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SUPERIOR COURT OF THE STATE OF CALIFORNIA
COUNTY OF ALAMEDA
HAYWARD DIVISION

KARUK TRIBE OF CALIFORNIA; AND LEAF HILLMAN,

Plaintiffs,

v.

CALIFORNIA DEPARTMENT OF FISH AND GAME; AND RYAN BRODDRICK, DIRECTOR, CALIFORNIA DEPARTMENT OF FISH AND GAME,

Defendants.

THE NEW 49'ERS, a California Corporation; AND RAYMOND W. KOONS, an Individual; AND GERALD HOBBS, an Individual,

Intervenors.

Case No.: RG 05 211597

DECLARATION OF NEIL MANJI IN SUPPORT OF DEFENDANTS' CASE MANAGEMENT CONFERENCE STATEMENT

Judge: Honorable Bonnie Sabraw
Place: Department 512

Date: October 17, 2006
Time: 9:00 a.m.

Action Filed: May 6, 2005
Trial Date: None Set

I, Neil Manji, declare as follows:

1. I am currently employed by the California Department of Fish and Game ("Department") as the Fisheries Branch Chief. The matters set forth in this declaration are within my personal knowledge and if called upon to testify to these matters I could and would so testify.

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2. This declaration supplements my prior declaration in the present action as executed in Redding, California, on January 20, 2006, and filed with the Alameda County Superior Court on January 23, 2006.

3. In my current position as Fisheries Branch Chief for the Department I am responsible for setting statewide policy relating to the development and implementation of fishing regulations, watershed restoration and protection guidelines. I am also a member of the Klamath Basin Fishery Task Force and Klamath Fishery Management Council.

4. Prior to serving as Fisheries Branch Chief, I worked for the Department as the Fisheries Program Manager for the eight counties that comprise the Department's Northern California-North Coast Regional Office ("Region"). In that capacity I oversaw all fisheries programs in the Region, including programs involving: (1) fisheries habitat restoration; (2) inland and anadromous fisheries resource assessment and monitoring; (3) watershed assessment; and (4) salmon, steelhead, and trout hatcheries. I hold a Bachelor of Science degree with a major in Fisheries that I received from Humboldt State University in 1986, and have worked as a fishery biologist since 1989. My work as a fishery biologist focused on the Klamath River specifically from 1984 through 1986, from 1999 through 2005 until I began my current job as the Fisheries Branch Chief with the Department in April 2006.

5. I make this declaration to provide additional detail to the court regarding the Department's current opinion that suction dredge mining under existing regulations found in Title 14 of the California Code of Regulations in sections 228 and 228.5 (the "existing regulations") in the Klamath, Scott and Salmon River watersheds is resulting in deleterious effects on coho salmon (*Oncorhynchus kisutch*). The Department expressed its current opinion to the court for the first time in a Case Management Conference Statement filed in the present action on September 6, 2006.

6. This declaration and the Department's current opinion are based on existing scientific literature, data available to the Department, and my professional experience as a fishery biologist. With respect to scientific literature, there is now a substantially larger body of published, peer reviewed scientific research regarding fisheries science and suction dredge mining than there was at

the time the Department promulgated the existing regulations in 1994. A list of the scientific literature cited below is attached to this declaration as Exhibit A.

7. With respect to relevant data, the Department also has substantially more information than it did in 1994 regarding the distribution, and presence and absence of coho salmon throughout the species' range. This information and data is the result of work by Department personnel alone or in cooperation with scientists from other public agencies, members of the academic community, and various tribal interests. The information and data is the direct result of, among other things, presence/absence surveys, spawning ground surveys, juvenile out-migrant surveys, fish kill investigations, and thermal refugia surveys.

8. As explained below, based on a review of the scientific literature, data available to the Department, and my experience as a fishery biologist, it is my professional opinion as the Fisheries Branch Chief for the Department that suction dredge mining under the existing regulations in the Klamath, Scott and Salmon River watersheds is having deleterious effects on coho salmon, a species currently protected by the California Endangered Species Act ("CESA") (Fish & G. Code, § 2050 et seq.).

9. In general, the current scientific literature indicates suction dredge mining adversely affects aquatic resources to varying degrees. Poor mining practices have been shown to alter channel configuration, destabilize stream banks, and degrade habitat. (Stern 1988; Harvey *et al.* 1995) Suction dredge mining has also been shown to affect water quality through localized and temporary increased sediment loads. (Harvey *et al.* 1982; Stern 1988; Harvey *et al.* 1995; Prussian *et al.* 1999) Likewise, the scientific literature indicates tailings from suction dredge mining may provide attractive spawning substrate, but the dredge affected substrate is more unstable in higher winter flows than other spawning habitat unaffected by mining activity. (Harvey and Lisle 1998.) Finally, suction dredging has been shown to cause temporary and localized declines in invertebrate populations. (Harvey *et al.* 1982; Thomas 1985; Harvey 1986; Hassler *et al.* 1986; Harvey and Lisle 1998; Prussian *et al.* 1999) As explained below, all of these effects result in deleterious impacts to coho salmon during one or more of the species' life stages, even under the Department's existing regulations.

Spawning

10. The scientific literature, available data and survey information possessed by the Department indicate coho salmon typically spawn in the Klamath Basin from November through January. (Mauer 2002, 2003; Quigley 2005) Spawning has also been documented in the Klamath system (which includes the Scott and Salmon Rivers) as early as late September. ((CDFG 2004), cooperative spawning ground survey data 2005.) Spawning is an extremely high energy activity for all salmon, including coho. According to the scientific literature, Pacific salmon, including coho, that are subjected to added stressors (Berman 1990 as cited in (McCullough 1999)) or migration delays (Andrew and Geen 1960 as cited in (McCullough 1999)) during spawning experience reduced spawning success and pre-spawn mortality. In order to avoid deleterious impacts it is important coho salmon are not delayed or disturbed by instream activities such as suction dredge mining during their upward migration and spawning. Likewise, it is important to avoid instream activities like suction dredge mining once spawning is complete because it can take several months for eggs to develop and coho larvae to emerge from the gravel. Available data and scientific literature indicate coho fry emerge from the gravel from March to June (Hardy 1999, CDFG 2004).

11. Under the Department's existing regulations, suction dredge mining in the Klamath, Scott and Salmon River watersheds is generally governed by the "Class" D, G, and H designations. (See, e.g., Cal. Code Regs., tit. 14, § 228.5, subd. (d)(49), (76), (90).) The Class D designation authorizes suction dredge mining from July 1 through September 15; under the Class G designation suction dredging is authorized from the fourth Saturday in May through September 30; and, under the Class H designation, suction dredging is authorized throughout the year. (*Id.*, subd. (a)(4), (7), (8).) In light of these designations, suction dredge mining is currently authorized under the existing regulations during times of the year when coho are migrating and spawning, as well as when coho eggs and larvae are developing. Suction dredge mining during these times is causing deleterious impacts to coho salmon as a result.

12. Deleterious impacts on coho spawning are of further concern because of scientific literature regarding the use of dredge tailings as spawning substrate. That literature indicates tailings from

suction dredge mining can provide attractive spawning habitat for coho salmon because the tailings are loose and not compacted. (Harvey *et al.* 1995) However, the literature also indicates dredge tailings are often scoured or redistributed during high flows and, therefore, the tailings are not suitable spawning habitat. (Stern 1988; Harvey and Lisle 1998, 1999) Likewise, the scientific literature indicates scour is greater on dredge tailings than on natural substrates. (Harvey and Lisle 1999) The scientific literature indicates as a result that eggs and larvae deposited by fish on dredge tailings are at greater risk of scour than those on naturally deposited gravel. The stability of spawning gravel is critical to reproductive success of salmonids, including coho, because of the long time period that the eggs and embryos remain in the gravel. In short, coho eggs and embryos deposited in dredge tailings likely suffer higher mortality when high winter flows scour the tailings. (Harvey and Lisle 1998)

Eggs and Alevin

13. As described above, suction dredge mining is authorized under the existing regulations in the Klamath River system, including the Scott and Salmon Rivers and their tributaries, from July through the end of September, in some cases in May through September, and in other cases year round. During these times, particularly late September to June, when coho eggs, larvae, and alevin (a pre-emergent life stage where the yoke in a fertilized egg is nearly gone) are in the gravel. The Department is concerned these life stages are particularly vulnerable to deleterious impacts caused by suction dredging because the mining activity causes temporary and localized increases in turbidity.

14. The scientific literature indicates fine sediments suspended from suction dredging while eggs are developing may reduce the oxygen reaching developing eggs and alevins. (Harvey *et al.* 1995) For example, the presence of clay particles can create a thin film across the egg membrane and reduce the consumption of oxygen in developing eggs. (Greig *et al.* 2005) Reduced oxygen has been linked in the scientific literature to reduced survival and greater deformities in some salmonid eggs. (Einum *et al.* 2002) Because suction dredging is authorized under the existing regulations during times when eggs or alevin may still be in the gravel (CDFG 2004), fine

sediments suspended by suction dredge mining activity is likely causing deleterious localized impacts to coho during this particularly vulnerable life stage.

15. The Department is also particularly concerned about deleterious impacts to coho eggs and alevin resulting from entrainment of the life stage in suction dredge mining equipment. According to the scientific literature, entrainment can cause varying mortality rates to salmonid eggs at differing developmental stages. (Griffith and Andrews 1981 as cited in (CDFG 1994; Harvey and Lisle 1998) The scientific literature also indicates alevin specifically suffer high mortality rates following entrainment. (Griffith and Andrews 1981 as cited in (CDFG 1994; Harvey and Lisle 1998) Because eggs and alevin are still in the gravel when suction dredge mining is authorized under the existing regulations, mining activities are likely causing deleterious localized impacts to coho during this particularly vulnerable life stage.

Juveniles

16. The Department is concerned suction dredge mining during periods of time currently authorized under the existing regulations is having deleterious impacts on juvenile coho salmon. Although juvenile and adult coho are not likely to be entrained in suction dredge mining equipment, several aspects of dredging may affect juvenile coho distribution. Unlike Chinook salmon, juvenile coho reside in tributaries for a year or more before emigrating to the ocean. Over summering habitat is thus critical to the survival of juvenile coho.

17. The scientific literature establishes suction dredge mining can affect stream channel stability and streambed morphology (Harvey *et al.* 1982; Harvey 1986; Hassler *et al.* 1986; Stern 1988; CDFG 1994; Harvey and Lisle 1998, 1999) which can affect salmonid distribution. Dredge tailings can alter habitat depth by filling in pools (Harvey and Lisle 1998) and small streams where coho rear are particularly susceptible to this effect if the tailings span the entire width of the stream. The scientific literature indicates, for example, that a reduction in pool volume from dredging can cause a decline in abundance of rainbow trout in that pool. (Harvey 1986) This illustrates the ability of instream habitat changes to affect salmonid distribution. In addition to changes to stream morphology,

dredging releases prey items for immediate consumption. Yet, in the longer term, dredging causes localized decreases in macroinvertebrate populations that may affect feeding behavior and ultimately growth of juvenile salmonids, including coho. (Harvey *et al.* 1982; Thomas 1985; Harvey 1986; Hassler *et al.* 1986; Harvey and Lisle 1998; Prussian *et al.* 1999).

18. Juvenile and adult fish have been observed holding in dredge holes. (Harvey 1986; Stern 1988) However, the scientific literature indicates filling naturally occurring pools (Harvey 1986) with dredge tailings and creating new holes as a result of suction dredging displaces fish from preferred habitats with cooler water (CDFG 1994). Available data indicates juvenile salmonids use cold water thermal refugia around the mouths of numerous tributaries entering the Klamath, Shasta, Scott and Salmon Rivers (Belchik 1997, 2003; internal CDFG report 2000). Department biologists have documented the location and use of thermal refugia by salmonids, including coho, during field investigations and juvenile fish surveys. In addition, there have been several studies and observations conducted by other state, federal and tribal biologists that identify and quantify thermal refugia in the Klamath River Basin. The importance of cool water habitats/refugia is widely discussed in the literature. (Nielsen *et al.* 1994; Sauter *et al.* 2001; Welsh *et al.* 2001) The combined effects of temperature and potential displacement may be particularly detrimental in the Klamath Basin where water temperatures not only appear to be increasing (Bartholow 2005) but can exceed critical thresholds for coho (internal CDFG report 2000). Under the existing regulations, however, the importance of thermal refugia and disturbance to those habitats are not addressed.

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Sacramento, California on October 2, 2006.

By: _____

NEIL MANJI

Exhibit A to Declaration of Neil Manji

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