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Mr. Bob Williams
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December 9, 2008

RE: Shasta River Watershed-Wide Permitting Program

Mr. Bob Williams,

The Quartz Valley Indian Reservation's (QVIR) Environmental Protection Department has reviewed and is providing detailed comments on the Draft *Environmental Impact Report for the Shasta River Watershed –Wide Permitting Program.*

As you are aware, the Reservation is located in Quartz Valley, a sub-basin within the Scott River Watershed. The Tribe has also placed acreage in the Shasta Watershed in Trust for the QVIR. This federally recognized Tribe was established for Tribal people of the following decent: Shasta, Karuk and Upper Klamath. The Shasta River offers spawning and rearing habitat to coho salmon and it is in the best interest of the Tribe to protect, restore and preserve this habitat for the existing and future prosperity of the Tribal way of life, which once existed for the Shasta people in this valley.

Upon review of the Program's Draft EIR, we find it inadequate in meeting the obligations set forth in the California Environmental Quality Act. Enforcement of existing laws and regulations is necessary to recover salmonids in the Shasta River Watershed. Currently there is a lack of enforcement of existing DFG laws for such activities proposed to occur under the Shasta River Watershed –Wide Permitting Program. It is DFG's responsibility to enforce and uphold these laws to recover the federal and state listed coho salmon.

We thank you for your time and consideration of the detailed comments provided.

Sincerely,

Crystal Bowman
Environmental Director
Quartz Valley Tribal Environmental Program

MEMORANDUM REPORT

EXECUTIVE SUMMARY

While the California Department of Fish and Game (CDFG) appears to have noted receipt of the relevant materials (e.g., QVIR 2005) and recommendations (QVIR 2006) submitted earlier by the Quartz Valley Tribe concerning the proposed development of a Shasta River coho salmon Incidental Take Permit (ITP), few if any of the issues of substance raised by the Tribe in their submittals to CDFG have actually been addressed by the Department in its *Draft Environmental Impact Report* (DEIR) for the Shasta Watershed Wide Permitting Program.

The DEIR is driven by an ITP proposal submitted by the Shasta River valley farming community. The plan fails to address the issues of streamflow and groundwater depletion and their associated water quality problems, which are the documented root causes of coho salmon decline in the Shasta River watershed.

While the measures recommended might improve some conditions for coho salmon, at the margin and at substantial cost, taken together, they will not improve stream conditions sufficiently to assure that actions to be permitted under the proposed Watershed Wide Permitting Program will not cause further jeopardy to the species. The DEIR does not, therefore, meet the requirements of the California Endangered Species Act (CESA) nor those of the California Environmental Quality Act (CEQA) and it is, in our view, open to successful challenge in court should CDFG proceed to adopt only a lightly revised final version of this EIR.

Because the improvements to the DEIR previously recommended by the Tribes (QVIR 2006, 2005) and noted in the DEIR have simply been ignored, we will not bother to restate them all here. Instead, the most significant and fatal flaws of the Watershed Wide Permitting Program strategy will be pointed out below and we will describe briefly a scientifically-based approach for preventing further jeopardy to Shasta River coho salmon.

DETAILED COMMENTS

Dwinnell Dam

Although the DEIR identifies Dwinnell Dam removal as an option, it rejects it as infeasible because there are no alternative water supplies or systems of delivery for the Montague Water Conservation District with which to serve its customers. It also opines, "…CDFG does not have the statutory authority to require MCWD to decommission and dismantle the dam, and it does not appear that other governmental agencies have such authority. For that reason alone, this alternative might not be feasible." (p. 5-9)

In fact, as stated in the Tribes' earlier comments on this project, California Fish and Game Code (CF&GC) §5937 says that CDFG is not to allow streams to be dewatered.

The passage of this statute preceded the construction of Dwinnell Dam, the operators of which make no provision to protect fishlife below it (Figure 1).

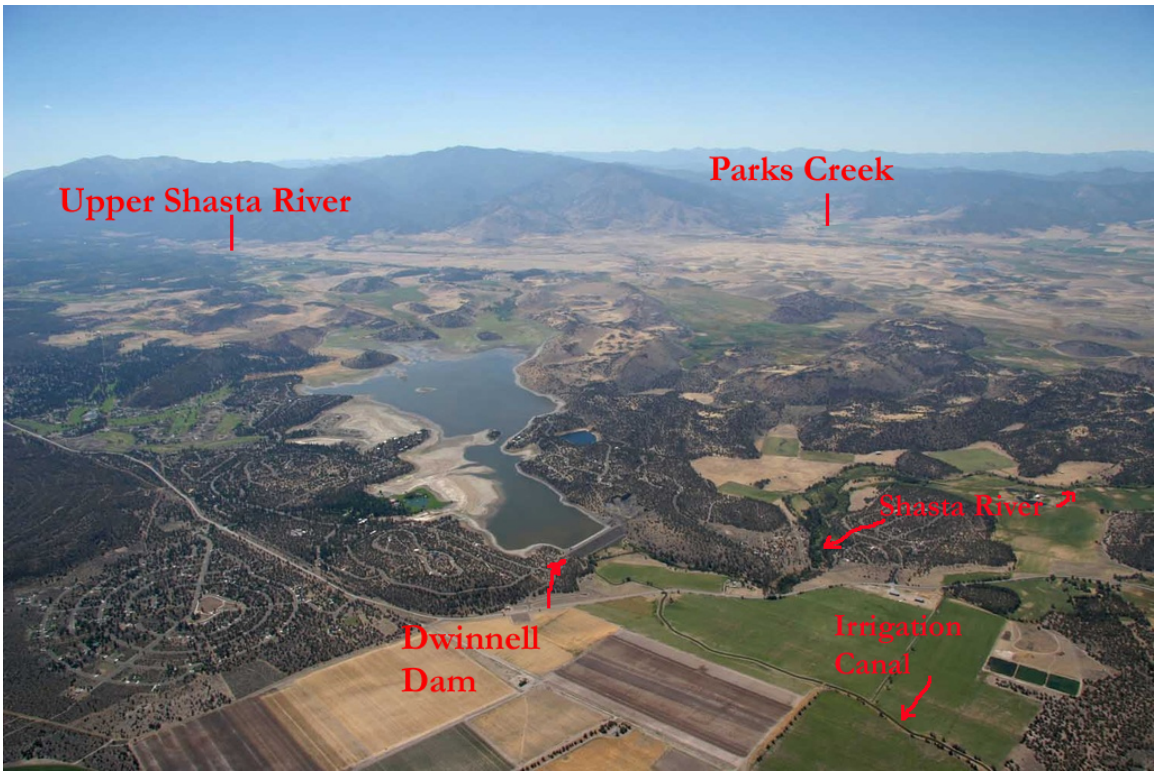

Figure 1. Dwinnell Dam blocks access to upstream migration of coho to the upper Shasta River and tributaries and water from Parks Creek is diverted to fill the reservoir above it. Dwinnell Dam does not release water to the Shasta River. Photo by Thomas Dunklin.

The DEIR does not explain why it thinks CDFG lacks the authority to enforce (CF&GC) §5937. The DEIR essentially attempts to legitimate Dwinell's illegal operation under the Watershed Wide Permitting Program by treating it as part of the baseline conditions: "Dwinnell Dam and its impacts on the hydrology and aquatic resources of the Shasta River are part of existing physical conditions in the Program Area (i.e., it is part of the baseline), which will continue with or without the Program". In fact, operation of Dwinnell Dam constitutes a major "take" of coho salmon and is a documented contributor to the jeopardy of Shasta River coho salmon (see Jeopardy Issues).

The National Research Council (2004) urged that serious consideration of removal of Dwinnell Dam because of the substantial amount of habitat that would be opened up for endangered coho. NRC pointed out that in a global warming scenario, Mt. Shasta, alone, is expected to get increased snow fall, which makes the Shasta River the best potential future refugia for Klamath River salmon species. In order to decrease the risk of loss of coho salmon, the population's spatial distribution and its productivity need to be increased (Williams et al. 2006). Removing Dwinnell Dam would be one way to do that expeditiously.

Water quality in Dwinnell Reservoir is extremely poor during the summer months (Vignola and Deas, 2005), as is that of other eutrophic reservoirs in the Klamath Basin

like Iron Gate and Copco Reservoirs on the mainstem Klamath River. The prevalence of warm water fish species in Dwinnell Reservoir is indicative of its poor water quality.

Dwinnell Reservoir stratifies thermally during the summer season. The reservoir's upper layer is warm, the water has a high pH, and hosts nuisance blooms of blue green algae including toxigenic *Anabaena flos-aquae* (NCRWQB, 2005). The deeper layer of water is cooler, oxygen-deprived, and nutrient rich. The nutrients in these deeper waters accumulate from the settling of organic matter from above and from internally-generated nutrients released from the anoxic sediments underlying the reservoir waters (Vignola and Deas, 2005). The water released from Dwinnell Dam comes from the depths of the reservoir and thus the dam discharges the same degraded water quality (i.e. low oxygen and high ammonia) as its source. Consequently, flows released downstream in summer now degrade water quality in the mainstem Shasta River.

Water quality nuisances and a major source of exotic fish species introduction could be abated by the removal of Dwinell Dam. The river's coho salmon's chances for recovery would be increased substantially.

Surface and Groundwater Issues

Shasta River water quality problems are acknowledged as being related to low flow conditions (NCRWQCB 2006, NRC 2004) and it is also acknowledged that temperature problems, in particular, cannot be resolved without increasing streamflow in the river. To that end, the SWRCB (NCRWQCB 2006) has acted "to increase the dedicated cold water instream flow in the Shasta River by 45 cfs or alternative flow regime that achieves the same temperature reductions from May 15 to October 15" by 2011. CDFG discusses the flow options and benefits of increased flow, but fails to conform its policy to that of the SWRCB. CDFG's flow goal, instead, is for minimum flows of 20 cfs by 2015.

Without substantially improved flows, coho salmon will remain in jeopardy under the Watershed Wide Permitting Program, which CDFG admits is illegal. (see Jeopardy Issues).

CDFG fails to reference the work of the U.S. Geologic Survey (Mack 1960) but acknowledges that historic flows at the mouth of Big Springs Creek were apparently on the order of 100 to 120 cfs. These flows were undiminished as of 1980, when the California Department of Water Resources (DWR, 1981) found that the highest concentration of Chinook salmon spawning was in this reach of the river, where hundreds of salmon redds were observed. The DEIR describes how Big Springs Creek was dried up and Little Springs Creek virtually obliterated (Figure 2), but fails to note that these practices are legally questionable:

> "While Big Springs Creek typically maintains substantial flow at its confluence with the Shasta River, the entire flow of Little Springs Creek is often diverted for flood irrigation during much of the summer. Prior to the mid 1980s, in addition to the above two diversions, the Big Springs Irrigation District (BSID) also utilized a surface water diversion from Big Springs Lake, but found itself increasingly restricted in order to assure that higher priority water users further downstream

received their water. Eventually the BSID drilled several relatively shallow wells and effectively abandoned their surface water right for unregulated groundwater, presumably originating from the same aquifer that feeds Big Springs Creek and the other springs in the area." (p. 3.3-32)

As pointed out in the Tribes' previous comments (QVIR 2005, 2006) and readily available reports (Kier Associates 1999), the diversion of Big Springs is clearly recognized as connected to surface hydrology and such requires a permit for appropriative use from the SWRCB Water Rights Division (WRD). The flow depletion has converted what was once cold refugia that gave life to the Shasta River below Dwinnell Dam to a tepid shrunken creek. Thermal infrared radar imagery (Watershed Sciences Limited 2004) of Big Springs Creek shows that it warms to 21 C as it meets the Shasta River (Figure 3), a water temperature much too warm for coho salmon (McCullough 1999; Sullivan 2000). The cumulative impacts on the mainstem Shasta of this diversion represent a high level of take. Without increased flows at Big Springs coho shall remain in jeopardy of extinction.

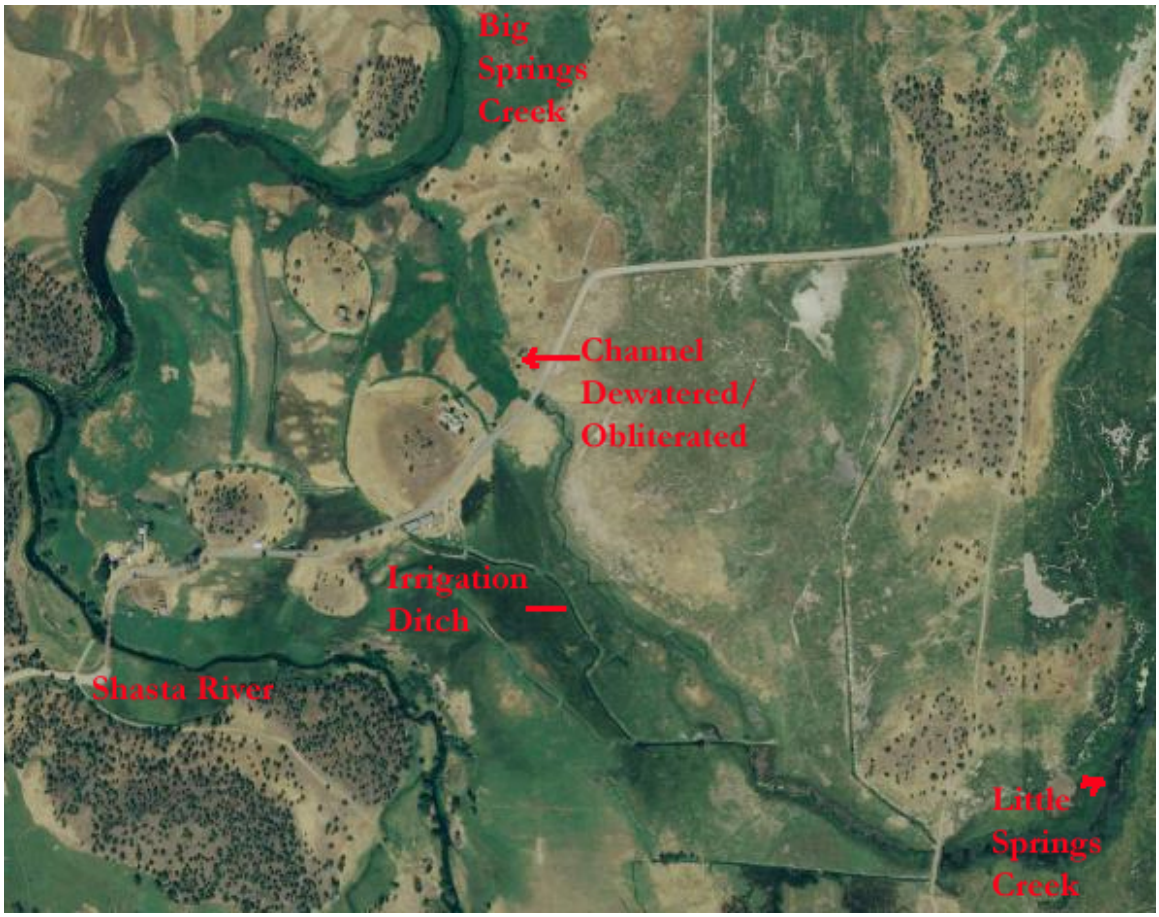

Figure 2. Little Springs Creek is at lower right but is completely diverted and its lower channel obliterated. The Shasta River below Dwinnell is at left and Big Springs Creek at top.

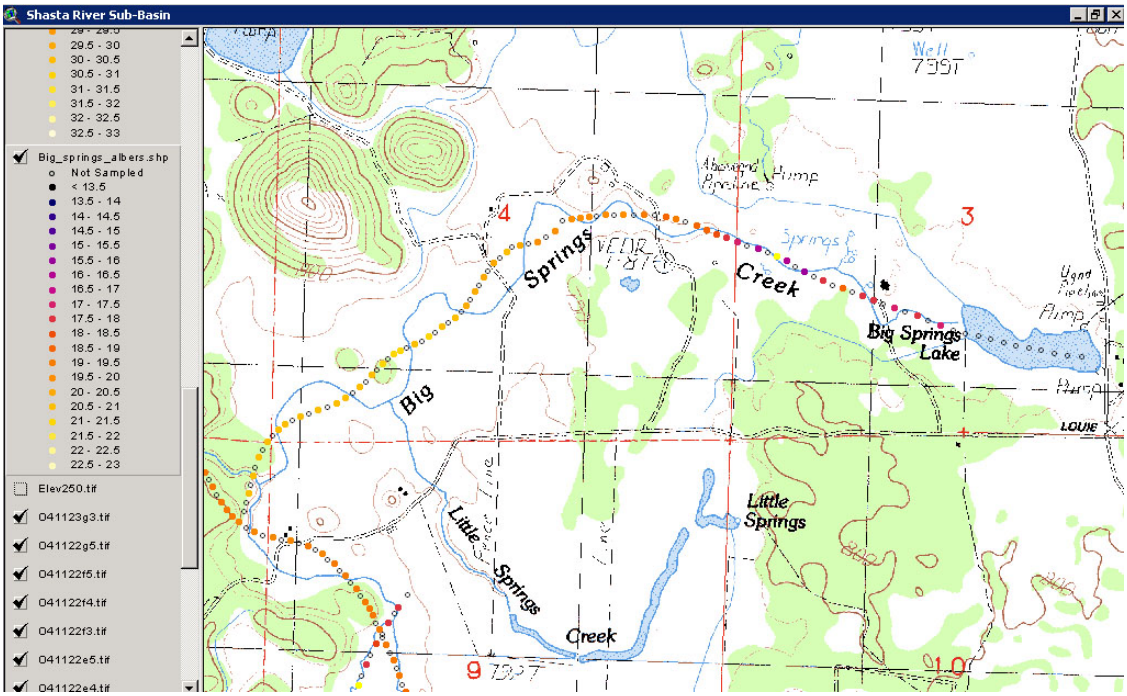

Figure 3. This thermal infrared radar image of Big Springs Creek shows that flow depletion is causing the stream to warm from suitable for coho (<16 C) to stressful for all salmonids (>21 C).

Parks Creek also joins the Shasta River near the convergence of Big Springs Creek and could also provide a refuge. Instead virtually all its water is shunted into Dwinnell Reservoir and its lower reaches, which are spring fed, are channelized and dewatered (Figure 4). Thermal infrared imagery of lower Parks Creek shows how dewatering contributes locally to increased water temperatures (Figure 5). With little flow coming from Dwinnell Dam, and with Big Springs Creek diminished in flow by 80% and Parks Creek dried up, there is little wonder that the entire Shasta River is experiencing an ecosystem crisis and that its coho salmon remain in jeopardy and are at high risk of extinction.

Pesticides and Herbicides

Despite a clear request in the Tribes' scoping comments (QVIR 2006) for a discussion of pesticide and herbicide use associated with agricultural practices in the Shasta River basin, the DEIR fails to address the issue. Thousands of pounds of pesticides are being applied each year in the Shasta River Basin (Figure 6). Many of these chemicals are known to be harmful to salmonids (Ewing 1999, NCAP 1999). NMFS (2008) recently found in a Biological Opinion to the U.S. EPA that products containing chlorpyrifos, diazinon, and malathion have significant impacts on endangered species. According to the California Pesticide Use Reporting Database[1], these three chemicals are currently in use in the Shasta River basin. Gilliom et al. (2006) point out that while some highly utilized chemicals like hexazinone may break down quickly in the atmosphere, they can be very persistent in groundwater. USGS surveys commonly find this substance in agricultural aquifers.

[1] http://www.ehib.org/tool.jsp?tool_key=18

In that the DEIR fails to address pesticide and herbicide use related to the Shasta River activities to be permitted under the Watershed Wide Permitting Program, the DEIR fails to meet the standards of CEQA.

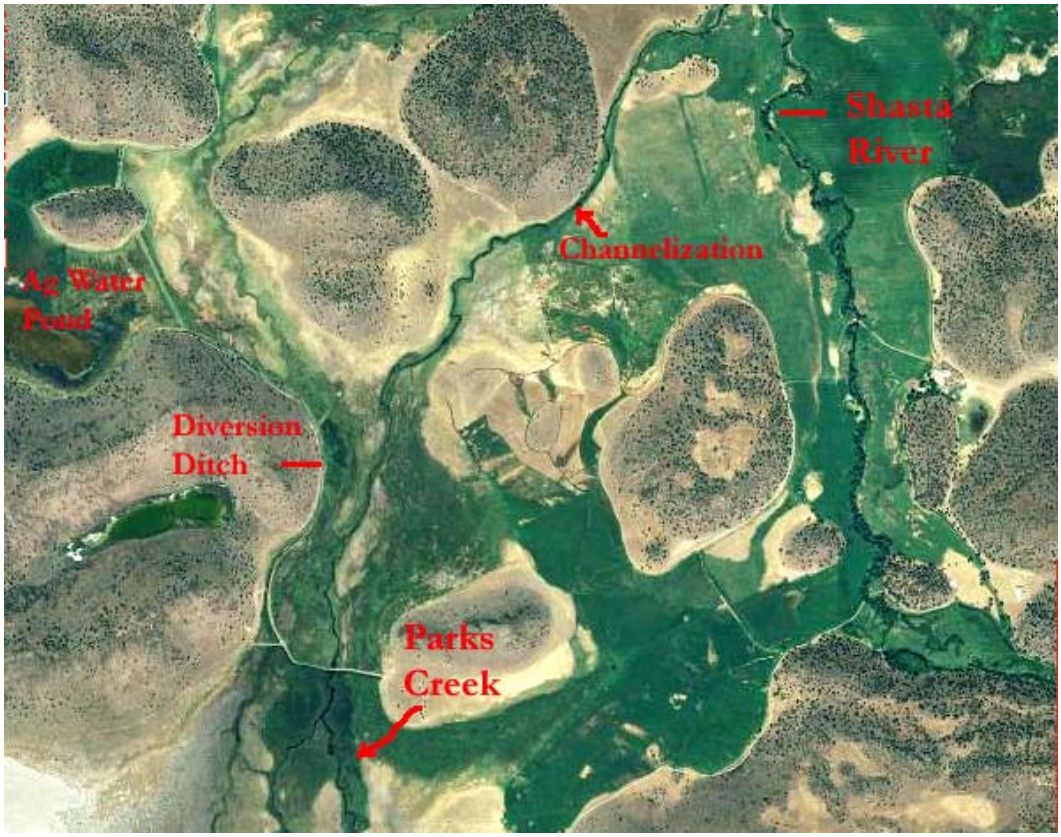

Figure 4. Lower Parks Creek is shown here in a 2005 aerial photo that demonstrates dewatering, channelization and loss of fisheries productivity in what could easily be converted into a refugia.

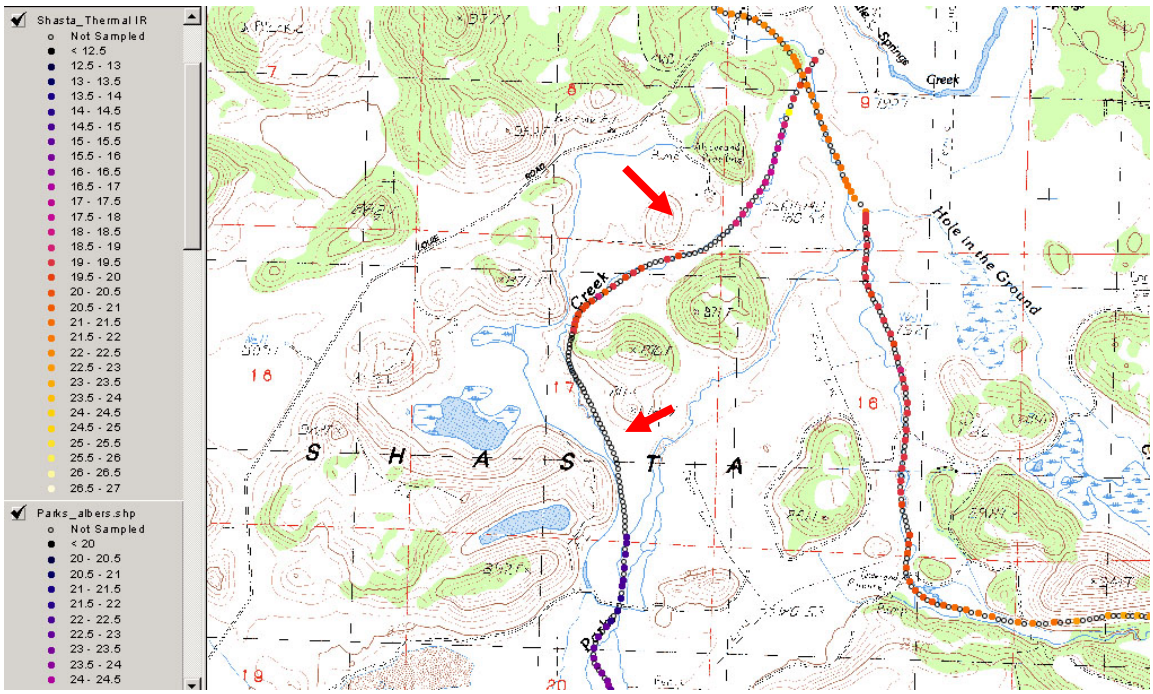

Figure 5. Thermal infrared imagery of lower Parks Creek shows how flow depletion of spring flow is very cold but that the stream becomes warm when most of the water is diverted from its channel. Red arrows show dry reaches (Watershed Sciences LLC 2004).

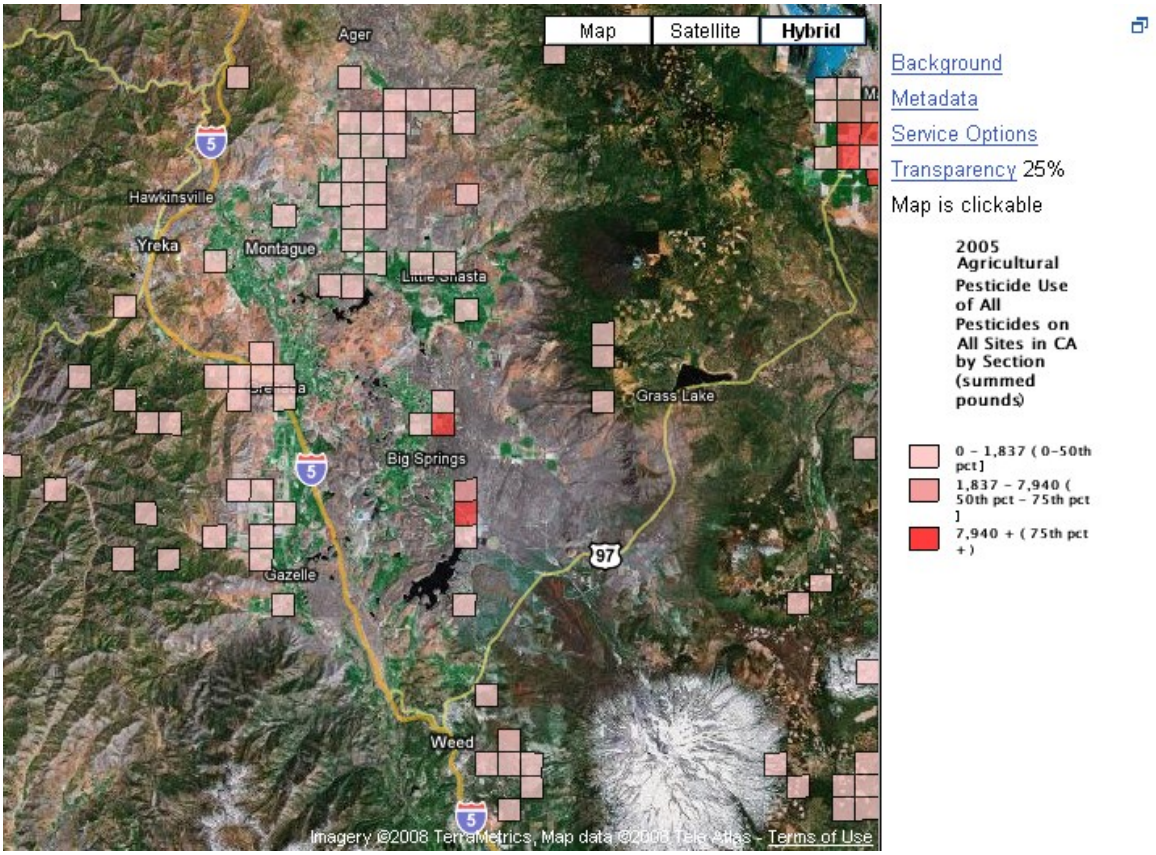

Figure 6. This map shows agricultural pesticide usage in 2005 in the Shasta River watershed and surrounding area, in units of total pounds of pesticide applied per section (square mile). Map was

created using the California Environmental Health Tracking Program (CEHTP) Agricultural Pesticide Use Web Map Service (WMS), a map interface that facilitates access to the California Department of Pesticide Regulation's (CDPR) Pesticide Use Reporting (PUR) database. The map can be accessed at: http://www.ehib.org/tool.jsp?tool_key=18

Jeopardy Issues

The DEIR/CDFG assert that conditions as of the SVRCD (2005) ITP application submission date constitute baseline conditions and argue that only positive change will result from the Watershed Wide Permitting Program. In fact the evidence presented in the DEIR show drastic reductions in surface flow in the Shasta River in recent years as a result of increased surface and groundwater use (NRC 2004, Kier Associates 1999, QVIR 2005, 2006). The DEIR in some places describes coho salmon habitat destruction as a matter of fact, but then fails to follow up and show how habitat will be restored and how continuing problems with "take" related to these practices will be diminished. In fact, activities that have resulted in the collapse of the Shasta River ecosystem with regard to supporting coho salmon will continue to occur under the ITP and marginal changes in existing practices are not sufficient to prevent jeopardy to coho salmon.

The actions contemplated under the Watershed Wide Permitting Program will continue to place Shasta River coho salmon in jeopardy. The "project" addressed here does not, therefore, comply with CESA or CEQA.

The DEIR states that:

> "This Permit may be terminated by the Department at its sole discretion if circumstances or new information provides evidence that continued program implementation may result in jeopardy to coho salmon, or if such termination is required by law or court order. For the purpose of the Permit, 'jeopardy' includes, but is not limited to, to the probable extirpation of any coho salmon cohort."

There is strong evidence showing that Shasta River coho salmon are currently in jeopardy and are likely to remain so. For example, downstream migrant traps on the Shasta River from 2000-2002 captured between 212 and 747 coho juveniles from February to July. The same weak year class pattern described in the Scott River prevails, as well, in the Shasta River.

CONCLUSION

Many of the actions that CDFG, the State Water Resources Control Board (SWRCB) Water Rights Division (WRD) and the Department of Water Resources (DWR) would perform under the new Watershed Wide Permitting Program do not require that the contemplated permitting process be created. Rather, these agencies have neglected these duties resulting cumulatively in a continuing and elevated "take" of coho salmon. Through the legitimizing of current harmful practices without more tangible steps for coho protection, illegal activities will continue to be ignored and hopes of public trust resource recovery will be set back substantially.

The DEIR not only fails to comply with CEQA's requirement for the use of "best science" and for the identification of cumulative watershed effects, and for data sharing, but it also runs counter to CEQA's policy requiring the efficient use of resources "to conserve the available financial, governmental, physical, and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment". CDFG has spent $750,000 on the preparation of a DEIR that is deficient on key scientific issues and insufficient to assure the avoidance of continuing jeopardy to the Shasta River coho salmon population. The Department should have spent such funds on enforcing existing laws and restoring legally-required streamflow to the Shasta River.

Previous comments submitted by the Tribe (QVIR 2005, 2006) have pointed out the urgent need to rebuild at-risk Pacific salmon populations in advance of climatic oscillations in the north Pacific Ocean (Hare and Mantua 1999), which will shift to unfavorable ocean conditions and dry on-land conditions sometime between 2015 and 2025 (Collison et al. 2003). Figure 7 displays the long term fall Chinook salmon trends for the Shasta River with Pacific Decadal Oscillation (PDO) trends overlaid. Chinook are less dependent on freshwater habitat than coho salmon, but their long term decline is nonetheless the result of continuing freshwater habitat loss in the Shasta River. The timelines in the Watershed Wide Permitting Program need to reflect such urgency. The current DEIR, to the contrary, allows seven years for some critical steps like getting fish passage at the Scott Valley Irrigation District diversion dam. Targets such as minimum mainstem Shasta River flows of 20 cfs by 2015 are clearly too little too late.

Shasta River coho salmon cannot be maintained at their current low levels because the likelihood of loss due to storms or other stochastic events is high (Rieman et al. 1993). Coho populations must be aggressively rebuilt by providing refugia (Reeves et al. 1995) in habitats that have high intrinsic potential (Williams et al. 2006) and anthropogenic stressors like livestock use of the riparian zone need to be eliminated to allow full riparian and hydrologic recovery (Kaufmann et al. 1999). Dwinnell Dam operation would continue under the Program, passage to headwaters habitat would remain unavailable, Big Springs flows remain depleted and Parks Creek stays disconnected. These conditions will not recover weak year classes of coho nor the species. Without addressing the factors that have driven coho salmon into jeopardy, the Watershed Wide Permitting Program will remain ineffective and should not be adopted.

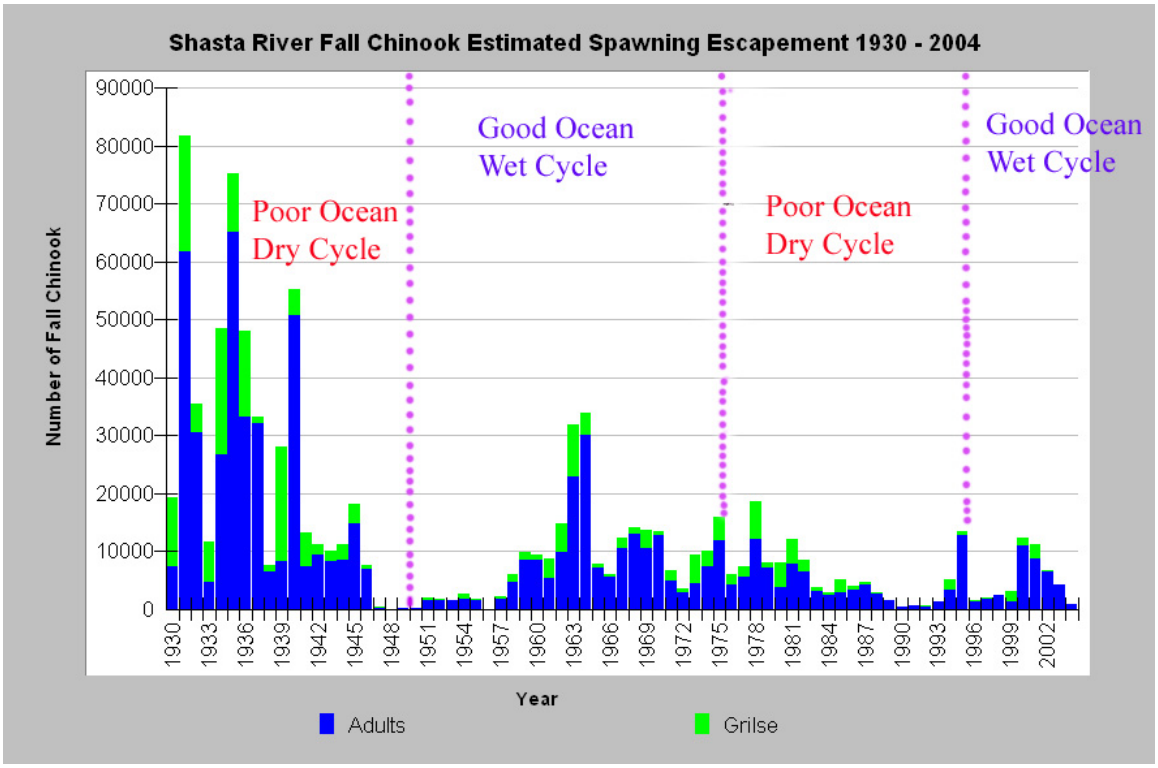

Figure 7. Fall Chinook salmon returns to the Shasta River have been monitored as far back as 1930 and runs show a long term pattern of decline despite cycles associated with ocean and climatic conditions because of continuing freshwater habitat declines. Data from CDFG.

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