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# RE: COMMENTS ON SB 3

(For the OLS Public Record on SB 3)

To Whom it may concern;

The Waldo Mining District (WMD), an agency of the federal government as authorized by Congress in the General Mining Act of 1872 hereby respectfully submits the following comments on Senate Bill 3 in total opposition to the bill. As with 2013's SB 838, SB 3 is a continuation of the Salem Witch Hunt designed by special interest groups whose publically stated goal is the total elimination of mining in Oregon, with a focus on small-scale placer mining for gold and other precious metals.

The WMD, Oregon' first mining district having been established in 1852, is dedicated to preserving, protecting, and promoting Oregon's rich heritage of mining in SW Oregon and throughout the state. Since at least the early 1990's, the WMD has been heavily involved working with both federal and state regulatory agencies in an attempt to ensure that the rights of all citizens and the environment are protected. Unfortunately, with the passage of SB 838 and the threat of SB 3, it is apparent that many Oregon legislators and regulators don't care about the rights of all citizens but instead only listen to the extremist views of the so-called environmental community.

For example:

**A.** The late Senator Bates (author of SB 838) totally refused to meet with members of the mining community to hear our side but instead relied heavily on the biased distortions and half-truths of the green community and state regulators.

**B.** SB 838 was enacted based on false or misleading information concerning the supposed increase in the number of suction dredge miners in Oregon between 2007 and 2013. All through the 1990's and up to 2004, DEQ issued nearly 2,000 permits annually. When DEQ issued the new 700PM permit in 2005, the mining community challenged the permit in court as being issued under the wrong authority and refused to purchase the illegal permit (in 2009 the Oregon Court of Appeals declared the 2005 permit invalid). From 2005 through roughly 2010, the number of permits issued by DEQ dropped from nearly 2,000 to approximately 6-700 per year. Starting in 2010 the number of permits issued slowly crept back to near "normal" levels (near 2,000). Although this was an increase from 2007, it was not an over-all increase over the last 20-30+ years.

**C.** For years ever since the Dept. of State Lands (DSL) issued General Fill & Remove Authorizations, DSL was required to submit annual reports to the Oregon legislature regarding the effectiveness of the permit system and compliance issues. For years DSL neglected to submit the reports (it is believed this was because there was no problem with the mining and DSL did not want to divulge that there was no problem).

**D.** In connection with an on-going lawsuit brought by the mining community in 2010 against DEQ's still unlawful 700PM permit, DEQ personnel admitted (under oath during depositions) that the Dept. never considered that there might be or even could be beneficial effects to fish, fish habitat, or the environment from in-stream suction dredge mining. ***This raises the question of: How does an agency justify restrictions when they refuse to even consider that the activity they are restricting might be more beneficial than harmful?***

# STUDIES SHOWING INSIGNIFICANT OR BENEFICIAL EFFECTS:

Since the 1980s, there has been many studies on the effects of suction dredge mining. To date, the only identified harm concerned the direct effect on fish eggs still in the gravels – an effect that has been mitigated for over 30 years by only allowing in-stream work to occur when ODFW determines there are no eggs in the gravel.

As with most controversial issues, there are at least two sides, and at least two opposing views of the science or facts. Although there are some studies that show a potential for harm from suction dredge mining, in most cases the theoretical harm is considered insignificant. The WMD firmly believes that some of studies done on the effects of suction dredge (or in-stream) mining clearly show a NET BENEFICIAL EFFECT and that the activity should be promoted rather than restricted. Below is a list of *some* of the many studies showing insignificant or beneficial effects:

**1. (EXHIBIT 1) PLACER MINING ON THE ROGUE RIVER, OREGON, IN ITS RELATION TO THE FISH AND FISHING IN THAT STREAM** – By Henry Baldwin Ward; for the Oregon Department of Geology and Mineral Industries – Sept. 1937 – May, 1938.

This is one of the earliest and most powerful studies done on the effects of placer mining on the Rogue River. It is important to note that the mining in question was massive *Hydraulic Mining* which washed away millions of cubic yards of bank material into the Rogue River and not today's miniscule suction dredge operations. In his Foreward to the study, DOGAMI Director Earl K. Nixon stated:

> A controversy during 1937 between fishing and recreational interests, and mine operators in the Rogue River drainage, caused the former to bring injunction proceedings---later terminated by compromise---which would have gone far to kill both placer and quartz gold mining in southwest Oregon. One of the principal objections of the complainants, the fishermen- recreationists, was the alleged harmful effect on fish and fish life of the discharging into streams muddy water from placer mining.

For no other reason than to determine the true facts as to this phase of the controversy---the effect of muddy, mine water on fish and fish life---the State Department of Geology and Mineral Industries caused a strictly scientific study of the situation to be made. This report by Dr. Ward is the result of the investigation. The impeccable record of the author and his standing as a biologist among American men of science must be sufficient guaranty for all that his observations are accurate and his interpretations sound.

**The essence of Dr. Ward's findings is that the placing of muddy water from placer operations in the Rogue River drainage *is not inimical to fish and fish life*.** (emphasis added)

Excerpts from pages 16-18 of the Ward Study:

**…mining debris ''is chemically inert, makes no oxygen demand on the stream and therefore takes away from the flowing water nothing which the fish require.** This is equally true of this material whether placed in transit by nature or by man since [the products] are alike in nature, come from the same sources and are only being accelerated by man in there journey to the sea." Further he stated: "Al1 these materials entering the streams, whether by natural or human activity, whether coarse or fine, whether traveling on the bottom, in suspension or solution, are almost altogether inert, suffer little change on their way to the sea, and having reached the end point of chemical change * * * do not rob the water of oxygen which the fish demand, or add to the water toxic agents injurious to fish" (fish food or other forms of life). The portion of this report printed as Appendix A includes only a few of the items of special importance in connection with features I am discussing in this my own report.

These experiments are unique. To be sure adult fish have been kept in water loaded with sawdust and with pulp or paper mill waste, so that much has been ascertained concerning the effects of certain types of material on adult fish. Also, a long series of valuable experiments has been conducted by Shelford and his students on the effects of particular chemicals on adult fish. **Further in Oregon Finley and his associates have tested the results of placing young salmon in diluted municipal wastes and found the fatal effects of such an environment to be almost immediate.**

**In contrast with all these the experiments of Dr. Griffin have shown that *young fish live well up to 30 days in good water mixed with an amount of natural soil materials from two to three times as large as the extreme load of the materials contributed to the Rogue River by maximum conditions produced by placer mining.* These findings are discussed later in greater detail.** (emphasis added)

From page 21:

The run-off from placer mines in the Rogue River area is characterized by its deep red color which is strikingly persistent as well as conspicuous. This is a finely divided iron compound, probably iron rust, a stable compound, and contrary to common opinion in the region, **not in the least injurious to the fish.** It may contribute to the opacity of the water and perhaps also makes it difficult for the fish to see the fly, although Dr. Griffin found that young fish readily saw and promptly captured food thrown into the tanks in his experiment. However, if the fish cannot see or are not attracted by the caster's lures, ***the condition of the water may reasonably be said to protect the fish, even though it disappoints the fisherman!*** (emphasis added)

From page 26:

> …I desire to call attention first to the fact that these experiments were performed with young fish. Despite their far greater sensitiveness to changes in environment and susceptibility to injury, the young salmon lived heartily in a concentration of sediment which was at its minimum (760 ppm) twice as much as the maximum recorded at Agness (see Table II). ***Indeed the average amount of turbidity in Griffin's experiments was <u>ten times</u> the average recorded at Agness. Those who think that normal erosion products will prove injurious to such fish should examine carefully the records in these tables.*** (emphasis added)

From page 28:

> Most significant is a possible relation of fine silt to the food of young fish. It has been shown that the presence of finely divided suspensiods of natural origin may be of advantage to the microbiota which constitutes the foundation element in the food supply of water. Studies on aquatic biology conducted by the Wisconsin Survey demonstrated that colloidal organic particles collect on carbon and sand grains to build a culture medium for aquatic bacteria. ***The finest suspensoids and colloidal particles in the placer mine run-off would evidently function in this way and increase the supply of aquatic bacteria and other associated micro-organisms. Thus would be multiplied the food supply of protozoa and other types of aquatic life which subsist primarily on bacteria.*** Among such are young stages or larvae of small crustaceans and insects which form such an important part of the food of young fish at the start of life. It is even possible that colloidal particles encased by bacterial cultures may form an element in the direct food supply of young fish. (emphasis added)

From page 33:

> **The results of the experiments indicate that young trout and salmon are not directly injured by living for considerable periods of time in water which carries so much soil sediment that it is made extremely muddy and opaque. They also indicate that cutthroat trout and salmon fingerlings can feed and grow apparently well in very muddy water.** (emphasis added)

It should be noted that in 2010, the Ward study was submitted to DEQ during the comment period for the new 700 PM permit. It was disclosed under oath during depositions that DEQ did not read the Ward study but instead stated that even though several miners (including the WMD) had submitted the study, *"…miners told us (DEQ) not to read it"*!

## 2. (EXHIBIT 2) REGARDING DREDGING, SLUICING, AND PANNING

By Dr Robert N. Crittenden - 1996

**Dredging, panning, and sluicing not only improve salmonid habitat but can also create new habitat.**

Salmonid eggs and alevins (alevins are tiny newly hatched salmonids which still reside in the interstitial spaces among the gravel of the streambed) need clean gravels through; which interstitial water can flow, providing them with oxygen. Silts and fine sands reduce the porosity of the streambed, thereby, reducing the

interstitial flow and the oxygen supply. It can also reduce the amount of interstitial space for alevins. Reduced porosity has been shown to be directly related to reduced survival of salmonid eggs and alevins.

If properly conducted (for example, according to the present guidelines in Washington State — WDW 1987) dredging, panning, and sluicing reduce the amount of fine sand and silt in the streambed and, thereby, improve its porosity. These activities will, therefore, result in better interstitial flow, a better interstitial oxygen supply for eggs and alevins, and more interstitial space for alevins. The net result is improved survival for salmonid eggs and alevins.

***Thus, dredging, panning, and sluicing improve existing salmonid habitat and can also create new habitat. These activities should be encouraged.*** (emphasis added)

**Recommendation:**

**The conclusion is that the recreational mining activities of panning, sluicing, and dredging enhance salmonid habitat. These activities should be encouraged. They provide one of the most cost-effective enhancement techniques as they are a beneficial side-effect of private recreation.** (emphasis added)

## 3. (EXHIBIT 3) TURBIDITY REDUCES PREDATION ON MIGRATING JUVENILE PACIFIC SALMON - By ROBERT S. GREGORY and COLIN D. LEVINGS - 1998

***Abstract.—We*** **field tested the hypothesis that predation by piscivorous fish is reduced in turbid compared with clear water.**

The **Harrison River (1 nephelometric turbidity units, NTU)** is a clear tributary of the naturally turbid **Fraser River (27-108 NTU)**, in British Columbia, Canada. Age-d juveniles of Harrison River stocks of Pacific salmon *Oncorhynchus* spp. migrating seaward in spring obligately pass through turbid and clear reaches of these rivers. To test the hypothesis, we compared predation on salmonids by potential predators caught by beach seine and by the rate of predator attack on tethered juvenile chinook salmon *O. tshawytscha* in these two rivers. **Of 491 predators examined, 30% of Harrison River piscivores had recently consumed fish compared with only 10% of Fraser River piscivores.** Of those that ate fish, fish prey per predator was significantly lower in the Fraser River (mean = 1.1, $N$ = 21) than in the Harrison River (mean = 1.7, $N$ = 66). In a clear-water side channel of the Fraser River—Nicomen Slough (1-6 NTU)—both incidence of predation (37%) and number of fish prey per predator (mean = 2.4, $N$ = 19) were similar to values for the Harrison River. **Loss of prey from tethers was significantly higher in the Harrison River (23-61%) than in the Fraser River (10-24%).** The loss of prey from tethers was highest at dusk and near the bottom in the Harrison River; no spatial or temporal difference occurred in the turbid Fraser River. ***Therefore, our data support the hypothesis. During their seaward migration in the Fraser River system, age-0 Pacific salmon were less likely to encounter and be consumed by fish piscivores in turbid water than in clear water.*** (emphasis added)

NOTE That the above study had nothing to do with mining. However, this study is included as one of the main concerns (of Oregon) regarding in-stream mining is turbidity. According

to this study, there is a marked difference in the survival rate of juvenile (age 0 to 1 year) Pacific salmon between those in clear water and those in moderately turbid water (*in that more salmon survived in turbid rather than clear water*).

**4. DISCUSSION ON TURBIDITY:** In the DRAFT – TECHNICAL BASIS FOR REVISING TURBIDITY CRITERIA, by Tom Rosetta, Water Quality Division, DEQ, Feb. 2004, is Table 2 (below) which shows Turbidity Levels over Duration (time) and the effects on clear water fish.

**Table 2.** Modelled adverse turbidity level effects on clear water fish with respect to duration of exposure. [Data from Newcombe, 2003].

| Duration | Turbidity Levels *at* or *above* which Adverse Effects are estimated to occur to Clear Water Fish (NTUs) | | |
|---|---|---|---|
| | Slight impairment [behavioral effects] | Significant effects to growth and habitat | Severe impairment [habitat alienation] |
| 1 hour | 38 | 160 | |
| 2 hours | 28 | 120 | |
| 3 hours | 23 | 100 | |
| 8 hours | 15 | 65 | 710 |
| 24 hours | 10 | 39 | 440 |
| 5 days | 5 | 19 | 215 |
| 3 weeks | 3 | 10 | 115 |
| 10.6 months | | 3 | 35 |

In August, 2004, during a real (i.e.; not staged) demonstration of a 4 inch suction dredge,[1] DEQ permit personnel took turbidity measurements with a turbidimeter below the operating suction dredge during what was deemed by DEQ to be a *"worst case scenario"* [2] due to the low water flows and that the streambed material was comprised of old hydraulic mine tailings with a large degree of silt.

[1] As far as we know, this is the only such demonstration for DEQ where measurements were taken.

[2] WORST CASE SCENERIO: Several factors are involved creating the Worst Case Scenerio (WCS): a) amount of flowing water; b) size of the dredge; c) type of material (siltiness); and d) amount of material dredged over time (i.e.; feed).

There is a natural limit on the size of the dredge that can be used based on the flow of water in the stream. IF the flow is near or less than the amount of water used by the dredge some of the turbid water flows backwards to the front of the dredge hole blinding the operator making the mining impossibly dangerous. The only solution is to change to a smaller dredge. In the WCS, available flow would be low enough that some turbid water would return to the pump intake but not quite to the front of the hole. Such was the case during the 4" dredge demo for DEQ. Added to the low flows, the material dredged was very silty, and the feed was normal for good gold recovery (too much tends to plug the sluice and allows gold to escape).

According to the measurements taken, the turbidity from the suction dredge dropped off dramatically even just a short distance below the dredge:

0.7 NTUs background
30 NTUs at 30 feet below the dredge
12 NTUs at 50 feet
6.3 NTUs at 100 feet
5.7 NTUs at 300 feet

Comparing DEQ's measurements with Table 2 shows that somewhere between 30 and 50 feet below the dredge the turbidity had dropped to a level below the "slight" impairment level for 8+ consecutive hours of operation. As most miners rarely operate (i.e.; running the dredge creating turbidity) for more than 4-6 hours per day, even in the Worst Case, the actual amount (linear distance) of stream threatened by a "significant" effect is something less than 20 feet immediately below the dredge; and at no time or distance does the dredge create a "severe" level of turbidity (with the exception of the immediate area below the sluice box – an area less than 100 sq. ft).

CONCLUSION: Except in the rare Worst Case, any detrimental effects from turbidity levels from suction dredge mining are insignificant.

## 5. (EXHIBIT 4) RESPONSE OF FISH TO CUMULATIVE EFFECTS OF SUCTION DREDGE AND HYDRAULIC MINING IN THE ILLINOIS SUBBASIN - By Peter B. Bayley, Dept. Fisheries & Wildlife, Oregon State University, Corvallis OR - April, 2003.

Performed at the request of the Siskiyou National Forest in preparation of an Environmental Impact Study on suction dredge mining, this is the only known study on cumulative effects. The Illinois River subbasin, with its high level of gold bearing stream experiences some of the highest concentrations of suction dredges in Oregon – making this study very relevant.

From "Discussion and Conclusions" (pages 14-15):

> **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 geomorphically unconstrained reaches (Fig. 8).
>
> **The reader is reminded of the effect of scale. Localized, short-tern 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.

***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.*** (emphasis added)

Note that in 2003 at the time of the cumulative effects study, suction dredge miners operated under the restrictions of the 700-J permit issued by DEQ. In 2005 DEQ issued the new 700-PM permit which was significantly more restrictive (followed by more restrictions in 2010, and again in 2015).

## 6. (EXHIBIT 5): A SUMMARY AND BIBLIOGRAPHY OF DREDGING PUBLICATIONS - Drafts of April 15-16, 2001, By Josiah Cornell

NOTE: The summary & bibliography are too extensive to comment on here and will have to speak for themselves.

**CLOSING COMMENTS:** There are many more beneficial effects mentioned in other studies that I have no more time to do other than list a few

A. Dredging creates deep pools fish have been found to use for cool water refuge during hot summer conditions.
B. Dredging safely, efficiently, and at no cost to the public removes 100's of pounds of lead (mostly fishing sinkers), along with mercury (very rarely found), and other heavy metals from the streambeds.
C. For years prior to 2005, suction dredge miners in Oregon contributed conservatively $10M in expenses annually to mostly rural economically depressed local economies – not to mention the value of the gold that was recovered (an unknown amount but possibly well into the millions).
D. Small-scale placer mining, including suction dredge mining, preserves the living mining heritage of many Oregonians.

For the most part, because the dredges are so efficient, once a stream segment has been suction dredged, it will not be worth dredging again for possibly 100's of years (unless maybe the price of gold skyrocketed to near $50K/oz). This means that over time (if left unmolested by regulations), the numbers of suction dredge mining will slowly decrease until there are only a relative few locations worth working.

NO MODERATE TO LONG TERM DETRIMENTAL EFFECTS have been shown.

Respectfully submitted by:

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ATTACHED EXHIBITS:

1. PLACER MINING ON THE ROGUE RIVER, OREGON, IN ITS RELATION TO THE FISH AND FISHING IN THAT STREAM – By Henry Baldwin Ward

2. REGARDING DREDGING, SLUICING, AND PANNING - By Dr Robert N. Crittenden - 1996

3. TURBIDITY REDUCES PREDATION ON MIGRATING JUVENILE PACIFIC SALMON - By ROBERT S. GREGORY and COLIN D. LEVINGS - 1998

4. RESPONSE OF FISH TO CUMULATIVE EFFECTS OF SUCTION DREDGE AND HYDRAULIC MINING IN THE ILLINOIS SUBBASIN, Siskiyou National Forest, Oregon; By Peter B. Bayley, Dept. Fisheries & Wildlife, Oregon State University, Corvallis OR - April, 2003.

5. A SUMMARY AND BIBLIOGRAPHY OF DREDGING PUBLICATIONS – Drafts of April 15-16, 2001, By Josiah Cornell