase their depth and increase cool groundwater inflow. This could reduce pool temperature. If pools were excavated to a depth greater than three feet, salmonid pool habitat could be improved. In addition, ***if excavated pools reduce pool temperatures, they could provide important coldwater habitats for salmonids living in streams with elevated temperatures*** *(SNF, 2001).*

Dredge mining had little, if any, impact on water temperature (Hassler, T.J., W.L. Somer and G.R. Stern, 1986). In addition, the Oregon Siskiyou Dredge Study states, "***There is no evidence that suction dredging affects stream temperature***" *(SNF, 2001).*

Increases in sediment loading to a stream can result in the stream aggrading causing the width of the stream to increase. This width increase can increase the surface area of the water resulting in higher solar radiation absorption and increased stream temperatures. ***Suction dredge operations are again confined to the existing stream channel and do not affect stream width*** *(SNF, 2001).*

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).*

"Small streams with low flows may be significantly affected by suction dredging, particularly when dredged by larger dredges (Larger than 6 inches) (Stern, 1988). However, the California Department of Fish and Game concluded, "current regulations *restrict the maximum nozzle size 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).

WATER CHEMISTRY

Concern has been raised that small-scale dredge operations may increase the metal load of the surface waters. Whereas dredge operations do re-suspend the bottom sediment, the magnitude of this disturbance on stream metal loading was unknown. It was unknown what affect the dredge operations may have on the transport and redistribution of metals—some of which (for example, arsenic, copper, and zinc) have environmental importance.

The U.S. Geological Survey and the Alaska Department of Natural Resources cooperated in a project, on Fortymile River, to provide scientific data to address these questions. This river is designated a Wild and Scenic Corridor by the Alaska National Interest Lands Conservation Act. Current users of the river include placer mine operators, as well as boaters and rafters. Along the North Fork Fortymile River, and just below its confluence with the South Fork, mining is limited to a few small suction dredges which, combined, produce as much as a few hundred ounces of gold per year. In this area, some potential environmental concerns have been raised associated with the mining activities, including increased turbidity of the river water; adverse impact on the overall chemical quality of the river water; and potential additions of specific toxic elements, such as arsenic, to the river during mining operations.

Field measurements were made 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. The samples were passed through a filter with a nominal pore size of 0.45 micrometers and acidified to a pH less than about 2. Results are shown in the following table. Samples 1A, 1C, 2A, and 2C are from either side of the plume behind dredges 1 and 2, respectively. Samples 1B and 2B are from the center of each plume. All concentrations given are in micrograms per liter, except pH, which is expressed in standard units.

The data show similar water-quality values for samples collected within and on either side of the dredge plumes. Further, the values shown in the table are roughly equal to or lower than the regional average concentrations for each dissolved metal, based on the analyses of 25 samples collected throughout the area. Therefore, ***suction dredging appears to have no measurable effect on the chemistry of the Fortymile River*** within this study area. 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).

		Side 1	Dredge 1	Side 2		Side 1	Dredge 2	Side 2
		1A	**1B**	**1C**		**2A**	**2B**	**2C**
pH		7.7	7.6	7.8		7.0	7.5	7.5
Arsenic		0.3	0.3	0.3		0.3	0.3	0.3
Iron		110.	110.	110.		100	97	100
Chromium		2	2	3		3	3	3
Cadmium	all less than 0.02 micrograms per liter							
Cobalt		0.07	0.07	0.06		0.06	0.05	0.05
Zinc		0.8	0.6	0.8		1.0	1.0	1.0
Lead	all less than 0.05 micrograms per liter							

A final report from an EPA contract for analysis of the effects on mining in the Fortymile River, Alaska stated, "This report describes the results of our research during 1997 and 1998 into the effects of commercial suction dredging on the water quality, habitat, and biota of the Fortymile River…. The focus of our work on the Fortymile in 1997 was on an 8-inch suction dredge (Site 1), located on the mainstem… At Site 1, dredge operation had no discernable effect on alkalinity, hardness, or specific conductance of water in the Fortymile. Of the factors we measured, the primary effects of suction dredging on water chemistry of the Fortymile River were increased turbidity, total filterable solids, and copper and zinc concentrations downstream of the dredge. These variables returned to upstream levels within 80-160 m downstream of the dredge. The results from this sampling revealed a relatively intense, but localized, decline in water clarity during the time the dredge was operating" (Prussian, A.M., T.V. Royer and G.W. Minshall, 1999).

"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).

REMOVAL OF MERCURY FROM THE ENVIRONMENT

Looking for gold in California streams and rivers is a recreational activity for thousands of state residents. As these miners remove sediments, sands, and gravel from streams and former mine sites to separate out the gold, they are also removing mercury. This mercury is the remnant of millions of pounds of pure mercury that was added to sluice boxes used

by historic mining operations between 1850 and 1890. Modern day small-scale gold suction dredgers do not use mercury to recover gold during the operation of the dredge. Therefore, any gold that would be found in their possession would be that which was extracted from the stream or river they are working.

Taking mercury out of streams benefits the environment. Efforts to collect mercury from recreational gold miners in the past, however, have been stymied due to perceived regulatory barriers. Disposal of mercury is normally subject to all regulations applicable to hazardous waste.

In 2000, EPA and California's Division of Toxic Substance Control worked in concert with other State and local agencies to find the regulatory flexibility needed to collect mercury in a simple and effective manner. In August and September, 2000 the first mercury "milk runs" collected 230 pounds of mercury. A Nevada County household waste collection event held in September 2000 collected about 10 pounds of mercury. 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. This successful pilot program demonstrates how recreational gold miners and government agencies can work together to protect the environment (US EPA, 2001).

Mercury occurs in several different geochemical forms, including elemental mercury, ionic (or oxidized) mercury, and a suite of organic forms, the most important of which is methylmercury. Methylmercury is the form most readily incorporated into biological tissues and is most toxic to humans. The process of mercury removal by suction dredging does not contaminate the environment because small-scale suction dredging removes elemental mercury. Removal of elemental mercury before it can be converted, by bacteria, to methylmercury is a very important component of environmental and human health protection provided as a secondary benefit of suction dredging..

THE REAL ISSUE

The issue of localized conflict with suction dredgers and other outdoor recreational activities can be put into a more reasonable perspective using the data provided at the beginning of this report. For example, the total acreage of all analyzed claims related to the total acres of watershed is about *0.2 percent*. The percentage of land area within riparian zones on the Siskiyou National Forest occupied by mining claims is estimated to be only *0.1 percent*." The report goes on to say, "Over the past 10 years, approximately 200 suction dredge operators per season operate on the Siskiyou National Forest (SNF, 2001).

The issue against suction dredge operations in the streams of the United States appears to be less an issue of environmental protection and more of an issue of certain organized individuals and groups being unwilling to share the outdoors with others without like interests.

Management of the Fortymile River region (a beautiful, wild and scenic river in the remote part of east-central Alaska) and its resources is complex due to the many diverse land-use options. Small-scale, family-owned gold mining has been active on the Fortymile since the "gold rush" days of the late 1880's. However, in 1980, the Fortymile River and many of its tributaries received Wild and Scenic River status. Because of this status, mining along the river must compete with recreational usage such as rafting, canoeing, and fishing.

A press release from the U. S. Geological Survey stated, in part, the following, "The water quality of the Fortymile River-a beautiful, …has not been adversely impacted by gold placer mining operations according to an integrated study underway by the U.S. Geological Survey and the Alaska Department of Natural Resources.

Violation of mining discharge regulations would close down the small-scale mining operations. No data existed before this study to establish if the mining was degrading the water quality. **However, even with the absence of data, environmental groups were active to close down mining on the river citing unsubstantiated possible discharge violations.**

This study has found no violations to date to substantiate closure of the small-scale mining operations. The result is a continuance of a way of life on the last American frontier." (U.S. Geological Survey October 27, 1998). I have no doubt that this is the real issue currently facing small-scale gold suction dredgers in California.

Suction dredges do not add pollution to the aquatic environment. They merely re - suspend and re-locate the bottom materials (overburden) within the river or stream.

I hope this scientific research information I have provided will be helpful in your efforts regarding suction dredge mining and water quality. I thank you for this opportunity to submit this data.

Respectfully Yours,

Joseph C. Greene
Research Biologist, U.S. EPA **Retired**

LITERATURE CITED

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

Cooley, M.F. 1995. Forest Service yardage Estimate. U.S. Department of Agriculture, U.S. Forest Service, Siskiyou National Forest, Grants Pass, Oregon.

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.

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.

Harvey, B.C. 1986. Effects of suction gold dredging on fish and invertebrates in two California streams. North American Journal of Fisheries Management 6:401-409.

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.

Huber and Blanchet, 1992. Water quality cumulative effects of placer mining on the Chugach National Forest, Kenai Peninsula, 1988-1990. Chugach National Forest, U.S. Forest Service, Alaska Region, U.S. Department of Agriculture.

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.

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.

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.

Somer, W.L. and T.J. Hassler. 1992. Effects of suction-dredge gold mining on benthic invertebrates in a northern California stream. North American Journal of Fisheries Management 12:244-252

Stern, 1988. Effects of suction dredge mining on anadromous salmonid habitat in Canyon Creek, Trinity County, California. M.S. Thesis, Humbolt State University, Arcata, CA.

Thomas, V.G. 1985. Experimentally determined impacts of a small, suction gold dredge on a Montana stream. North American Journal of Fisheries Management 5:480-488.

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

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.

From: Joseph Valdes <jfvaldesch@yahoo.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/30/2009 5:45 PM
Subject: comments

I'd just like to comment about the lack and/or faulty information DFG uses, in relation to the acual operation of a dredge. The most notable one, to me, is the amount of material dredges can actually move per day or hour. I understand for an 8" dredge, the amount in your report stands at around 150 cubic yards per day. That's absolutely ridicolous. I've been dredging the Trinity for 20 years and I'm lucky if I have that kind of yardage in THE WHOLE SEASON ! Also, I'd like to offer an idea. Seems to me there is a bias to negate that we dredgers actually remove mercury and lead from the rivers. Let's find out exactly how much mercury and lead. I propose FG set up stations where dredgers can turn-in the mercury and lead taken from our rivers. You prefer having it in the water (where every flood will stirr it up much worse that thousands of dredge could) or having it out of the water ? Let's
get some numbers here so we can discuss the issue with more information and knowledge. Thanks.

From: Joseph Zitzelberger <jmzitzelberger@yahoo.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/3/2009 3:10 PM
Subject: Suctin Dredge Program Comments
Attachments: Suction Dredge Program Comments.pdf

Please find attached, my comments in response to the NOP.

TNX

Joseph Zitzelberger
El Dorado, California

California Department of Fish and Game
Attn: Mark Stopher
Suction Dredge Program Comments
601 Locust Street
Redding CA 96001

Email: dfgsuctiondredge@dfg.ca.gov
Subject Line: Suction Dredge Program Comments

Personal Background

I have been actively involved in prospecting and mining for the past 30 years. My involvement has ranged from simple panning methods to suction dredge mining to open pit aggregate/placer mining and underground hard rock gold mining. I have also been involved in many other land use activities including camping, fishing, hiking, OHV, Rock Hounding and others. Not a single year has passed where I have not produced at least a couple of ounces of placer gold and in fact, suction dredge mining was my primary source of income for at least 3 of the last 30 years.

In 2003 I purchased land at a cost of $100,000.00. My major consideration in making this purchase was because of the potential for suction dredge mining. I have also invested tens of thousands of dollars in suction dredge mining equipment and supplies. I have spent over $5,000.00 in the past two years alone on new equipment and equipment maintenance not to mention the thousands of dollars spent on travel, food and lodging to prospect in other areas of the state and the west.

In the past, I have deployed and currently own suction dredge mining equipment from 2" to 8" in size. For the last five years, the primary equipment I have used has been a five inch suction dredge. I have operated suction dredges in various areas throughout the state but for the last five years, I have operated only on my own private property.

DFG Study Bias

It is obvious from much of the content in this NOP that the Department of Fish and Game has a bias against suction dredge mining and suction dredge miners. Due to this bias, this study has been flawed from the very start. There are numerous places where bias is evident. The following are my comments pertaining to this.

The Department of Fish and Game (DFG) has made statements in the program description and elsewhere in the NOP that are biased against myself and suction dredge miners as a group. I think that it's wrong for a government agency to publish statements that can create a bias against a person or group of people and I feel that I am being "profiled" or "segregated" from the rest of society by these statements.

In section 5.5.7 Processing of Material, you describe chemical processing using mercury and acid. In my 30 years of suction dredge mining, I have seen very little of this type of activity and never have I witnesses miners processing gold in this manner in the field. This portrayal of activity in my opinion is far from accurate and leads people to believe that suction dredge miners are a group of careless, reckless people with no respect for themselves, others or the environment and who commonly use and dump hazardous and toxic materials wherever they are. If these activities actually occur, they are the exception and not the rule.

In section 5.5.10 Encampments, you describe a mess of a camp with human waste and hazardous material strewn around. The last line of the section says "It is unknown whether this behavior is typical of suction dredge miners." This statement implies that this type of behavior may be typical of all suction dredge miners and presents a reason for bias against all suction dredge miners and suction dredge mining. I can assure you that this type of behavior IS NOT TYPICAL of suction dredge miners but instead is typical of a very small section of our society as a whole. The people who behave in this manner should be prosecuted to the full extent of the law instead of using their example to profile all suction dredge miners in this manner. The fact is that most suction dredge miners keep a very clean way and strive to maintain a very low profile and footprint on the land.

Mercury

It appears that mercury is one of the bigger concerns in this study. I don't know why there has not been a CEQA review on the impact of NOT dredging in relation to the removal of mercury and trash from the rivers and streams of California. Suction dredge mining actually reclaims a very large amount of mercury that may be present. To represent that the losses of mercury off the tail of a suction dredge present a greater contamination potential than not removing any mercury at all from the environment is not only irresponsible but also indicates a bias as mention in the prior section of this response. Suction dredge mining is the only commonly performed activity that I know of that has done anything to further the removal of mercury from the streams and rivers of the gold fields.

DFG should not only encourage suction dredge mining to further promote the reclamation of mercury but should also offer a bounty on it. At a minimum, there should be some type of "regular program" to promote mercury reclamation by suction dredge mining and reward those who collect and surrender mercury to DFG. This would not only increase the amount of mercury removed safely from the environment but could also lead to better cataloging of the areas where contamination actually exists thus allowing for more concentration of reclamation efforts where they are most needed. There are many areas where there is very little or no mercury present at all. I do not believe that mercury is commonly used by suction dredge miners today but may be a by-product of the suction dredge mining operation.

Fish

This study should focus on the impact of suction dredge mining on the fish and their habitat. Instead, the study will review many topics that in no way relate to fish. Maybe if you want to promote more fish the DFG should stop issuing fishing licenses. Fishing kills fish, suction dredge mining does not. I cannot count how many areas that I have suction dredge mined over the past 30 years where, if visited today, there would be absolutely no evidence that any suction dredge mining activity ever occurred and that the fish and habitat appear to be healthy.

Comparative Impacts

It's hard to believe that with 211,000 miles of rivers and streams (per swrb web site) and 3000 to 4000 suction dredge miners in the state, most of whom have very little dredge time each year, that the impact of suction dredge mining can be significant in any way at all. With millions of fishing licenses issued annually and millions of people using these same areas for other "recreational" purposes, why is all this time and money being wasted on such a small activity. In my opinion, this again clearly shows that a bias exists at DFG against suction dredge mining and the mining community.

I read on-line that in 2006, there were 1.7 million anglers in California who averaged 11 fishing days per year for a total of ~19 million fishing days in the state that year. Wow, I wonder how many fish they killed or how much trash or pollution they left in or by the water.

Section I talks about aesthetics. Do you think the fish care about this?

Section III talks about air quality. What about the millions of residents and visitors that drive vehicles of all kinds in through and around these areas? The impact of suction dredge mining cannot compare to this in any way to this.

Section IV addresses biological resources. This section goes on and on about all type of impacts that suction dredge mining has on the biological resource. Have you ever seen a watershed after a major flood? Even after normal high water years the amount of material that is moved and the damage to riparian habitat is astronomically greater than what suction dredge mining can do to the environment. It's a wonder there are any fish at all with mother nature to contend with yet they seem to thrive after high water events that "tear up" the environment like the floods of 1986, 1997 and 2005.

Section VII addresses hazards and hazardous materials. Here again suction dredge miners are being profiled as an irresponsible and careless group of individuals who commonly transport, use, store and dispose of dangerous chemicals and materials. This is the "what if" paranoia.

A single watercraft sinking in any lake would likely produce thousands of time the pollution than any fuel spill from any suction dredge miner. How many boats sink every year in the state?

Section VIII, hydrology and water quality. Again there is a bias in this study because the focus is on the tiny fractional portion of mercury that is not recovered instead of focusing on the fact that almost all of the mercury present is actually removed from the environment. It is foolish to think that the mercury as a whole if left in the environment, poses a lesser risk than removing almost all of the mercury by suction dredge mining. If your test shows this, you need to do another test because it just doesn't make any sense at all. Maybe the original test results were flawed.

I can go on and on with this but again I think the study is clearly biased against suction dredge mining. It's like trying to compare a mountain to a mole hill. DFG and the legislative body that passed 670 is out of touch with reality. I also think that a great mistake is being made due to the fact that there will be no actual real-time study of suction dredge mining in California. DFG should be actively involved in studying real mining operations and over a long extended period of time (years) to determine the true impact of this type of activity. I cannot find where any long term study has ever been completed in California.

In closing, I would like to add that as far as I know, prospecting and mining are protected by Federal Law. To me, suction dredge mining is mining and is covered as a granted right in the mining laws. To restrict my rights as a citizen and a property owner from enjoying this activity is wrong and may even be criminal.

Thank you for your consideration and attention.

Joseph Zitzelberger
PO Box 787
El Dorado, California 95623

California Department of Fish and Game
Attn: Mark Stopher
Suction Dredge Program Comments
601 Locust Street
Redding CA 96001

Email: dfgsuctiondredge@dfg.ca.gov
Subject Line: Suction Dredge Program Comments

Personal Background

I have been actively involved in prospecting and mining for the past 30 years. My involvement has ranged from simple panning methods to suction dredge mining to open pit aggregate/placer mining and underground hard rock gold mining. I have also been involved in many other land use activities including camping, fishing, hiking, OHV, Rock Hounding and others. Not a single year has passed where I have not produced at least a couple of ounces of placer gold and in fact, suction dredge mining was my primary source of income for at least 3 of the last 30 years.

In 2003 I purchased land at a cost of $100,000.00. My major consideration in making this purchase was because of the potential for suction dredge mining. I have also invested tens of thousands of dollars in suction dredge mining equipment and supplies. I have spent over $5,000.00 in the past two years alone on new equipment and equipment maintenance not to mention the thousands of dollars spent on travel, food and lodging to prospect in other areas of the state and the west.

In the past, I have deployed and currently own suction dredge mining equipment from 2" to 8" in size. For the last five years, the primary equipment I have used has been a five inch suction dredge. I have operated suction dredges in various areas throughout the state but for the last five years, I have operated only on my own private property.

DFG Study Bias

It is obvious from much of the content in this NOP that the Department of Fish and Game has a bias against suction dredge mining and suction dredge miners. Due to this bias, this study has been flawed from the very start. There are numerous places where bias is evident. The following are my comments pertaining to this.

The Department of Fish and Game (DFG) has made statements in the program description and elsewhere in the NOP that are biased against myself and suction dredge miners as a group. I think that it's wrong for a government agency to publish statements that can create a bias against a person or group of people and I feel that I am being "profiled" or "segregated" from the rest of society by these statements.

In section 5.5.7 Processing of Material, you describe chemical processing using mercury and acid. In my 30 years of suction dredge mining, I have seen very little of this type of activity and never have I witnesses miners processing gold in this manner in the field. This portrayal of activity in my opinion is far from accurate and leads people to believe that suction dredge miners are a group of careless, reckless people with no respect for themselves, others or the environment and who commonly use and dump hazardous and toxic materials wherever they are. If these activities actually occur, they are the exception and not the rule.

In section 5.5.10 Encampments, you describe a mess of a camp with human waste and hazardous material strewn around. The last line of the section says "It is unknown whether this behavior is typical of suction dredge miners." This statement implies that this type of behavior may be typical of all suction dredge miners and presents a reason for bias against all suction dredge miners and suction dredge mining. I can assure you that this type of behavior IS NOT TYPICAL of suction dredge miners but instead is typical of a very small section of our society as a whole. The people who behave in this manner should be prosecuted to the full extent of the law instead of using their example to profile all suction dredge miners in this manner. The fact is that most suction dredge miners keep a very clean way and strive to maintain a very low profile and footprint on the land.

Mercury

It appears that mercury is one of the bigger concerns in this study. I don't know why there has not been a CEQA review on the impact of NOT dredging in relation to the removal of mercury and trash from the rivers and streams of California. Suction dredge mining actually reclaims a very large amount of mercury that may be present. To represent that the losses of mercury off the tail of a suction dredge present a greater contamination potential than not removing any mercury at all from the environment is not only irresponsible but also indicates a bias as mention in the prior section of this response. Suction dredge mining is the only commonly performed activity that I know of that has done anything to further the removal of mercury from the streams and rivers of the gold fields.

DFG should not only encourage suction dredge mining to further promote the reclamation of mercury but should also offer a bounty on it. At a minimum, there should be some type of "regular program" to promote mercury reclamation by suction dredge mining and reward those who collect and surrender mercury to DFG. This would not only increase the amount of mercury removed safely from the environment but could also lead to better cataloging of the areas where contamination actually exists thus allowing for more concentration of reclamation efforts where they are most needed. There are many areas where there is very little or no mercury present at all. I do not believe that mercury is commonly used by suction dredge miners today but may be a by-product of the suction dredge mining operation.

Fish

This study should focus on the impact of suction dredge mining on the fish and their habitat. Instead, the study will review many topics that in no way relate to fish. Maybe if you want to promote more fish the DFG should stop issuing fishing licenses. Fishing kills fish, suction dredge mining does not. I cannot count how many areas that I have suction dredge mined over the past 30 years where, if visited today, there would be absolutely no evidence that any suction dredge mining activity ever occurred and that the fish and habitat appear to be healthy.

Comparative Impacts

It's hard to believe that with 211,000 miles of rivers and streams (per swrb web site) and 3000 to 4000 suction dredge miners in the state, most of whom have very little dredge time each year, that the impact of suction dredge mining can be significant in any way at all. With millions of fishing licenses issued annually and millions of people using these same areas for other "recreational" purposes, why is all this time and money being wasted on such a small activity. In my opinion, this again clearly shows that a bias exists at DFG against suction dredge mining and the mining community.

I read on-line that in 2006, there were 1.7 million anglers in California who averaged 11 fishing days per year for a total of ~19 million fishing days in the state that year. Wow, I wonder how many fish they killed or how much trash or pollution they left in or by the water.

Section I talks about aesthetics. Do you think the fish care about this?

Section III talks about air quality. What about the millions of residents and visitors that drive vehicles of all kinds in through and around these areas? The impact of suction dredge mining cannot compare to this in any way to this.

Section IV addresses biological resources. This section goes on and on about all type of impacts that suction dredge mining has on the biological resource. Have you ever seen a watershed after a major flood? Even after normal high water years the amount of material that is moved and the damage to riparian habitat is astronomically greater than what suction dredge mining can do to the environment. It's a wonder there are any fish at all with mother nature to contend with yet they seem to thrive after high water events that "tear up" the environment like the floods of 1986, 1997 and 2005.

Section VII addresses hazards and hazardous materials. Here again suction dredge miners are being profiled as an irresponsible and careless group of individuals who commonly transport, use, store and dispose of dangerous chemicals and materials. This is the "what if" paranoia.

A single watercraft sinking in any lake would likely produce thousands of time the pollution than any fuel spill from any suction dredge miner. How many boats sink every year in the state?

Section VIII, hydrology and water quality. Again there is a bias in this study because the focus is on the tiny fractional portion of mercury that is not recovered instead of focusing on the fact that almost all of the mercury present is actually removed from the environment. It is foolish to think that the mercury as a whole if left in the environment, poses a lesser risk than removing almost all of the mercury by suction dredge mining. If your test shows this, you need to do another test because it just doesn't make any sense at all. Maybe the original test results were flawed.

I can go on and on with this but again I think the study is clearly biased against suction dredge mining. It's like trying to compare a mountain to a mole hill. DFG and the legislative body that passed 670 is out of touch with reality. I also think that a great mistake is being made due to the fact that there will be no actual real-time study of suction dredge mining in California. DFG should be actively involved in studying real mining operations and over a long extended period of time (years) to determine the true impact of this type of activity. I cannot find where any long term study has ever been completed in California.

In closing, I would like to add that as far as I know, prospecting and mining are protected by Federal Law. To me, suction dredge mining is mining and is covered as a granted right in the mining laws. To restrict my rights as a citizen and a property owner from enjoying this activity is wrong and may even be criminal.

Thank you for your consideration and attention.

Joseph Zitzelberger
PO Box 787
El Dorado, California 95623

SUCTION DREDGE PERMITTING PROGRAM
Subsequent EIR - CEQA Scoping Comment Form

Name:	JOSH KLIEWER
Mailing Address:	260 E. AVE L
	CALIMESA, CA 92320
Telephone No. (optional):	
Email (optional):	

Comments/Issues:

IT WOULD BE NICE TO HAVE THE PUBLIC HEARING(S) (AT LEAST ONE!) SOMEWHERE NEARER LOS ANGELES AREA. MANY PEOPLE LIVE TOO FAR TO MAKE IT SO FAR NORTH! THANX!

Please use additional sheets if necessary.

SUBMIT WRITTEN COMMENTS (POSTMARKED BY 12/03/09) TO:

Mail: Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

Email: dfgsuctiondredge@dfg.ca.gov

Website: www.dfg.ca.gov/suctiondredge

Questions? Please call us at (530) 225-2275

From: julian atta camara <julianatta@gmail.com>
To: <julianatta@gmail.com>
Date: 11/28/2009 9:34 AM
Subject: Enquiry

I am contacting you to inquire if you are intrested in buying Alluvial gold dust and Rough diamonds high % purity, origin Guniea Conakry .contact me if you are intrested in our offer.

Regards,
Julian ATTA.

November 12, 2009

Mark Stopher
California Department of Fish and Game
Regional Headquarters
601 Locust Street
Redding, CA 96001

Dear Mr. Stopher:

I would like to appeal the Department of Fish and Game to listen to the miners of our State. They are hardworking men that are part of the backbone of our Country. The moratorium on mining was such a shock to us given the fact that we have always followed the Fish and Game regulations. Just the fact that the State made no provision to refund our dredging permit is criminal. It's not the money of the permit so much as the principle. Our income has been greatly reduced and has created extreme economic hardship on our family. Gold mining is a large part of our income. These are hard times for our Country and the State of California. There is no need to take away more jobs from our citizens, as the unemployment rate is so high.

I have witnessed first hand the trash and mercury my husband has removed from the South Fork of the American River.

Your notice of intent mentions that dredging may affect global warming. Man has not even proved there is global warming. They are now calling it climate change to make it sound politically correct. Please use only scientific studies, facts, and common sense throughout this EIR process.

The State of California and special interest groups are discriminating against the miners. Other river users have the freedom to continue to fish and raft leaving behind lead, fishing lines, and all kinds of trash, while killing fish. My husband has not killed a single fish while dredging for over 30 years. We are not against fishing but since this EIR has been propagated on the basis of saving Salmon these points have to be made. One of the most evident facts to point out is that there are no Salmon above the Nimbus dam. We are on the South Fork of the American River far above Folsom.

The miners are being responsible citizens and cleaning up the environment, please keep this in mind while you are working the EIR. If we can be of any help, please contact us anytime.

Sincerely,

Kathryn Tyler

Kathryn Tyler
5601 Bumper Road
El Dorado, CA 95623.

Dear Mr. Stopher

I'm not much of a letter writer but when it comes to Gold Dredging it is very important to me.

Not sure how many miles of gold bearing streams you have in California but there are many. Some make it sound like all three thousand dredge permit holders are on the Klamath River at the same time. Some permit holders don't get to dredge because of sickness or work. Some only dredge for a week. Some only dredge for a few hours a day and skip days. Some use a 2 or 2 1/2 inch dredge and have to buy a permit. Even with my 6 inch dredge I worked a very small area on the klamath in 2009. I dredged in an area about 6 foot by 20 foot and the river must have been over 400 foot wide at that location. So, I didn't make much of a dent in it.

Only the dredgers know that they have no impact on the streams. If there is a decline of fish, it is not caused by dredging for gold. What about the gillnets and ocean nets?

People that know nothing about dredging should not be making the rules for dredgers. I'm 67 years and hope to have a few more years of dredging left in me. Keith

Keith McRobert
843 E. Kokopelli

Cochise, Arizona

From: Ken Bowman <6xnbugs@gmail.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/4/2009 9:02 PM
Subject: Suction Dredge Program Comments

Hello Mr. Stopher,

I have read through the initial Notice of Preparation. I will not be able to attend any of the meeting due to work conflicts. I wanted to send in comments, until I read the topics we are allowed to respond to. Following is the list copied from the notice.

• Potential impacts of suction dredging
• Scope and range of alternatives
• Types or approaches to the regulatory updates
• Information regarding deleterious effects to fish, if any; and
• Types of activities to be regulated under the Department's suction dredge permit
program

It seems to me that only comments related to negative impacts of suction dredging are welcome. Are positive comments not to be incorporated?

In all, the initial notice seems to carry a negative tone. There are quite a few positive things that come from dredging. The one with the greatest environmental impact would be the removal of lead and mercury from our water ways. This was briefly included in the notice. There are also quite a few miners, myself included, that actually remove trash left by people with no concern for the environment what so ever. Maybe this could be promoted asking people to take a spare trash bag with them and help out.

With this said maybe the comments could include the positive side of dredging.

Thank you,

Ken Bowman
530 518 3663
--
The greatest problem in communication is the illusion that it has been accomplished….Ambrose Bierce

From: Ken Casaday <kencasaday@gmail.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/3/2009 7:00 PM
Subject: Scoping Comments on NOP for Suction Dredging Permitting Program EIR
Attachments: Comments on IS 03dec09.doc

Mr. Mark Stopher et al,

Please find attached our comments on the NOP for the Suction Dredging Permitting Program EIR. We are happy that the state is undertaking this effort, and we expect a fair assessment will result in reduction or elimination of the damages we have been witnessing from recent levels of dredging.

Ken and Carol Casaday

Comments on Initial Study and Environmental Checklist for Suction Dredge Permitting Program from Ken and Carol Casaday, Quincy, CA

Initial Study

Because the proposed permitting program is not really defined, it is difficult to comment on an assessment of potential impacts. And although the initial study formally recognizes that the no-action alternative is no dredging, it does not consistently apply this assumption. For some resources, it concludes that because nothing would change from the recent level of dredging, there would be no impacts. These comments, and several others are as follows:

1. *The proposed project, for the purposes of the SEIR, will consist of continued implementation of the permitting program, and, if necessary, proposed amendments to the Department's existing regulations governing suction dredge mining throughout California. (See generally Cal. Code Regs., tit. 14, § 228 et seq.)* (IS sec. 1). CEQA requires that alternatives to the proposed project need not be considered in as such detail as proposed project. But some potential alternatives may be environmentally superior. Can DFG commit to preparing an equal-level analysis of all reasonable alternatives to the suspended program?
2. *"A 6□inch diameter nozzle intake is generally the largest allowed size, however a larger nozzle is allowed under the following conditions: ... An 8□inch nozzle size is permitted on the following ten rivers: American, Consumnes, Feather, Klamath, Merced, Mokelumne, New, Scott, Trinity, and Yuba."* (IS sec. 4.2.1) If differing nozzle sizes will be permitted, justification for use of the large size (8") in certain streams, such as the Feather River, is needed. The IS did not discuss why these larger openings are allowed in 10 rivers in the state, but the EIR should evaluate impacts of alternative maximum intake nozzle diameters.
3. *"Current permit language also stipulates that suction dredging may be restricted in waters designated under the state and federal Wild and Scenic Rivers Acts. Waters designated under these Acts include portions of the following rivers: American (North Fork American and Lower American rivers), Big Sur, Eel, Feather, Kern, Kings, Klamath, Merced, Sespe Creek, Sisquoc, Smith, Trinity, and the Tuolumne. In addition, the Auburn State Recreation Area imposes special restrictions on suction dredging. Areas previously closed to suction dredging also include some waters in the San Gabriel Mountains, and portions of the Sequoia and Sierra National Forests (designated as the Kings River Special Management Area), as well as waters in National Parks, National Monuments, State Parks, and designated wilderness areas."* (IS sec. 4.2.3) Assuming the no-dredging baseline, the EIR must evaluate the impacts of allowing introduction of dredging into each river system of the state. For example, the EIR must analyze impacts of committing the National Wild and Scenic charter member, the Middle Fork of the Feather River, to suction dredging, since it is apparently not protected by law. Moreover, for systematic impact assessment, alternative management schemes for allowance and intake sizes must be formulated for each major watershed. For example, given the efforts to restore the trout fishery of the upper Feather River watershed, should one alternative exclude disturbance of food-producing substrates through dredging?

Also, with regard to restricted areas, trespass of dredgers on private land or use of lands locally-zoned to preclude mining and dredging (e.g. rural residential zones) are indirect effects of

reinstated dredging; therefore impacts of this trespass or illegal operation must be assessed in the EIR. Program administrative methods of reducing trespass on private land or conflicts with local zoning should be developed in the EIR.

4. *On occasion, to reach gold that has deposited below or around large boulders, winching or prying is performed. Crowbars, powered winches, or pull cables/chains are used to move the boulders out of place during dredging. Cables can be pulled by hand or by vehicle depending on their size and weight. (IS sec. 5.5.5)* Will the EIS evaluate the impacts of this behavior and the efficacy of various administrative means of preventing it?

5. *Amalgamation is a method of separating finer gold particles from other materials. In this process, clean mercury is brought into contact with clean gold, and the gold becomes wetted and "drawn into" the mercury. This results in a solution of gold in mercury, or an alloy of gold and mercury called amalgam. After the mercury has gathered in the gold, it is removed by dissolving it in nitric acid or by driving it off as a vapor by heat, leaving the gold behind. While mercury should be treated as a hazardous waste, some miners collect and store it, while others dispose of it by vaporizing it in a cooking pan on a camp stove. Nitric acid presents similar concerns regarding handling, storage, and disposal. (IS sec 5.5.7)* The dredging program would allow reinstatement of such damaging and dangerous practices? It seems incredible that in the Sierra Nevada watershed where mercury broadcast throughout the environment during the gold rush is now commonly found coating river-channel gold, man would continue to bring mercury into this watershed, dispersing it to the air and the ground. Shouldn't the EIR consider alternative approaches to reducing the levels of mercury in sediments of Sierra Nevada and Klamath Mountains lakes and streams?

6. "*Suction dredging can take place throughout California, though much of the suction dredging occurs on private lands or unpatented claims owned by mining clubs. In some cases individual club members pay a fee to use the club's claim, such as with the New 49ers (New 49ers 2009). Clubs cannot prohibit the public from accessing unpatented claims for purposes other than mining. These clubs may provide facilities, infrastructure, supplies, and also have their own rules and guidelines for suction dredging and associated activities. Many miners also own their own unpatented claims to which they have an exclusive right only to the locatable minerals under claim." (IS sec 5.5.8)* Some (many?) of these clubs do <u>not</u> provide any facilities or infrastructure, or post any rules at the sites. Reinitiating dredging would allow reinstatement of club camps on public land where unpatented mining claims under the 1872 Mining Law have been secured by the mining club or association. Such concentrated, unregulated occupancy has been raising health and safety issues for local residents and other visitors to the state's rivers. The EIR must characterize and assess the impacts of reinitiating such activity, since it is an indirect impact of granting permits. Impact along Spanish Creek, a main tributary to the Feather River in the Plumas National Forest, have included degradation of floodplains and river terraces through surface discharge of human fecal wastes, ignition of wildfire, littering, soil compaction, vegetation damage, noise, dust, and displacement of wildlife. Impacts to nearby communities have included dangerous speeding through rural neighborhoods and exposure of local residents to human fecal material.

7. *"Many miners also own their own unpatented claims to which they have an exclusive right only to the locatable minerals under claim." (IS sec 5.5.8).* This statement brings up an interesting approach being taken by some mining clubs – using a placer claim filed under the 1872 General Mining Law to reserve certain reaches for their member to dredge, and to exclude other would-be dredgers from their reach. This practice is being conducted on public lands in the Sierra Nevada. However, the 1872 law, as construed in several court decisions, allows exclusivity of claimant dredging only insofar as it contributes to identification of a deposit that can eventually be economically mined by a reasonable person. The recreational dredging occurring today does not constitute *mineral development* as required by the mining law. Thus, the reinitiating dredging would have the indirect impact of inducing illegal occupancy of public lands. The impacts of such occupancy need to be addressed by the EIR.

8. *"While many suction miners adhere to these basic rules and responsible behavior, Department wardens have observed camps strewn with household garbage, industrial waste, large gas barrels, dilapidated vehicles, and human waste (1994 EIR; Sierra Fund 2009). It is unknown whether this behavior is typical of suction dredge miners." (IS sec 5.5.10)* We have also

witnessed this behavior, and it should not be treated in the EIR as rare or uncommon, but as an expected, common indirect effect of permitting dredging. The cited "unknown" should be resolved in the EIR.

9. *"Although the permitting program and likely amendments to the existing regulations are the proposed project for purposes of CEQA, ..." (IS sec 6.1).* This statement suggests that there is more to the proposed project than just the prior program. Where are the likely amendments? It sounds as if DFG is subjecting something to impact assessment without stating what it is.....

10. *"The Department has determined, as a result, that the appropriate environmental baseline for purposes of CEQA and the analysis set forth below is one that assumes no suction dredging in California. This Initial Study and the SEIR will, as a result, provide a "fresh look" at the impacts of suction dredge mining on the environment generally." (sec 6.2)* A baseline of no suction dredging in California is not only "appropriate", but is mandatory under CEQA, for the reasons stated in this section of the IS.

11. "*Below is a preliminary list of potential environmental issues to be addressed in detail in the SEIR." (IS sec. 7.3).* Please add *Human Health* to the list, per comments 4 and 5 above. Please add *Traffic Safety* and *Soils* , and per comment 5 above. Please add *Land-Use* per comments 2, 5, 6, and 7 above.

Environmental Checklist

1. *"Environmental Factors Potentially Affected."* See comment 11 above.

2. "*...impacts could result from illegal activities such as removal of anchored vegetation or dredging into banks, though permitted activities may also have incidental effects such as the trampling of habitat." (EC Ib).* Does "incidental" mean they've been dismissed? This statement belittles the impacts that dredging club camping is having on the stream environment. In our area of the Feather River watershed, dredgers have spread human fecal material through the forest; ignited wildfires that require intervention by regional firefighting personnel; driven off-road vehicles throughout the forest, destroying ground cover vegetation and compacting soils; and discarded trash or left it in campfire rings where no trash disposal exists. These scenic impacts are far from incidental.

3. "In particularly sensitive areas, changes or damage could be considered substantial and inconsistent with the "wild and scenic" designations of such rivers." (EC 1b). Is this statement intended to eliminate discussions of scenic impact of dredging and dredge camping for all rivers except those designated as Wild and Scenic by state or federal law? That would be completely inappropriate, since there are many beautiful streams in the Sierra Nevada that have no such formal protection, but which are enjoyed annually by thousands of people.

4. "*However, it is beyond the scope of the Department's jurisdiction to regulate and enforce campsite housekeeping, since camping is not an exclusive activity of suction dredge mining. Rather, this is a general aesthetic issue that is common to all overnight recreational activities in public areas." (EC 1c).* We believe the Department has jurisdiction over littering in stream zones; violators are cited in our area by Department wardens. The observed spreading of human fecal material in these zones may or may not be subject to Department authority, but it should be, as should ignition of wildfire, vegetation damage, and all forms of littering. Department wardens patrol these stream zones daily, while local law enforcement personnel are busy elsewhere. Also, we have observed behavior at dredger camps that contradicts the second sentence cited above. In our area of the Feather River watershed, impacts of camping dredgers described above are far worse than impacts of the normal contingent of campers. Perhaps the EIR can determine why this is. We are gratified that the IS commits the EIR to evaluating *Degradation of Visual Character*, and remind the Department that mitigation measures must be formulated for potentially significant impacts even if the responsible agency has no current authority to impose them.

5. *"Small, internal combustion engines are the typical source of power on suction dredges." (EC sec. II).* What percentage of these engines are 2-stoke rather than 4-stoke? Our understanding is that 2-stroke engines, besides being much noisier, emit up to ¼ of the fuel consumed unburned as pollutants to air and water. The EIR should address air quality effects of adding more 2-stroke polluters to the environment, if that is the case.

6. *"Exhaust from suction dredge engines may cause localized air pollution, particularly in locations such as confined canyons with little air movement. However, this pollution would generally be occurring in remote rural areas that are sparsely populated." (EC sec IIId).* We are part of that sparse population located in a confined canyon, and object to using population density or air shed volume as criteria for dismissing this potential impact. I do not know if I am a sensitive receptor or not, but when a dredge operated for an extended period adjacent to our property, the ambient concentration of unburned fuels and combustion products was substantial and degraded our quality of life.

7. "*Suction dredge air emissions are primarily the result of gasoline combustion, which does not typically produce the type (or quantity) of odors considered to be unpleasant. In addition, these emissions would occur in rural, sparsely populated areas." EC sec. IIIe)* See comments 5 and 6 above. Two-stroke engines produce plenty of odor, and why dismiss our sparse population as being insignificant?

8. *"In conclusion, suction dredging can have substantial short□term and localized adverse impacts on local benthic invertebrate abundance and community composition. Benthic communities seem to recover over time frames of 30□60 days after the disturbance ceases and the adverse impacts of suction dredging are not evident after one year (unless there is a very small population that is threatened or endangered). However, when discussing the extent of benthic disturbance and its recovery, the extent to which it affects a juvenile salmonid's reliance on the natal stream before emigrating is important as is larval development of other native species that depend on a healthy benthic invertebrate community. This is considered a potentially significant impact and will be analyzed further in the SEIR." (EC sec. IVa)* and *As discussed above under Effects on Fish and Invertebrates, the benthic community would be directly impacted from the action and may affect amphibians, based on the temporal loss of the prey base. The USFS 2004 Sierra Nevada Forest Plan Amendment FEIS states that suction dredging constitutes a significant amount of the mining activity in the Sierra Nevada and that suction dredging causes short□term sterilization of the gravel at the dredging site.* (EC sec Iva). We expect EIR preparation to involve substantial new analysis, and new data as needed, to fully address these issues. Here at our home in the northern Sierra Nevada on a tributary of the Feather River, we observe various hatches of aquatic insects at various times throughout the growing season. After the sediments in the channel were dredged, aquatic insert production was definitely reduced. It is relatively simple to understand how and why dredging destroys the prey base for trout in Sierra Nevada streams. Regardless of whether Special-Status species are involved, these impacts should be fully assessed. Are not trout, truly, becoming threatened throughout California.

9. *"...the potential exists for discharges [of mercury] to cause adverse impacts to aquatic organisms and increase the risk of mercury bioaccumulation in the foodchain." (EC sec.III)* We presume that this brief, initial conclusion, and the scant data discussion that follow it, will be expanded upon in this EIR, based on existing or new research.

10. *"That said, recreational impacts have the potential for long□lasting damaging effects (Moyle et al. 1996) [to riparian habitats and sensitive natural communities]." (EC sec. IVb]* The discussion of this subject in the EIR should include analysis of extent of wildfire caused by camping dredgers. On Forest Service land near us, dredger camping increased substantially last summer and a wildfire was ignited. Years of camping by non-dredgers has never resulted in a wildfire in the area.

11. *"For example, analysis of aerial photography in 1996 showed that fragmentation of riparian corridors was usually associated with vehicular access, often originating from logging activities but continued afterwards by recreationists (Kattelmann and Embury 1996)." (EC sec. IVb)* We presume that this habitat fragmentation issue will be fully evaluated in the EIR. As a component of it, you should evaluate the extent of soil compaction in riparian habitats that is occurring because of dredger encampments. It is caused by vehicle access, but exacerbated by towing and camp-area use of OHVs.

12. *"It is likely that suction dredge miners may require the use of septic or alternative wastewater facilities; however, the Proposed Program is not anticipated to result in a demand beyond the current capacity of existing facilities."* (EC sec.VIe). Given the no-dredging baseline for impact assessment, the metric of *demand beyond the current capacity* is inappropriate. The proper metric is demand relative to no dredger demand. On the ground in our area, however, there are

no wastewater facilities, not even pit toilets. Dredgers are spreading human fecal waste throughout the camp vicinities.

13. *"Activities associated with suction dredging include the use of ... chemicals for materials processing (primarily nitric acid and/or mercury)... When used or disposed of improperly, these materials pose a risk to public health and safety from contamination or exposure. ... Because suction dredging and related activities are associated with the routine use of hazardous materials, the implementation of the Program could potentially endanger the health of the public or the environment. (EC sec. VIIa,b)* See comment 5 on the Initial Study above.

13. *"Due to the naturally wooded and undeveloped characteristic of many recreation areas, there is an inherent risk of wildfire associated with most outdoor activity in California. Under certain conditions, fires may result from careless or improper practices involving equipment, supplies, or outdoor practices. Because suction dredging activities generally involve the use of flammable supplies for fuel and materials processing, there is a greater risk of fire associated with this activity as compared to some other forms of recreation (such as day□hiking or picnicking). As such, this activity has the potential to expose the public to an increased risk of wildfire." (EC sec. VIIh).* See comment 4 above. It isn't the materials used that increase the wildfire potential, it is the behavior of dredgers. The EIR should examine methods of engendering in dredgers ecosystem-stewardship behavior, and assess their potential effectiveness.

14. *"Finally, suction dredges operate using internal combustion engines while floating on the surface of the water. Therefore, the potential exists for oil and gas leaks or spills to occur, resulting in direct discharges of these contaminants to water bodies and possible adverse water quality effects." (EC sec. 8a).* See comment 5 above. If applicable, the EIR should address water quality effects of adding more 2-stroke polluters to the environment (since under the baseline, there are no operating dredgers in California).

15. *"While the regulations under the Program may specify location and seasonal restrictions on operations, they would not provide authorization to operate on any public or private lands where such activity is not otherwise allowed. Indeed, the suction dredging regulations resulting from the Program would not override any existing laws or policies governing land uses on public or private lands which are under the jurisdiction of another agency. All suction dredgers would be responsible for obtaining any necessary authorizations from the relevant land use authority or property owner. Therefore, the Proposed Program would not conflict with any applicable land use plan, policy, or regulation of an agency jurisdiction adopted for the purpose of avoiding or mitigating an environmental effect. There would be no impact . (EC sec IXb).* But there are land-use impacts! Just because dredgers must obtain approvals from landowners or should operate consistently with local zoning does not excuse the EIS from analyzing and documenting the land-use conflicts that allowing dredging causes. See our 3rd comment on the Initial Study, which concludes "...trespass of dredgers on private land or use of lands locally-zoned to preclude mining and dredging (e.g. rural residential zones) is an indirect effect of reinstated dredging; therefore impacts of this trespass or illegal operation must be assessed in the EIR. Program administrative methods of reducing trespass on private land or conflicts with local zoning must be developed." The Department cannot simply ignore the impact.

16. "*Gasoline□powered engines are a primary component of suction dredge equipment. The operation of such noise□generating equipment in the existing quiet environments of the surrounding recreational areas could result in a perceptible increase in noise." (EC XIa,d).* This is an understatement! We live in such an environment, and the steady chug-chug of a dredger in our backyard has been totally annoying. For a few weeks, we were forced to leave home during operating hours, and were precluded from renting it to others. The noise level was far from imperceptible! In this regard, the EIR should clarify the degree to which dredger engines are two-stroke. Two-stroke engines are much noisier (and polluting) than four-stroke engines, and our experience is that a two-stroke engine is commonly used for dredging.

17. *"Operations on private lands often have self□regulating bodies that enforce similar rules to ensure the long□term sustainability of the area. One such private mining club is the New 49ers. New 49er Club members are required to abide by established rules and are encouraged to monitor the activities of adjacent users. Violators can be reported to the club management and are subject to eviction from the club and its properties (Koons 2004)."* (EC sec. XIIIa) This ignores the situation on public lands, such as near our home, where a dredging club has illegally

claimed exclusive dredging use of various river reaches but provides to self-regulation or rules to ensure any environmental protection. The U.S. Forest Service and the local county sheriff and environmental health departments are unable to control their behavior, even though much of it is in violation of federal and local law. The EIS should not, therefore, assume that police and fire protection demand will not increase with reinitiated dredging. Does the Department envision any mechanism by which it can ensure that mining clubs do adopt and enforce dredger-camping behavior rules.

18. *"The Proposed Program would not provide or require newly created recreation areas or facilities specifically for the purpose of servicing suction dredging activities."* (EC sec. IVa,b) The reasons given following this statement are unconvincing, especially since, near our home, reinitiation of dredging will require the Plumas National Forest to construct a new campground to accommodate recently-increased dredger occupancy. The EIR should investigate whether this situation prevails elsewhere in the state. It should also investigate whether the Forest Service may require dredging clubs to provide onsite services to camping members for lands claimed under the 1872 General Mining Law, or whether and how the Department can provide the needed facilities and services.

19. *"Anecdotal complaints from other recreational users include issues related to barriers to access, reduced fishing success or quality of recreational experience from the use of gas powered motors, overall reduction in aesthetic quality of the surroundings, and safety hazards related to suction dredge equipment use and practices (dredge holes, gas leaks, encampments).* (EC sec. XIVa,b) Based on our first-hand experience, this statement of complaints should be expanded to include spreading of human fecal waste and toilet paper throughout the camping vicinity, littering in general, reckless driving, use of OHVs throughout the forest, and wildfire ignition. Moreover, we disagree that this is a perception problem. It is an acceptable behavior problem.

20. *As noted previously in Section XIV, Recreation, suction dredge miners represent only a small percentage of the overall number of those engaged in recreational activity in California annually. As such, the Proposed Program would not have a noticeable effect on the volumes and patterns of traffic beyond that which is normally associated with outdoor recreation.* (EC sec. XVc) If a condition is created that result in the death of a pedestrian, would the Department continue to make this argument? Dredger campers dangerously and recklessly speed through our neighborhood as part of their camping experience. The common suite of campers does not display this type of behavior. It is evident, then, that reinitiation of dredging will disproportionately increase the threat of death to pedestrians by vehicles here.

21. *Those camping in undeveloped areas may store wastewater in recreational vehicles or utilize outdoor areas for disposal. All recreationists, including miners, are responsible for the proper containment, disposal, and treatment of any such wastewater. As such, the Proposed Program would not result in an increase in wastewater quantities that would exceed wastewater treatment requirements or require new or expanded wastewater treatment facilities. This impact would be less than significant.* (EC sec. XVIa,e) In our vicinity, reintiation of dredging will result in renewed spreading of human fecal material in floodplain the river terrace areas. Or, reintiation of dredging will require the Forest Service or the Department of provide new restroom faculties, since none now exist, and the problem is out of control. The third quoted sentence is untrue.

From: Ken & Debbie McMaster <kdmc@gotsky.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/3/2009 8:54 AM
Subject: SEIR Comments
Attachments: DFG 2009 comments.pdf

Please read and accept the attached as part of the official record concerning the Suction Dredge Permit Program and its current SEIR.
Ken McMaster

Ken McMaster
P.O. Box 223
Calpine, CA 96124
530 994-1050 kdmc@gotsky.com

December 1, 2009

Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

Mark,

Please make these comments an official part of the record regarding suction dredging for the current scoping process and any and all pertinent processes ending Dec. 3, 2009 and continuing processes thereafter. For the record, Since 1979, I have been an active miner using a suction dredge as the most productive tool for extraction of gold from my mining claims. I have done so with all permits and authorizations from both DFG and the U.S. Forest Service. I follow the law, pay taxes and contribute substantially to the local economy where I mine. With the ban on dredging, I am no longer paying taxes or contributing to local economies as no gold is being produced.

The baseline condition being used at 6.2 of the Program Description is adverse to the intent of the DFG regulations and the Mining Law of 1872. The current regulations provide that The Department's regulatory authority governing suction dredge mining is based specifically on Fish and Game Code section 5653 et seq. In general, these provisions of the Fish and Game Code prohibit the use of any vacuum or suction dredge equipment by any person in any river, stream, or lake in California, except as authorized by a Department permit issued in compliance with regulations adopted pursuant to Fish and Game Code section 5653.9. (See Fish & G. Code, § 5653, subd. (a).) The Department's existing regulations governing the issuance of vacuum and suction dredge permits are found in Title 14 of the California Code of Regulations in sections 228 and 228.5. With respect to proposed amendments to the existing regulations, the Department is **charged** by the Fish and Game Code to issue suction dredge permits where the Department determines, consistent with the regulations, that the operation will not be deleterious to fish (Fish & G. Code, § 5653, subd. (b).). The prior EIR should be the baseline! This new baseline is not a conservative approach, it is a radical approach. We should be using the current regulations and science as the baseline, not political will power disguised as science.

To use a baseline that assumes no suction dredging in California is allowed is against the current regulations and against the departments history of allowing suction dredging if it is not deleterious to fish. The baseline you propose is that one considers dredgers guilty until proven innocent. It is against common sense and the law. The current Wiggins law is totally political and should be overturned in court. When the Karuk Indian tribe and other tribes can gill net salmon by the thousands and fishermen can get permits to kill fish, it is absurd to punish miners who some think could disturb or

harm a fish. All evidence points to the contrary, dredging improves stream habitat for spawning fish, aerates the gravels and removes mercury from the rivers. Do fishermen aerate the gravels, improve spawning beds or remove mercury from the rivers and streams? No, neither do the Indians!

DFG needs to change the written dialogue that states that "suction dredgers regulated under the program are often small-scale, recreational gold dredging operators conducting suction dredging for a limited time each year." This is a slanderous and deceptive perception that DFG initiates and one that overlooks many key aspects. First, DFG alone has set the timeframes for when the mining industry can dredge. If someone then follows the law and mines within that timeframe, you then consider them small-scale, recreational dredging operators conducting suction dredging for a limited time each year. I consider myself a full time miner, mining within the existing timeframes set by law. To seemingly dictate a dredging season, but base full time vs. part time on a calendar year is an abuse of discretion. Secondly, state law mandates that assessment work be done each year to fulfill the laws requirements, and if dredging is the method of choice to do this work, then the requirements of the law are being met, not that someone is small-scale. This type of analogy and depiction plays well to the anti-dredging lobby, but is discriminatory at best.

On page 28 of the Program Description, under Environmental Factors Potentially Affected, Human Resources are omitted and not recognized. Humans will be greatly affected by this project. The human environment needs to be considered to be an effective and legal environmental document. The effects of no dredging are pervasive. No gold recovered means no taxes on gold recovered and sold, no mining equipment bought or sold (job losses to the industry), mining claims being worthless, no beneficial impacts to towns close to mining areas, no taxes paid to counties for mining claims and the end result will be lawsuits for takings implications.

The cost to the government will be enormous, both ways, meanwhile not doing anything to protect fish. The real problem, if any, are fishing and the dams, not dredging.

Also on page 28, the box for Mineral Resources is not checked. This will have a tremendous impact on the mineral resources, as gold will not be produced from the streams and rivers, another environmental factor affecting people.

On page 78 it states that the loss of mineral resources is considered to be less than significant. This is like saying that eliminating cars and mechanical transportation will not affect people or their jobs! Dredging is the only viable means of recovering gold on my mining claim. I am located within a wilderness area and I would not be able to bring in other equipment. The Forest Service themselves state that dredging is the only viable source mining on my wilderness mining claims. Stating that a ban on dredging will not affect the "Program" is unbelievable! Take away your DFG issued computer, your state issued car, office and uniform and see how you compete in the real world. Dredging for most placer miners is the only cost effective method of extracting gold. Where in the world did you get this bizarre data from... that a less than significant mineral resource impact would occur without dredging?

In the Program Description, it discusses the affects mining have on aesthetics. The effects of dredging on aesthetics are no different than those of gill netting indians, fishermen, loggers, Cal-Trans, rafters, mountain bikers, horsemen, backpackers and all functions of life. If someone doesn't like a legal activity, go elsewhere. And to equate

that other visitors to an area that may view dredging and don't like it are better than others or that their experience is more important is elitist and ludicrous. To state at page 86 that a recreationalist is intimidated when approaching a dredging operation is only analogous to the fact that any recreationalist should be wary upon approaching another's encampment. I.e., if some stranger walked into your campsite, you might be suspicious, dredgers have gold that they are mining are reasonable to protect it, no different than a camper protecting his ATV, camper, etc. We all need to get along together.

I have been dredging on the South Fork Salmon River in Siskiyou County since 1979 and on the N.F. Trinity River in Trinity County since 1983. Both areas are within the Trinity Alps Wilderness area. I have valid existing rights on these mining claims and have had them validated by the U.S. Forest Service. On the S.F. Salmon River, I have had countless DFG permits and studies that show that my dredging occurs above any anadromous fish populations. My dredging occurs approximately two miles upstream from the last known range or distribution of anadromous salmonids. The relatively long distance between my dredging location and any potential salmon and steelhead habitat or any localized disturbance to aquatic invertebrates would have little to no impact on food availability or habitat for salmon or steelhead. In addition, any settleable fine sediments mobilized in the stream by my dredging would settle out long before reaching any known salmon or steelhead habitat locations downstream.

So, why am I being banned from dredging on the S.F. Fork Salmon River. I have the studies and permits that document this. Why was a statewide ban enacted when many areas do not have salmon or steelhead, if this is even a problem?

On the North Fork Trinity River, I have dredged for many years, and each dredge permit states that no salmonid eggs or fry should be in the stream gravels while my operations are in effect. If this is so, again, why the ban?

Regarding the N.F. Trinity River, my area been **illegally classified Zone A,** no dredging allowed at any time. When one researches the FEIR of 1994 to substantiate this report, **no biological reason is given**. The only information given at Appendix J, Reasons for Stream, Lake & River Closures is @ 106, pg. 151, that, "The North Fork Trinity River and tributaries upstream from Hobo Gulch Campground may be closed to suction dredging due to federal wilderness designation boundary beginning at Hobo Gulch. Check with the U.S. Forest Service for details." Only the U.S. Congress can close a wilderness area to mining, not Fish and Game. Wilderness areas are not closed to dredging to mining claims with valid existing rights, such as I possess! Prior to the DFG eliminating special dredge permits, I played along with the department and obtained a special dredging permit to operate in closed areas. I had been waiting either for new regulations or a lawsuit. Now that the area is closed to dredging, a lawsuit might ensue. Any new regulations need to address the N.F. Trinity River and reopen it to dredging. The N.F. Trinity River and its tributaries above Hobo Gulch must be open to dredging, per similar areas. **This is significant new information for you to include in any assessment or new regulations.**

My mining claims on the S.F. Fork Salmon River are within the same wilderness area and are open to dredging, prior to the ban, so being in a wilderness area is not the proper criteria to close an area. Wilderness areas would be closed to dredging to anyone without valid existing rights in the wilderness, but not to those with them. The

N.F. Trinity River has to be reclassified based upon science, not someone's skewed political view that no dredging is allowed in wilderness. Within the same wilderness, on the S.F. Salmon River, I have received dredging permits, but within the N.F. Trinity, the area is closed, Zone A, no dredging allowed at anytime... this mistake by the DFG must be rectified. It is the only river, stream or lake in the state of California closed because of a lack of relevant criteria! This must be done in any new regulations. To not do so would be arbitrary and capricious and an abuse of agency discretion.

The entire program description is skewed and flawed. It entirely omits any reference on the federal right to mine and mining claimants statutory right to mine. The entire SEIR is filled with speculation and innuendo, using the terms could or may numerous times in the agencies attempt to justify their end. It speaks to the heartstrings of liberals everywhere. It doesn't address reality. All functions of life affect something. The DFG driving out daily to do their job affects the environment, any EIR done on that? You might as well eliminate all RV's, ATV's, fishermen, hikers, backpacker's, anyone from the woods for the next 50 years to obtain your social goal. Dredging is not the problem. Eliminate gill net fishing and then fishing for the general public and see what controversy you have.

I submit these comments because I am negatively affected by the onerous implications that the Wiggins bill and the ban on dredging have on my ability to make a living in California. If the ban on dredging is continued, I will sue for a takings on all 6 placer mining claims that I own.

Sincerely,

Ken McMaster

From: Ken & Debbie McMaster <kdmc@gotsky.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/2/2009 10:42 AM
Subject: SEIR comments
Attachments: DFG 2009 comments.pages

Please read and accept the attached as part of the official record concerning the Suction Dredge Permit Program and its current SEIR.
Ken McMaster

Ken McMaster
P.O. Box 223
Calpine, CA 96124
530 994-1050 kdmc@gotsky.com

December 1, 2009

Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

Mark,

Please make these comments an official part of the record regarding suction dredging for the current scoping process and any and all pertinent processes ending Dec. 3, 2009 and continuing processes thereafter. For the record, Since 1979, I have been an active miner using a suction dredge as the most productive tool for extraction of gold from my mining claims. I have done so with all permits and authorizations from both DFG and the U.S. Forest Service. I follow the law, pay taxes and contribute substantially to the local economy where I mine. With the ban on dredging, I am no longer paying taxes or contributing to local economies as no gold is being produced.

The baseline condition being used at 6.2 of the Program Description is adverse to the intent of the DFG regulations and the Mining Law of 1872. The current regulations provide that The Department's regulatory authority governing suction dredge mining is based specifically on Fish and Game Code section 5653 et seq. In general, these provisions of the Fish and Game Code prohibit the use of any vacuum or suction dredge equipment by any person in any river, stream, or lake in California, except as authorized by a Department permit issued in compliance with regulations adopted pursuant to Fish and Game Code section 5653.9. (See Fish & G. Code, § 5653, subd. (a).) The Department's existing regulations governing the issuance of vacuum and suction dredge permits are found in Title 14 of the California Code of Regulations in sections 228 and 228.5. With respect to proposed amendments to the existing regulations, the Department is **charged** by the Fish and Game Code to issue suction dredge permits where the Department determines, consistent with the regulations, that the operation will not be deleterious to fish (Fish & G. Code, § 5653, subd. (b).). The prior EIR should be the baseline! This new baseline is not a conservative approach, it is a radical approach. We should be using the current regulations and science as the baseline, not political will power disguised as science.

To use a baseline that assumes no suction dredging in California is allowed is against the current regulations and against the departments history of allowing suction dredging if it is not deleterious to fish. The baseline you propose is that one considers dredgers guilty until proven innocent. It is against common sense and the law. The current Wiggins law is totally political and should be overturned in court. When the Karuk Indian tribe and other tribes can gill net salmon by the thousands and fishermen can get permits to kill fish, it is absurd to punish miners who some think could disturb or

harm a fish. All evidence points to the contrary, dredging improves stream habitat for spawning fish, aerates the gravels and removes mercury from the rivers. Do fishermen aerate the gravels, improve spawning beds or remove mercury from the rivers and streams? No, neither do the Indians!

DFG needs to change the written dialogue that states that "suction dredgers regulated under the program are often small-scale, recreational gold dredging operators conducting suction dredging for a limited time each year." This is a slanderous and deceptive perception that DFG initiates and one that overlooks many key aspects. First, DFG alone has set the timeframes for when the mining industry can dredge. If someone then follows the law and mines within that timeframe, you then consider them small-scale, recreational dredging operators conducting suction dredging for a limited time each year. I consider myself a full time miner, mining within the existing timeframes set by law. To seemingly dictate a dredging season, but base full time vs. part time on a calendar year is an abuse of discretion. Secondly, state law mandates that assessment work be done each year to fulfill the laws requirements, and if dredging is the method of choice to do this work, then the requirements of the law are being met, not that someone is small-scale. This type of analogy and depiction plays well to the anti-dredging lobby, but is discriminatory at best.

On page 28 of the Program Description, under Environmental Factors Potentially Affected, Human Resources are omitted and not recognized. Humans will be greatly affected by this project. The human environment needs to be considered to be an effective and legal environmental document. The effects of no dredging are pervasive. No gold recovered means no taxes on gold recovered and sold, no mining equipment bought or sold (job losses to the industry), mining claims being worthless, no beneficial impacts to towns close to mining areas, no taxes paid to counties for mining claims and the end result will be lawsuits for takings implications.

The cost to the government will be enormous, both ways, meanwhile not doing anything to protect fish. The real problem, if any, are fishing and the dams, not dredging.

Also on page 28, the box for Mineral Resources is not checked. This will have a tremendous impact on the mineral resources, as gold will not be produced from the streams and rivers, another environmental factor affecting people.

On page 78 it states that the loss of mineral resources is considered to be less than significant. This is like saying that eliminating cars and mechanical transportation will not affect people or their jobs! Dredging is the only viable means of recovering gold on my mining claim. I am located within a wilderness area and I would not be able to bring in other equipment. The Forest Service themselves state that dredging is the only viable source mining on my wilderness mining claims. Stating that a ban on dredging will not affect the "Program" is unbelievable! Take away your DFG issued computer, your state issued car, office and uniform and see how you compete in the real world. Dredging for most placer miners is the only cost effective method of extracting gold. Where in the world did you get this bizarre data from... that a less than significant mineral resource impact would occur without dredging?

In the Program Description, it discusses the affects mining have on aesthetics. The effects of dredging on aesthetics are no different than those of gill netting indians, fishermen, loggers, Cal-Trans, rafters, mountain bikers, horsemen, backpackers and all functions of life. If someone doesn't like a legal activity, go elsewhere. And to equate

that other visitors to an area that may view dredging and don't like it are better than others or that their experience is more important is elitist and ludicrous. To state at page 86 that a recreationalist is intimidated when approaching a dredging operation is only analogous to the fact that any recreationalist should be wary upon approaching another's encampment. I.e., if some stranger walked into your campsite, you might be suspicious, dredgers have gold that they are mining are reasonable to protect it, no different than a camper protecting his ATV, camper, etc. We all need to get along together.

I have been dredging on the South Fork Salmon River in Siskiyou County since 1979 and on the N.F. Trinity River in Trinity County since 1983. Both areas are within the Trinity Alps Wilderness area. I have valid existing rights on these mining claims and have had them validated by the U.S. Forest Service. On the S.F. Salmon River, I have had countless DFG permits and studies that show that my dredging occurs above any anadromous fish populations. My dredging occurs approximately two miles upstream from the last known range or distribution of anadromous salmonids. The relatively long distance between my dredging location and any potential salmon and steelhead habitat or any localized disturbance to aquatic invertebrates would have little to no impact on food availability or habitat for salmon or steelhead. In addition, any settleable fine sediments mobilized in the stream by my dredging would settle out long before reaching any known salmon or steelhead habitat locations downstream.

So, why am I being banned from dredging on the S.F. Fork Salmon River. I have the studies and permits that document this. Why was a statewide ban enacted when many areas do not have salmon or steelhead, if this is even a problem?

On the North Fork Trinity River, I have dredged for many years, and each dredge permit states that no salmonid eggs or fry should be in the stream gravels while my operations are in effect. If this is so, again, why the ban?

Regarding the N.F. Trinity River, my area been **illegally classified Zone A,** no dredging allowed at any time. When one researches the FEIR of 1994 to substantiate this report, **no biological reason is given**. The only information given at Appendix J, Reasons for Stream, Lake & River Closures is @ 106, pg. 151, that, "The North Fork Trinity River and tributaries upstream from Hobo Gulch Campground may be closed to suction dredging due to federal wilderness designation boundary beginning at Hobo Gulch. Check with the U.S. Forest Service for details." Only the U.S. Congress can close a wilderness area to mining, not Fish and Game. Wilderness areas are not closed to dredging to mining claims with valid existing rights, such as I possess! Prior to the DFG eliminating special dredge permits, I played along with the department and obtained a special dredging permit to operate in closed areas. I had been waiting either for new regulations or a lawsuit. Now that the area is closed to dredging, a lawsuit might ensue. Any new regulations need to address the N.F. Trinity River and reopen it to dredging. The N.F. Trinity River and its tributaries above Hobo Gulch must be open to dredging, per similar areas. **This is significant new information for you to include in any assessment or new regulations.**

My mining claims on the S.F. Fork Salmon River are within the same wilderness area and are open to dredging, prior to the ban, so being in a wilderness area is not the proper criteria to close an area. Wilderness areas would be closed to dredging to anyone without valid existing rights in the wilderness, but not to those with them. The

N.F. Trinity River has to be reclassified based upon science, not someone's skewed political view that no dredging is allowed in wilderness. Within the same wilderness, on the S.F. Salmon River, I have received dredging permits, but within the N.F. Trinity, the area is closed, Zone A, no dredging allowed at anytime... this mistake by the DFG must be rectified. It is the only river, stream or lake in the state of California closed because of a lack of relevant criteria! This must be done in any new regulations. To not do so would be arbitrary and capricious and an abuse of agency discretion.

The entire program description is skewed and flawed. It entirely omits any reference on the federal right to mine and mining claimants statutory right to mine. The entire SEIR is filled with speculation and innuendo, using the terms could or may numerous times in the agencies attempt to justify their end. It speaks to the heartstrings of liberals everywhere. It doesn't address reality. All functions of life affect something. The DFG driving out daily to do their job affects the environment, any EIR done on that? You might as well eliminate all RV's, ATV's, fishermen, hikers, backpacker's, anyone from the woods for the next 50 years to obtain your social goal. Dredging is not the problem. Eliminate gill net fishing and then fishing for the general public and see what controversy you have.

I submit these comments because I am negatively affected by the onerous implications that the Wiggins bill and the ban on dredging have on my ability to make a living in California. If the ban on dredging is continued, I will sue for a takings on all 6 placer mining claims that I own.

Sincerely,

Ken McMaster

Ken McMaster

From: "kshillig@juno.com" <kshillig@juno.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 11/13/2009 10:15 AM
Subject: Public Scoping Meetings

Mark Stopher:

What a great activity available to us until stopped by DFG. We would dredge on the San Gabriel River, and we had a lot of fun myself with my two older boys ages 25 and 29. We worked together, and talked, and I can't remember a better time. Didn't seem to do any damage to the environment and while underwater, saw lots of fish hanging right there with us watching for something good to eat. Really too, too bad to have stopped this type of activity, and it seems DFG efforts might be better directed to healing the Bays which deterioration is much much worse than what I could see dredging... Please open up dredging again so we can have a fun activity..

Kurt Shillig
Santa Clarita, Calif.

IN 2003 Their WAS A Big Kill off of salmon in The KlamaTh River. They said above HAPPy CAMP where the Indina Live they Found Poison Coming From where The Indina Live.

IN 1976-77 in Somone Co. At SANTA ROSA point st George Fish plant WAS Raided by The LAW. [redacted] My girl Fiend was the D.A. sectary. She went on The Raid The Indina were selling Fish (SALMON) THAT They had cough on The KLAMATH River.

I Don't Know of much Dredging ON The Eel. Or Dredging on The Russien River.

I Dont Know About ANy Dredging on SALMON creek.
Where HAVE The SALMON gone.

Is it The Sewer or the Gravle PLANT on The River THAT Are Killing off The Fish.
I have live over 50 yrs in Somone Co.

What About The Sewer That Nevada [redacted] co. has Dump into Deer creek and Wolf creek.

What About The Sewer That SANTA ROSA has Dump into The Russian River.

In The new paper 2008 Fish AND Game was Trying TO make Nevada Co. PAY for Sewer Spill $300,000.00.

Dose Sewer AND Meth Drug Dump into The Creeks AND River Kill Fish AND people.

The Graule PLANT At Healdsburg has Been Digging IN The Russian River for over 50 yrs. How much [redacted] mud AND Dirt Do They send Down The River.

If Dredgers Do So much DAMAGE TO The River. How much DAMAGE Do The gravel PLANTS DO.

How Dose Fish & Game AT Bodgea BAY Let BOAT sink in The BAY AND not MAKE someone CLEAN it up.

How much oil come off The TRACTOR AND Equipment THAT GRAULE [redacted] PLANTS USE INTO The Rivers.

I have Fish Almost All the River and Creek and OCIAN [redacted]. For 50 yrs.

The Russen River and SALMON creek use TO have A Lot of Fish. NOT ANY more.

SALMON creek has Been close sence About 1975.

The Bear River in PLACER CO. is Full of Merchury.

Dose the HANSON BA CO. Grave PLANT Dig up The River Bed. what Happen To the Merchury That they Dig up.

I [redacted] Colect the Merchury That in my Dredge.

Dose HANSON GRAVE PLANT keep the Merchury. NO.

How is it That one of The Chif. of The Indig Tribe WAS Arrested ON Meth Drugs.

LARRY PACKARD
11030 New Town Rd NEVADA CA 95959

From: "Cynthia Salhaney" <gldminer@Lincolnxing.org>
To: <dfgsuctiondredge@dfg.ca.gov>
CC: "RICK&LISA HOME SMITH" <rlsmith67@juno.com>
Date: 12/2/2009 3:15 PM
Subject: Comments Regarding the Subsequent Environmental Impact Report

Comments Regarding the Subsequent Environmental Impact Report (SEIR) on Suction Dredging.

Larry Salhaney, PE.

December 2, 2009

If the real obstacle to suction dredging is the Hillman lawsuit, why is the proposed scope of the draft SEIR on suction dredging not consistent with the primary content of the lawsuit? The scope of a study to dispute the Hillman suit could simply consist of a comparison of fish takes from all sources possibly affecting the fish. These would include commercial fishing, tribal fishing, sport fishing, agriculture, industry, suction dredging and any other serious threats to the fish. It is obvious to me that the detrimental affects of 3200 suction dredge permits (state-wide, including areas which are not affecting salmon and perhaps have no measureable fish take at all) are miniscule in comparison to the fish take produced by other sources-especially fishing. To most reasonable people, the sheer numbers of permits vs. fishing licenses would indicate that "suction dredging is not a major cause of fish population decreases described in the lawsuit, especially when compared to fishing. Accordingly, a proposal to ban fishing and a ban on issuing fishing licenses until a draft SEIR on fishing is completed would be fair and appropriate and is more applicable to the problem indicated in the Hillman lawsuit.

A proposal to ban fishing would no doubt produce a title wave of outrage from fishing license holders, tribal lawyers and commercial fishermen claiming the State is depriving its citizens of a livelihood, sustenance and their right to recreational pursuits. Additionally, the loss of revenue to the State would be significant and therefore the action would probably be deemed not feasible during times of economic stress by the State.

What about the suction dredge permit holders of California? For the first time in 30 years, gold has attained a high economic value. The State is prohibiting suction dredge permit holders from any activity for an indefinite period of time. Some of these permit holders have been dredging for decades and have been barely breaking even or losing money. Recreational permit holders have a considerable investment in equipment they can no longer use and cannot recover their equipment and operational costs. The State is demanding them to wait an indefinite period of time for an inappropriate and expensive study to be completed-if and only if enough money can be appropriated from the taxpayers and license fee payers of

California, which in either case includes dredge permit holders. It is apparent that because the fees from suction dredging permits do not produce large revenues for DFG, the State is uninterested in protecting and representing the rights of these permit holders.

If the State had really been concerned about the affects of suction dredging on fish and was serious about changing the dredging regulations, the funds would have been appropriated for DFG to complete a proper study to revise the regulations, years ago. Hundreds of grants for meaningless studies and reports are subsidized by the taxpayers of the State every year. No studies of similar scope (and potential cost) have even been considered or proposed for other, more likely causes of deteriorating fish populations.

I am a professional engineer and have been a suction dredge permit holder and small scale miner for decades. I have participated in a remediation of an EPA Superfund site in California and have over 27 years of professional engineering experience.

In my professional opinion, this situation amounts to an old-fashioned "lynching" of the "California suction dredger" and I regret having had to witness it at the hand of the State government due to misinformation and speculation, misuse of revenues and a complete lack of representation for the accused-the "California suction dredger".

Larry Salhaney, PE

From: Laurie Lindenauer <laurielinden@hotmail.com>
To: <dfgsuctiondredge@dfg.ca.gov>
Date: 12/2/2009 2:50 PM
Subject: Comments on Gold Dredging Ban

Laurie A. Lindenauer Brown

P.O. Box 466

Fair Play, CA 95684

530-620-4021

www.laurielindenauer.com

Comments on Gold Dredging in the Sierra Foothill Region, California Department of Fish and Game

Mark Stopher/California Department of Fish and Game:

As a long-time Sierra Foothill property owner and resident, occasional gold dredger, jewellery artist, gold consumer, and fisherperson, I would like to comment on the recent and sudden ban on the use of gold dredges to apply Statewide, and with no refund due to the permit holders.

I have had a small 2" -2 1/2" gold dredge which, in past years, did not require a permit to operate from the California Department of Fish and Game - the reason being that it could not move enough material to create a nuisance or hazard to streamside habitat or wildlife.

A small gold dredge is a tool, similar to a chainsaw or vacuum cleaner, which can be used to move small amounts of material from clogged waterways and drainpipes, as well as to enhance the stream environment by creating better habitat and food for the fish. Finding a gold nugget or two in the process makes it even better, and certainly provides at least a partial livelihood for those who wish to pursue this as a hobby or part-time job (some people do get lucky). There are many people here in the foothills who also benefit from the recreational "spin-off" jobs it creates. As more people have lost their regular employment due to mill closures, construction lay-offs, and general economic malaise, this is not a good time to close down yet another of our industries.

I understand that several EIR’s have already been completed and certified in this area. Most of the people that I have spoken to regarding mercury in the streams, are actually recovering and removing what they find, as well as lead shot, fishing weights and trash.

I object to not being able to even use a small gold dredge on my own property, within the proper season, as I also have concerns for the continuation of the fish, wildlife, and streamside populations.

I strongly urge the reconsideration of this total ban.

Sincerely,

Laurie Lindenauer Brown

11-30-2009

Mark Stopher
CA Dept. of Fish and Game
601 Locust Street
Redding, CA 96001

RE: EIR

DFG personnel,

I have been dredging in streams and rivers of California since 1978. Every year or so since 1978, one govt. entity or another and/or environmental group have found reasons for more and more regulations to be put upon dredgers to cause us another hoop to jump through just to do our job. SB670 is just the latest attempt to shut down an industry.

I recommend you refer to the EIR done on suction dredging in the early 1990's. As I recall suction dredging was found not to be diliterious to fish.

I find it disconserting that a judge can stop issuance of dredge permits forced by an indian tribe supposedly concerned about fish, while no tribal member I know of subsists on salmon.

Mining acts of US Congress in 1866 and 1872 supercede all attempts to curtail active pursuit of granted minerals.

Push your pens on the EIR in an unbiased way based on science.

Leroy D. Hardenburger

Ph. (530)493-5394

Leroy Hardenburger
PO Box 194
Happy Camp, CA 96039

Attention: Mark Stopher CA Dept of Fish and Game Nov 17,2009
Sacramento Public Scoping Suction Dredge

I have read many hundreds of pages regarding the present Moratorium on Suction Dredging in the State of California. At first I took copious notes, then I reread and highlighted important items. Then I re-read and analyzed the reams of material.

Thousands of hours and untold weeks and months and maybe years have gone into the development of the 1994 and 1997 Draft EIR Amended Regulations for Suction Dredge Mining by skilled and educated researches and scientists.

The question comes to mind regarding why wasn't the 1997 Draft EIR ever promulgated? What stopped it? It is obvious that all rules were adhered to. That all public forums were held. That the information was absorbed and analyzed and incorporated into the process. Then why did it sto deadini it's tracks?

The first concept that concerns me is a rather obvious bias by the information gatherers to include issues not directly related to the 3200 suction dredgers presently permitted but unable to utilize the dredge permit paid for this year(2009). A negative attitude paints suction dredge users as gun-toten, disrespectful, frightening, garbage strewing, environment ruining backwoodsmen. Although there may be a few of this type in every recreational use, most are just folks. A few bad apples I could extrapolate on this but I donot believe it to be useful or necessary.

At first I was considering arguing each item in the CEQA list, but then realized that is not the issue. If one keeps the actual purpose of this moratorium in mind, then it becomes obvious that if enough data is thrown some will stick. Clearing the process as the 1997 Draft EIR does results in a reasonably acurate picture of suction dredging and those who do it

The infinitely small numbers of dredgers compared to the outrageously large number of other recreationalist makes on wonder about ulterior motives on the part of the authors and legistlative members who voted on the moratorium. I spoke with a few Assembly members, one of whom admitted she thought the bill excluded 11 counties! She also thought the purpose was to establish clear water in the state. Then she willfully volunteered that she hadn't actually read the bill, that there are too many bills to actually read! And yet she voted on it.

So here we are in a state with little or no money, contemplating increasing expenses to re-do an EIR and CEQA at the cost of probably millions of dollars in order to placate an unnecessary study that was previously adequately done.

Additonal comments forthcoming via email or mail prior to the Dec 3 cut off date. .

Respectfully submitted,
Linda Colombo
7979 Hwy 49, El Dorado, CA. 95623 lcolombo@jps.net

Thoughout the entire Notice of Preparation/Initial Study reference is made to "the program", "the proposed program" or the"proposed project". It is designed to " analyze new significant and substantially more severe environmental impacts that MAY BE occurring under the exsting permitting program that were not addressed by the Department during the prior environmental review completed in 1994. The proposed project...will consist of continued implementation of the permitting program and IF NECESSARY proposed amendments to the Department's existing regulations governing suction dredge mining throughout California.

1)What are these "new significant and more severe environmental impacts"?

2)Could there be new significant substantially beneficial impacts that may be occurring under the existing permitting program that were not addressed by the Department during the prior environmental review completed in 1994? If yes, will they be entered into the report and considered in the final analysis?

3)Would the deletion of items found to be unneccessary or inappropriate be considered?

On page 21. 6.CEQA Considerations,6.1 Type of EIR paragraph 2 "For purposes of CEQA and as detailed in the initial Sudy, the Department has determined that the continued issuance of suction dredge mining permits under the existing permitting program CAN result in new significant or substantially more severe environmental impacts than previously disclosed in the 1994 EIR. Similarly, the Department believes the SEIR is necessary because more than minor revisions or changes to the 1994 EIR WILL BE REQUIRED.

Of the 25 items checked as "Potentially Significant" in the Environmental Checklist many are speculative in nature, not based on statistics focusiing on suction dredge use, and/or are biased in there perception of suction dredging and it's operators.

1)Am I correct in addressing only those items designated as "Potentially Significant"?

2)Are all other catagories "off limits" to the study or comments?

3)Does the fact that not one check mark is located under "Less than Significant with Mitigation Incorporated" indicate NO mitigation will be considered in addressing the "Potentially Significant" items?

Just in case #3 directly above is not the case, the following are my comments regarding "Potentially Significant " items that may be mitigatable. My remarks are based on the percentage of suction dredge miners to "others", those referred to as other recreationalists, hikers, OHV users, campers, rafters, motorists, trail users, other sensitive receptors and human beings, among other non-suction dredge activists. There exists a recognizable bias relating to the inclusion of suction dredge miners into all activities, even those not directly or sometimes remotely related to suction dredge miners. Speculation and profiling of suction dredge miners and their attendant activities does not enhance the validity of this Initial Study.

Suction Dredge Permitting Program
Notice of Preparation/Initial Study Pg 30

I Aesthetics
a)Effects on Scenic Vistas"viewers may still be able to observe dredging activities"

There are many views one may not want to see depending on ones likes and dislikes. There are so few dredgers in the state that coming upon one almost always draws interest,. Many people are intrigued and curious since it is such an unusual occurrence

b) Effects on Scenic Resources
"suction dredge activities are located within undeveloped areas"
"activities associated with suction dredgin COULD lead to destruction of banks "
"these impacts COULD result from illegal activities"
"incidental effects such as trampling of habitat"

This indicates that there may not be too many viewers to observe the items in "a "above. The comment on "banks" and trampling" have not taken into account all the "others" not to mention the forces of nature itself. Pointing to "illegal" verifies the bias profiling inherent in this report.

c)Degradation of Visual Character
"The physical appearance of suction dredges...MAY affect the recreational experience of other users"
"aestheic impact....on the viewer group and their aesthetic goals, social values social values...their opinions of suction dredging as an activity"
""illegal operations may play a role...violations of waste or hazardous material storage and disposal regulations "
"this is a general aesthetic issue ...common to all overnight recreational activities"
"If the proposed Program is implemented the visual character ....COULD be potentially be altered"

Beauty is in the eye of the beholder , as are goals, social values and opinions. Illegal activities and violations on the other hand, again points to a profiling bias inherent in this report. To take these very nebulous predetermined concepts of suction dredge miners and congeal them into a reason for making this a "Potentially Significant Impact " alters the trust in an unbiased result.

III Air Quality

c)**Cumulative contributions to non-attainment status**
"Emissions from suction dredging would be consistent with attainment plans, and would be relatively small compared to other sources of emmissions, they would ...contribute to the existing non-attainment status.

So does breathing, or mowing your yard, or using electricity that comes from carbon based fuels. The number of dredge motors is not only limited to 3200 this past year but also to the number of days per year, and then only used a fewhours per day. Making this an "Potentially Significant Impact" doesn'tmake sense.

d)Greenhouse Gas Emissions

" emissions MAY be cumulatively considerable in conjunction with .....other projects"

I would suggest the formula take into consideration the number of dredges, the engine sizes, the hurs per day actually run and the number of actual days run, then evaluate away and compare it to almost any other small engine expenditure. Since this is not actually drdging, the data on exhaust content et al should be available or able to be tested.

IV Biological Resources

I leave this to the experts. The data in the 1994 and the 1997 reports indicated the creation of the present scheduling of open and closed rivers and the timing of dredge useage and size of intake hose. Those conclusions were based on scientific data not just written publications. Inclusion of actual scientific experiments and test have shown that not all effects are negative. The Cosumnes Rover Management study done by the RCD shows the Cosumnes to be clear and pristine even though it has been mined or dredged for the past 150 years , non-stop!

V Cultural Resources

a) Adverse change in significance or historical resource

"A potentially significant impact would occur IF suction dredging activities would cause a substantial adverse change to a historical resource through demolition, construction, conversion, rehabilitiation, relocation, or alteration.

"sunken vessels submerged within Californias river system"...1547 recorded shipwrecks..,70..(in) Sacramento,American,FEather,Yuba,San Joaquin rivers" "both recorded and non recorded vessels MAY exist in locations where suction dredging may occur "

"damage tor destruction to historic architechture.... would have less than significant impact"

Again, this appears to be profiling fears of illegal activity by suction dredgers. As far as sunken vessels go, less then ½ of 1% have been found in navigable streams , the solution may be two fold, offer suction dredge miners a free year or two of permits if they find one and turn it in. I'm sure a trade could easily be made to salvage the historic vessels and MAY even be a benefit to historians by finding and reporting the finds.

b)Adverse change in the significance of a unique archaeological resource.

"it isless likely that these ...resources are ...in the riverbed..there is high potential (they)are located on adjacent riverbanks. "there is potential for disturbance from historic-era mining to have buried"resources"

"could cause substantial adverse change ...through demolition,construction ...that culd disurb remains."

"Riverscape analysis requires the entire river sstem be holistically considered for cultural values"

Any of the horrendous floods that have scraped the landscape over the millenia has surely revealed or uncovered or recovered whatever cultural resources exist on the river banks. Suction dredge miners have the opportunity to make these sites known if they come upon them as long as there is a benefit to all, why not teach suction dredge minershow to treat a found object. The fact that demolition, construction keeps coming up inthese remarks again indicates the potential for profiling in a negative manner.

VI Geology and Soils

b) soil erosion
"dredging ...(can) result in changes to stream morphology" and "activities associated with trail use, camp locations, and staging areas may also have incidental impacts on soil loss and or erosion."

So does the spring runoff from the high Sierras. And once again the % of suction dredge miners in realtion to all other users is definitely incrementally small . It is almost as if the thousandths of one percent of users is being asked to carry the weight of the other 99.999999 %.

VII Hazards and Hazardous Materials

and b) Use and Disposal of Hazardous Materials)
"routine use of hazardous materials (from collect(ions) of mercury, or lead (bullets,metal debris,etc)"

Mercury is found in very slight amounts, usually as a small mark on a nugget. Lead as "bullets, etc" are no different and much less in weight then imagined in the study. The amount of lead in one week's dredging operation would most likely not make a single weight for balancing the tires on a vehicle.

c) **Hazards Near School Facilities**
"it is highly unlikely" that dredging would occur within close proximity of a school"

On page 36 ,sec d and e it is stated that dredging is found in "rural and sparsely populated areas" or "remote rural areas". You can't have it both ways. A solution would be to check all occupied schools and map them.

h) Increased Wildfire Risk
"there is an inherent risk...with most outdoor activitiy" Suction dredging "generally involve(s) the use of flammable supplies".

Statistics of ONLY suction dredger miners or their equipment would indicate negligible or non-existent instigation of fires. If a check on the statistics of wildfires caused by hikers, campers, RV'ers, motorcycles and other off road enthusiasts such as horse back riders, etc. the numbers of fires attributable to them would be great. Again there appears to be profiling and inclusionary bias.

VIII Hydrology and Water Quality

a)Violation of Water Quality Standards or Waste Discharge Requirements
Contaminant Discharge from Onshore Dredge Site Encampments
"access to stream sites with motorized transportation", "temporary encampments" "creation of wastewater...if remotely located", "incidental discharge of trash or debris", and "debris, trash, or hazardous substances remaining in encampments"
Anyone in a remote, rural area has to have gotten there somehow, most arrived via vehicle of some sort, most are NOT avid long distance runners or hikers and even those who arrived sans vehicle still create wastewater . The "carry in-carry out rule" applies to all activities and suction dredge miners are cautious to clean up after themselves specifically because they are a minority and have been profiled.

"potential exists for oil and gas leaks or spills to occur… (which) MAY adversely affect water quality for …recreational users or other beneficial uses"
A catch pan would accommodate any leaks or spills.

c)Onsite or Offsite Erosion or Siltation

"encampments…MAY involve transport of materials, vegetation removal, trail construction,…that would disturb, compact, or expose soils"
Another case for representing suction dredge miners as " the only" encroachers on nature. Again the percentage of users is skewed by the combining of " all others" but not mentioning them.

e) Contribute Runoff that would Exceed Stormwater Conveyance Capacity or Contribute Polluted Runoff

"does not involve…contributions of additional stormwater…however, receiving waters downstream (could cause) increases of pollutants"
Since suction dredge mining is usually in remote and rural areas it is highly unlikely that anything will travel beyond the remote and rural environment

.

f)Otherwise Substantially Degrade Water Quality

"encampments have the potential to incrementally degrade water quality through contaminant discharges, EVEN if the resulting conditions STILL MEET water quality standards.
Another case for representing suction dredge miners as "the only encroachers on nature" when in reality the percentage of users is extremely high in comparison ot suction dredge miners

XI Noise

a,d):operation…could result in perceptible increase in noise"…due to…"the manner in which it is operated". "this stationary source MAY affect recreationists or other sensitive receptors in the vicinity".
"Another source ….is the use of generators ..commonly used by campers in general" these noises " could exceed noise standards and increase ambient noise levels above existing conditions "

Although "others" also make noise: motorcycles, quads, campers generators (also stationary), it appears that these recreationalists and sensitive receptors, being a much higher percentage of users, still get to be carried on the backs of suction dredge miners miniscule contribution, even though "suction dredging is "short term and seasonal".(pg 80 para.c).

X Public Services

a)Police and Fire Protections

"all recreational activities are required to abide by applicable regulations and guidelines"
Illegal trespass and health and safety violations are primary issue""50-100 cases of suction dredge trespass on BLM lands. "Out of 1500 reported contacts 130 were found to be in non-compliance with some kind of law, regulation or permit."
"

"observations that the encampments often pose hazards …firearms, unsanitary conditions, irresponsible treatment,flammable materieals." Additionally "concerns include LIKELY destruction of lands for hunting, firewood, and other subsistence needs"

The 50-100 trespassers is a wide range. Is it 51 or 99 or 76? Over what period of time? A season (year)or since statistics started being kept? Less than 9% (130 out of 1500) non-compliant means that with only some of the 130 being suction dredges , the percentage of suction dredges could be miniscule as are most impacts relagated to suction dredgers.
Again profiling dredgers as other than honest upstanding, intelligent peole allows for statements of "concern fo destruction of land"

XVII Mandatory Findings of Significance

In "resource-specific discussions the Program MAY result in potentially significant effects on the environment". Due to the fact that they "MAY cause substantial adverse impacts upon human beings".

Suction dredge miners are human beings!
If not construed with a biased profile and not combined with thousands or tens of thousands of "other users" and taken with a focus on the specific usage and activities of suction dredge miners only, this Initial Sudy could prove helpful to the State as a whole and suction dredge miners as a portion. Done honestly without bias,without profiling, and with complete scientific objectivity a fair EIR will result.

Thank you for your time.,

LINDA COLOMBO
7979 Hwy 49
El Dorado, CA 95623

lcolombo@jps.net

SUCTION DREDGE PERMITTING PROGRAM
Subsequent EIR - CEQA Scoping Comment Form

Name:	Louis VOLPE
Mailing Address:	PO Box 494501
	REDDING CA 96049
Telephone No. (optional):	
Email (optional):	info@advanced labs.com

Comments/Issues: Its important to have A NON BIAS Impact Study Done. ADHoc Commitee or SOMETHING LIKE that is Also VERY important.

The Scoping MEETING WAS good And INFORMATIVE.

Please use additional sheets if necessary.

SUBMIT WRITTEN COMMENTS (POSTMARKED BY 12/03/09) TO:

Mail: Mark Stopher
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

Email: dfgsuctiondredge@dfg.ca.gov

Website: www.dfg.ca.gov/suctiondredge

Questions? Please call us at (530) 225-2275