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5 Attorney for Interveners
PUBLIC LANDS FOR THE PEOPLE, INC.,
6 a California 501 [C](3) nonprofit
corporation, and GERALD E. HOBBS,
an individual
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8 SUPERIOR COURT OF THE STATE OF CALIFORNIA
9 FOR THE COUNTY OF ALAMEDA
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11 LEEON HILLMAN; CRAIG TUCKER;) CASE NO. RG09 434444
12 DAVID BITTS; et al.,)
13) **DECLARATION OF CLAUDIA J. WISE**
14) **IN OPPOSITION TO MOTION FOR**
Plaintiffs,) **PRELIMINARY INJUNCTION**
15) **Hearing:**
v.) Date: June 9, 2009
16 CALIFORNIA DEPARTMENT OF FISH) Time: 9:00 a.m.
AND GAME; DONALD KOCH; and,) Judge: Hon. Frank Roesch
17 DOES 1-100, inclusive,) Dept: 31
18) Trial Date: None Set
19 Defendants.) Action Filed: February 5, 2009
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1 I, CLAUDIA J. WISE, declare:

2 1. I have recently retired after 32 years of civil
3 service with the United States Environmental Protection Agency
4 as a Physical Scientist/Chemist. I have been a member of many
5 scientific projects over the years starting my federal career in
6 the Fish Toxicology arena and ending it with the Salmon
7 Restoration division. I have worked on projects ranging from
8 urban fish populations and fish avoidance testing to eelgrass
9 habitat and global climate change. I have been and remain a
10 strong proponent of protecting the environment. My Curriculum
11 Vitae is attached to this Declaration.
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14 2. I have been involved in temperature surveys on the
15 Klamath River in California in regards to suction dredge
16 activity and existing conditions of refugia. We have found
17 specified natural refugia to be no better in many cases to that
18 of dredge made refugia. I am currently, involved in preliminary
19 planning to evaluate the effects of dredging on mercury.
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21 3. I have studied a plethora of peer reviewed papers too
22 numerous to list here regarding effects of suction dredging on
23 the environment. Most have come to the same conclusion of
24 insignificant or de minimus environmental impact that is local
25 and temporary in its effect on the streams inhabitants.
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1 4. It appears that although there are many peer reviewed
2 journal articles written that support this conclusion giving the
3 proof already at hand that the dredging community is not
4 significantly harming the environment or the fish this issue is
5 re-surfacing in this Court. My experience regarding suction
6 dredge mining is that the fish are very happy to feed from the
7 dredged spoils presented to them and rest in the dredge holes
8 left much like in natural refugia. I have never seen or heard
9 of any harm that has come to any fish present during suction
10 dredging activities. California Fish and Game currently have
11 rules and regulations that do regulate dredging out of
12 situations that would be harmful to fish, such as, spawning
13 seasons.
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16 5. Suction dredges are being used by government agencies
17 to remediate stream conditions in some cases. According to the
18 National Oceanic and Atmospheric Administration (2006) ("NOAA"),
19 Duck Creek, a surface water body in Alaska, is impaired by urban
20 runoff from non-point source pollutants including, heavy metals,
21 hydrocarbons, iron flocs and excess nutrients. This small
22 coastal stream originates from a spring that drains runoff from
23 Mendanhall Valley, a relatively high residential and business
24 area. Historically there were runs of nearly 10,000 chum salmon
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1 and Coho runs of about 500 fish in Duck Creek. Currently the
2 chum run is extinct and the Coho run consists of only 20 fish.
3 Restoration at Duck Creek involves the development and
4 implementation of bioremediation methods to restore water
5 quality and anadromous fish habitat in impaired streams. NOAA
6 scientists attempted to correct the degraded conditions by using
7 high-pressure jet pumps and suction dredges to remove fine
8 sediment from the streambed.
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10 6. I have spent much time over the last 4 years studying
11 mercury effects on the environment in relation to suction
12 dredging activity. Specifically, there was concern expressed
13 regarding a paper published by the California Water Board's
14 Water Quality Division (Humphreys, 2005) ("Board"). This paper
15 discussed mercury losses and recovery during small-scale suction
16 dredging.
17

18 7. The suction dredge community could provide the state
19 with a source of help that is willing to do what they do best.
20 Prospect for GOLD! In the event that suction dredge miners run
21 across a hot spot of mercury, the miners would be willing to
22 hand it over to a collection facility if such a facility
23 existed. The Board's Water Quality Division report (Humphreys,
24 2005) idea of paying the miner's for their efforts would help
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1 facilitate this plan. The cost would be much less than what is
2 presently being spent on remediation activity that is less
3 effective.

4 8. The Water Board has spent a lot of time and money on
5 mercury remediation projects with limited success though in 2001
6 EPA, Region 9 located in San Francisco, California did collect
7 mercury from miners very effectively. Collections of mercury
8 are currently happening in Oregon and Washington through the
9 states respective Division's of Ecology and with even greater
10 success at miner's rallies.
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12 9. During the first EPA, Region 9 mercury "milk run" in
13 2000 agency personnel were able to collect 230 pounds of mercury
14 from miners. The total amount of mercury collected was
15 equivalent to the mercury load in 47 years worth of wastewater
16 discharge from the city of Sacramento's sewage treatment plant
17 or the mercury in a million mercury thermometers. (US EPA,
18 2001.)
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21 10. Over the past four years, the Resources Coalition and
22 other small-scale miners associations in Washington have turned
23 in 127 pounds of mercury and eight pounds of lead for safe
24 disposal with the help from the Washington Department of
25 Ecology. Ecology staff attended miners' rallies in Oroville and
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1 Monroe, explaining the state's program for proper disposal of
2 lead and mercury. (ENS) 2007

3 11. The mining community of today is, in my opinion, the
4 only group that is in a position with the technology to help out
5 at a very economical price to the public. Any residual mercury
6 remaining after dredging a location is that much less to worry
7 about in our nations waterways.
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9 12. In reviewing Humphrey's (2005) comments regarding
10 possible problems associated with collecting mercury via suction
11 dredging methods, It is right to look to the suction dredge
12 community for help locating hotspots and removing mercury from
13 the river systems. In my opinion the data provided in the
14 report by Humphrey's (2005) did not demonstrate any clear
15 conclusions that would prohibit the State from allowing this
16 activity. On the contrary, in the discussion of results it was
17 stated that a suction dredge in the American River was able to
18 collect 98 percent of the measured mercury processed through the
19 dredge. The results may have been higher if the investigators
20 had been using a dredge with the modern jet flare design. Even
21 98 percent is a huge plus for the environment and it would be
22 irresponsible to not allow mercury to be removed from the rivers
23 and streams whenever it is found.
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1 13. In Humphreys report (2005), the author expressed
2 concern for the loss of a small portion (2%) of the mercury from
3 the back end of the sluice box. In the conclusions it was
4 stated that the amount lost constituted a concentration more
5 than ten times higher than that needed to classify it as
6 hazardous waste. Yet 98 percent of the mercury was now secured
7 and the process did not add any mercury to the system that was
8 not already present. The small fraction lost, because of its
9 density, would relocate back onto the river floor buried in the
10 sediment close to where it was removed while dredging.
11

12 14. Mercury is continuously moved every winter in high
13 storm events. Since the cessation of hydraulic mining,
14 accumulated sediment from hydraulic placer mining has been
15 transported to the Sacramento-San Joaquin Delta and San
16 Francisco Bay by sustained remobilization (James, 1991).
17 Providing a program to collect mercury from miners would aid the
18 Water Board's mission of reducing mercury contamination in the
19 deltas and bays where mercury methylation is a large concern.
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21 15. Mercury can become floured. Alpers (2005) described
22 this as, "gravel and cobbles that entered the sluice at high
23 velocity caused the mercury to flour, or break into tiny
24 particles. Flouring was aggravated by agitation, exposure of
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1 mercury to air, and other chemical reactions". In this case he
2 was referring to a hydraulic mining sluice that contained
3 materials that were roaring down a mountainside and fed by giant
4 water cannons (monitors) that were used to breakup the gold
5 bearing deposits.

6 16. In the test described by Humphreys (2005) a small
7 portion of floured mercury was collected in the sediments as
8 they escaped the sluice box. This mercury whether floured
9 before it entered the sluice box or not would still be in
10 elemental form. Regardless of surface area it would be no less
11 toxic than the other 98 percent suggested should be left in
12 place.
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15 17. Aside from grossly polluted environments, mercury is
16 normally a problem only where the rate of natural formation of
17 methyl mercury from inorganic mercury is greater than the
18 reverse reaction. Methyl mercury is the only form of mercury
19 that accumulates appreciably in macroinvertebrates and fish.
20 Environments that are known to favor the production of methyl
21 mercury include certain types of wetlands, dilute low-pH lakes
22 in the Northeast and North central United States, parts of the
23 Florida Everglades, newly flooded reservoirs, and coastal
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1 wetlands, particularly along the Gulf of Mexico, Atlantic Ocean,
2 and San Francisco Bay (USGS 2000).

3 18. If not collected the mercury is guaranteed to end up
4 farther down stream, and eventually in the delta or the bay,
5 where methylation is a real environmental problem.

6 19. In my opinion it would be a highly irresponsible
7 management practice to leave a large portion of mercury in the
8 rivers and streams because of unrealistic concerns for the
9 lesser amount moving only a short distance away from an
10 operating dredge. Most likely if floured the movement of fine
11 mercury would extend no farther than 50-feet off the end of the
12 sluice box. That would relate to the distance a turbidity plume
13 might extend downstream from a small-scale suction dredge.
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15 20. However, if the mercury was left in place the next
16 storm event would surely move it downstream closer to, and
17 eventually into, the bay and delta. In fact, according to
18 Humphrey's study in 2005 mercury was seen moving down stream and
19 re-deposited on bedrock already dredge cleaned. The important
20 fact here is mercury was flowing down stream in a suction dredge
21 free zone during lower river flows than take place under high
22 winter river conditions.
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1 21. It is unclear from reading the Humphrey's report
2 whether, or not, the floured mercury was already present in the
3 river sediments. If one were to study the picture in the report
4 that showed the results of panning materials from a nearby creek
5 it does appear that was the case. Because the study was
6 conducted in a seriously contaminated area it is impossible to
7 determine what portion of flouting of mercury was caused by the
8 crash box design of the suction dredge in use. If indeed the
9 crash box caused the flouting then using a more modern jet flare
10 type suction dredge should improve mercury recovery.
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12 22. More study is required to see if reducing the amount
13 of floured mercury would be enhanced by utilizing the modern jet
14 flare style suction dredge. The jet flare which is widely in use
15 today, in the suction dredge mining community, is the best
16 equipment available for collecting fine gold and because of this
17 design and the density of mercury 13.53 grams per cubic
18 centimeter (g/cm³) it would be more effective in collecting
19 mercury particles with little disturbance that would result in
20 further breaking the mercury particles down.
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22 23. It is most important to reduce the total amount of
23 mercury in the streams and rivers and its transport downstream
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1 into the bays and deltas. This is defined as a part of Total
2 Maximum Daily Load ("TMDL") goals.

3 24. We know for certain that mercury is transported
4 downstream throughout the winter season during high water
5 events. Therefore, anytime there is the possibility for the
6 removal of mercury by miners it should be undertaken and
7 supported.
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9 25. In my opinion suction dredge mining is beneficial to
10 the rivers and streams in California.

11 I declare under penalty of perjury under the laws of the
12 State of California that the foregoing is true and correct.
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14 Executed this 15th day of May, 2009 at Albany, Oregon.
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17 _____
18 CLAUDIA J. WISE

19 **LITERATURE CITED**

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