

Presentation to The Fish and Wildlife Commission in Support of Small Scale Mineral Prospecting

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These are Positive ways suction dredging can help fish life and their habitat:

Army Corps of Engineering. SPN9410 Application to the 'excavation rule' for recreational placer mining activities. Recreational placer mining using suction dredges and hand mining (pick and shovel, panning, etc.) activities in light of the new "excavation rule" and has determined that recreational suction dredge mining using an intake nozzle size equal to or less than 4 inches and hand mining in waters of the United States would have de-minimus effects on the aquatic environment. Washington State Department of Ecology; (PAGE 36)

"EFFECTS OF SMALL-SCALE DREDGING ON ARSENIC, COPPER, LEAD AND ZINC CONCENTRATIONS IN THE SIMILKAMEEN RIVER, OROVILLE, WASHINGTON":

Based on analyzing 14 effluents and 27 plume samples, it appears that small-scale gold dredges have little or no potential to cause exceedances of aquatic life criteria in the Similkameen River. Arsenic and zinc concentration in dredge related samples were one to two orders of magnitude lower than criteria. Copper and lead concentrations were at or below criteria, except for one or two effluent samples that slightly exceeded (sites #4, #5, and #7).

Analyses of observational field data sets can never be expected to produce strong results compared with laboratory or field experiments (Diamond 1986; Rose 2000). This is particularly true when the sampling study has not been designed to test the specific variable of interest. However, there are not realistic alternatives because this variable, suction dredge mining, cannot be controlled or easily measured over a sufficiently larger number of drainages to provide a design robust enough to account for confounding factors and provide enough statistical power. The statistical analyses did not indicate that suction dredge mining has no effect on the three responses measured, but rather any effect that may exist could not be detected at the commonly used Type I error rate of 0.05. The fact that the analysis was able to detect a negative effect of another mining process, HM, on native salmonids, is an indication of the long-lasting effect that hydraulic mining has had on the environment, particularly on riparian zones and floodplain sections in geomorphic ally unconstrained reaches (Fig. 8). The reader is reminded of the effect of scale. 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 (Kevin L. Johnson and John Nolan, pers. comm.) and generally in the Oregon (Bemell et al. 2003), but there are individual cases where egregious mismanagement of the immediate environment has occurred, particularly with respect to damaging river banks in various ways. This analysis cannot account for individual transgressions, and a study to do so at an appropriate scale would be very expensive if feasible. (PAGE 55-56)

Given that this analysis could not detect an effect averaged over good and bad miners and that a more powerful study would be very expensive, it would seem that public money would be better spent on encouraging compliance with current guidelines than on further study

SUCTION DREDGING; FACTS

Trout production was significantly increased by physically sculpting and altering the stream habitat.

The Effects of Regulated suction dredge mining are insignificant.

Science favorable to suction dredge mining does exist, However All the available science on the effects of suction dredge operation are based upon UNREGULATED operations involving the Impact of large scale operation and/or ignoring all established rules and the best management practices. In addition it is not comprehensive in that it does not take into account the concurrent impact of such things as fishing, droughts, and natural disasters and disturbances. (PAGE 81)

Konopacky Environmental could find no published or unpublished documentation of any mortality of trout embryos or pre-emergent fry in natural stream systems from the REGULA TED use of a suction dredge. The total combined impact of legal fish harvest, legal catch and release fishing, and legal wading use in a stream or river system can potentially cause a substantial amount of mortality in trout populations in the systems. (Final Report - 1996- Konopack:Y Environmental Project No. 064-0,. prepared for IGP A)

The IGPA (1996) petition to use suction dredges to remove gold from a 27.7 mile reach of the Boise River system will have non detectable to very minimal negative effects on fish and fish habitat in the Boise River system. The IGPA petition differs from most reviewed studies and would have such minimal effects because: the petition already had "built-in" regulations (eg: dredge season relative to incubation of fish embryos. The IGPA has informed the Board that the groups wish to operate within a regulated format. The IGPA has a documented history of self-imposed positive rules and aspects, the IGPA has good rapport with land management agencies. Such a limited effort in a limited reach of a river system can only have limited effects Some of the limited effects probably occur naturally or are much smaller in magnitude than similar effects presently incurred by the fish and fish habitat by other legal and state regulated activities within the Boise River system. In Contrast the California Fish and Game (1994) Environmental Impact Report stated that some positive effects of recreational gold mining with dredge included removal of lead mercury and other heavy metals with concomitant increase in dissolved oxygen through the mechanical action of the dredge in the stream.

CONCLUSIONS: After our review of the published and unpublished literature on the effects of the recreational suction dredge use on fish and fish habitat in the western United States, Konopacky Environmental makes the following conclusions 1) impacts to fish and fish habitat from the **regulated**

use of recreation suction dredges, in the IGPA petitioned reach of the Boise River upstream of Arrowrock Reservoir, will be non-detectable to minimal. 2) a non-detectable to large range of impacts to fish and fish habitat can occur with the unregulated use of recreational suction dredge in streams like the Boise River and 3) other ongoing legal regulated and unregulated activities in the Boise River, in the reach upstream of Arrowrock Reservoir, will have larger detrimental or negative impacts to fish and fish habitat than the recreation use of suction dredges. (Page 96)

There's no doubt that too much sediment is bad for fish eggs. However, dredging can improve permeability and velocity of water in gravel. (II) Intergravel permeability at one site increased, although not significantly; no changes in downstream permeability were noted. <20) A five-inch dredge could improve the intergravel environment for both fish eggs and benthos) Weighing all factors, dredging can improve the gravel environment for both fish eggs and aquatic insects, especially if the operator mined uniformly in one direction, as opposed to a pocket and pile method. 01 (PAGE 103)

Salmonids spawned in the vicinity of the previous season's dredging, but, in one study, salmonids redds were not located in tailing piles. (9) The gravels dispersed by the high stream flows, which included dredge tailings, certainly composed a portion of the suitable spawning gravels each year 9) Dredge tailings have been observed to provide good salmonid spawning ground due to the loose condition of the sand and gravel. (9) In some places, mining debris may provide the best or only habitat. (PAGE 103)

Dredging should not be conducted while young salmonids reside in the gravel. Dredging or "highbanking" of bank materials should be prohibited as this may create turbidity and stream bank instability, unless there is a holding pond. Stream side vegetation should not be removed. Boulders and logs should be replaced, if removed, for fish habitat. With these restrictions, even large dredges have minimal impact . on moderate to large-sized waterways. WDFW REGULATES WITH GOLD AND FISH PAMPHLET (PAGE 110)

The overall effect of dredging on the benthic community appears highly localized. Due to differences between species ... the lack of significant differences between control and dredged stations observed for some taxa is not surprising. Fish and invertebrates displayed considerable adaptability to dredging, probably because the stream naturally has substantial seasonal and annual fluctuations. The 45 day recolonization experiment · indicates not "'only a rapid recovery· in the total number of insects over time, but also that almost all taxa found on cobble substrates take part in the recolonization of sand and ·gravel areas. Flushing winter flows can greatly reduce the long term impact of dredging. (PAGE 111)

Effects were significant, but localized. The abundance of several species of aquatic · insects and rifle sculpin were adversely affected, and the size of the impact zone varies. J!!! No additive effects were detected on the Yuba River from 40 active dredges on an 11 - km stretch The area most impacted was from the dredge to about 30 meters downstream, for most turbidity and settleable solids. Sedimentation rates fell back to ambient after 60 meters. Stream bed alterations are probably more long-lived on streams with controlled flows than on those with flushing flows. Effects on the benthic community are highly localized. Where flushing flows occur, substrate changes are gone m one year. (PAGE 112)

Only 7.4% of benthic insects died from going through a dredge, although it varied by order ~1 settled back to the bottom within 40 feet of the dredge, Fish appeared and began to feed as soon as dredging

started. The turbidity plume was 200 feet long. Five-inch dredge could improve the intergravel environment for both fish eggs and benthos. Six-inch dredge is appropriate where substrate gravel size is large, but a large aperture may be disruptive in a small channel. Dredging improved permeability and velocity of water in gravel. Weighing all factors, dredging can improve the gravel environment for both fish eggs and aquatic insects, especially if the operator mined uniformly in one direction as opposed to a pocket and pile method. (PAGE 113)

Four-inch and smaller dredges have inconsequential effects on aquatic resources. "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), has ignored this concept, although numerous studies, including the EPA's own 1999 study of suction dredging, repeatedly and consistently support the Corps finding of 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. 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." Suction dredges of larger than 4 inches generally have more than de minimis effects on the aquatic environment and therefore requires authorization. (PAGE 106)

The following information may be informative to the stakeholders for the process of developing the Gold and Fish Pamphlet, Washington State.

"No difference between sediment composition within mined areas and those in reference areas particularly in the amount of deposited fines" 'No downstream influence on bed morphology by dredge sediments' "This study was "Worst Case Scenario. Impacts by suction dredging are contained within mined areas persist for about 1 month after mining season. MOTHER LODE RESEARCH from California Final Environmental Impact Report. Suction Dredging, high-banking, and Sluicing. 'Suction dredging did not do long term damage or cause significant overall loss of species habitat or population compared to other uses. Suction dredging ranks far down on the list of environmental degradation causes.' High banking; 'not considered significantly adverse'. Takes place on gravel bars, gravel pits, etc. "Cannot return muddy water directly into the stream, to either a small settling pond or into the ground.' 'Small sluices are not prohibited and neither are metal detectors. "However, in the face of changes of environmental degradation by a few, wiser heads in agencies have demanded FACTS. And when they've received facts have discovered there is NO single incidence of a significant loss of species or their habitat due to prospecting thus discovering no reason to remove a RIGHT from a sector of the public."

NINTH COURT OF APPEALS (2005):

The Court says; "Environmental activists must prove harm to species, not just allege it, to invoke the Endangered Species Act ••••• must present actual evidence that a species is likely to be harmed before an injunction can be issued against a property owner and that a lack of evidence of a past harm is indicative of the likelihood of future harm. Plaintiffs presented no evidence that bull trout were being harmed to support their claim."

"The Ninth Circuit said that if the evidence shows a bull trout has not been harmed in 40 years, it isn't likely to be harmed in the next 40 years."

Bruce Beatty, Washington Miner's Council

Key notes from Gold and Fish Literature 1998

Turbidity from dredging appears to have little effect on adult fish feeding

Habitat changes resulting from the excavation of the dredge hole does have a short-lived effect on the benthic invertebrate population in the immediate area, but recolonization of the area is rapid. Inter cobble habitat is reduced downstream as sediments are deposited. But this change is also short lived on streams with high flushing spring flows, which most gold streams have, appears to be a beneficial change to some species, and is partially offset by the creation of new inter cobble habitat in the cobble pile.

The hole created by the dredging activity replaces the lost habitat

Spawning bed destruction by the dredging activity has not been shown to be a problem with little bed movement, spawning gravel becomes scarce and of very low quality. Without flushing flows, something else must be done to loosen up the substrate, and flush out fine sediments to create good spawning conditions if natural stocks are to survive.

Suction dredging for gold should be encouraged by wildlife management agencies on waters with controlled flows as a conservation and fisheries management measure. On Canyon Creek, the effects of multiple years of dredging, and multiple dredges on the creek do not appear to be cumulative

Trinity and Klamath Rivers have not had dredging in 10 years and they are experiencing their lowest returns in 75 years. Prior to the ban dredging activity was high and spawning numbers were at their highest.

Most of the recolonization of dredged plots by benthic invertebrates was completed after 38 days

A recolonization experiment showed that numerical recovery of insects at dredged sites was rapid

Rainbow Trout are spring spawners whose eggs are in the gravel, and thus vulnerable to scour, during snowmelt flows

Results indicated that dredging could improve the gravel environment for both fish eggs and aquatic insects, especially if the operator mined uniformly in one direction as opposed to a pocket and pile method.

We must remember that the Gold and Fish Pamphlet is how we are **regulated** in Washington state. We have certain timing windows that we can be in the water based on the best available science. You can file an Individual HPA to work outside these certain timing windows, but that is not a guarantee as WDFW is there to protect fish life.

COMPILATION OF IMPORTANT SCIENTIFIC DOCUMENTS, BIBLIOGRAPHIES AND SUPPORTING DOCUMENTATION PERTAINING TO SMALL SCALE PROSPECTING AND MINING PRACTICES FOR WDFW COMMISSION, INVOLVED STAKEHOLDERS, AND THE SMALL-SCALE MINING COMMUNITY FOR THE REWRITE OF GOLD AND FISH PAMPHLET. THIS 181 PAGE DOCUMENT WAS UPLOADED FOR YOU TO READ, AS WELL AS THE LITERATURE DOCUMENTS. THESE ARE JUST SOME OF THE CRUCIAL STUDIES THAT WERE DONE. "Gold and Fish Rules for Mineral Prospecting and Placer Mining 2015 4th Edition.