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Mr. Bob Williams
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December 9, 2008

RE: Scott River Watershed-Wide Permitting Program

Mr. Bob Williams,

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

As you are aware, the Reservation is located on Shackelford Creek in Quartz Valley, a sub-basin within the Scott River Watershed. Quartz Valley 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.

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 Scott River Watershed. Currently there is a lack of enforcement of existing DFG laws for such activities proposed to occur under the Scott 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 Scott 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).

The DEIR is driven by an ITP proposal submitted by the Scott River valley farming community (Siskiyou RCD 2005). The DEIR 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 Scott 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.

The DEIR clearly fails CEQA's requirements for the use of best available science. The DEIR adopts assumptions reached in Siskiyou RCD's gray literature (i.e. Quigley et al. 2001 and Yokel 2006) and treats these as established authorities although the reports have never been provided scientific review. These reports fail to incorporate data collection from areas of the basin other than the Scott valley; therefore, conclusions are made from monitoring locations granting permission and may not be representative of large portions of the valley. Study designs tend to be poor due to landowner access and QA/QC measures are inadequate. For example, without water quality conditions suitable for salmonids in the Scott River canyon, salmonid adults may not be able to migrate into the valley to spawn. Likewise, juvenile outmigration and rearing can be greatly effected; reports since 2005 by both the USFS Klamath National Forest and Quartz Valley Tribe have documented unsuitable conditions, throughout the reach surveyed from Shackleford Creek to the mouth, for salmonids during the summer monitoring period.

The lack of discussion of major issues such as the connection between surface- and groundwater severely undermine the DEIR's credibility.

Data sharing is another requirement of CEQA. While the DEIR says that the Siskiyou RCD will share data with CDFG, there is no explanation of how that information will be shared with the scientific community and the public. CEQA also requires that the lead

agencies create a "data base which can be used to reduce delay and duplication in preparation of subsequent environmental impact reports" yet there is no discussion in the DEIR of the intent or obligation of CDFG to share raw data.

Monitoring under the Watershed Wide Permitting Program would target only those sites where projects are to be carried out. There is no clear commitment to the use of standard monitoring methods capable of providing monitoring data sufficient for determining whether the whole Scott River ecosystem is trending in a positive direction for coho salmon. Rather, the monitoring proposed appears to be restricted to monitoring the effect of specific restoration projects on the immediate vicinity of such projects. Once again, we assume this is due to landowner access however, according to the North Coast *Basin Plan* one beneficial use of the Scott River is navigation. This indicates permission is only needed to access the creek, once within the high-water mark you can walk anywhere on the river.

While the DEIR mentions cooperation with the State Water Resources Control Board (SWRCB) and its North Coast Regional Water Quality Control Board (NCRWQCB) in implementing the Total Maximum Daily Load for the Scott River (NCRWQCB 2006), the absence of a commitment to monitoring water temperature at established monitoring sites or to using sediment trend measurements like pool volume (Hilton and Lisle 1993) suggest there will be little substantive coordination with the SWRCB or the NCRWQCB.

Finally, many of the actions that CDFG, the SWRCB's Water Rights Division (WRD) and the Department of Water Resources (DWR) would perform under the proposed Watershed Wide Permitting Program certainly do not need this program in order to go forward. These agencies have, in fact, neglected these enforcement duties, resulting cumulatively in continuing, elevated "take" of coho salmon.

To the extent that the proposed Watershed Wide Permitting Program will simply legitimate current land and water use practices in the Scott River valley, without requiring a larger commitment to the protection of coho salmon, the State shall be giving the color of legitimacy to such actions and prospects for the recovery of public trust resources in the Scott River valley shall be set back substantially.

DETAILED COMMENTS

Jeopardy Issues

CDFG asserts in its DEIS that April 25, 2005 conditions are the baseline for the proposed project and argues that only positive change will result from the Program. In fact, the evidence presented in the DEIR shows drastic reductions in surface flow in the Scott River in recent years as a result of increased surface and groundwater use (Van Kirk and Naman 2008). The document admits that the flow levels adjudicated to the U S Forest Service for salmon protection in the Scott River canyon (SWRCB 1980) are not being met.

The DEIR repeatedly discusses coho salmon habitat destruction in the Scott River valley as a matter of fact, but it then fails to make clear how such destruction will be abated to prevent the further "take" of the species. Instead, the DEIR suggests that instream structures and mitigations designed to reduce impacts (i.e. publicly funded fish screens) will somehow improve the coho salmon population.

That fact is that the same activities that have led to the collapse of the Scott River ecosystem and its ability to support coho salmon will continue under the Watershed Wide Permitting Program. The incremental changes to existing practices will not prove sufficient to enable coho population rebuilding. Coho salmon will therefore remain in jeopardy of extinction due to the actions permitted by the proposed Watershed Wide Permitting Program. The requirements of CESA and CEQA shall not have been met.

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."

In fact, there is strong evidence showing that Scott River coho salmon are currently in jeopardy and are likely to remain so. As clearly established by prior submissions (QVIR 2005, 2006), there is currently a problem with two weak year classes, which meets the CDFG definition of jeopardy, above. Table 1 is taken from a report by the Siskiyou RCD (2005) and shows downstream migrant catch of coho salmon in the Scott River with coho missing or at extremely low levels in 1993, 1995, 1997, 1998, 2000, 2001, and 2003. Scott River adult coho salmon returns are often estimated at fewer than 500 adults annually during weak year classes, which is known to be a critically low level for maintaining genetic diversity (Gilpin and Soule 1990) to maintain long-term survival. Year class failures are hard for coho to recover from because females spawn as three year old fish almost exclusively.

Table 1. Coho in California Department of Fish and Game Scott River downstream migrant trap records as taken from Siskiyou RCD (2005) Table 6c.

Grand Total by Species:	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	TOTALS
Steelhead	10181	17693	5943	7127	7980	4158	5008	21982	79887	135319	69823	**365101**
Coho	15	433	0	253	3	8	538	30	69	30019	50	**31418**
Chinook	2	266	0	3	1	0	0	365	3191	0	0	**3828**
Totals =>	**10198**	**18392**	**5943**	**7383**	**7984**	**4166**	**5546**	**22377**	**83147**	**165338**	**69873**	**400347**

The DEIS states that Siskiyou RCD will report to CDFG regarding where coho are located in the Scott River watershed; however, their current distribution should be fully acknowledged and disclosed as part of the baseline conditions description. Landowner access for coho spawning and rearing studies in the Scott basin each year is poor. Relying on the RCD's knowledge of these areas is inadequate and/or will require assumptions to be made based off a biased and incomplete data set. On Shackleford Creek at the QV reservation, biologists have observed suitable and occupied coho

spawning areas. The spawning areas were then covered by large cobble due to the excessive sediment loads and their geomorphologic movements in response to winter flows. This type of habitat change is occurring across the watershed and it would be foolish to assume an area is salmonid suitable without actually surveying it for both water quality, quantity and habitat characteristics. However, due to landowner access and the internal capacity of the SQRCD, complete surveys are not possible. In the revised EIS, CDFG needs to show how weak year classes would be recovered sufficiently so as to no longer be subjected to jeopardy by the actions permitted in the proposed Watershed Wide Permitting Program.

Surface Water and Groundwater Issues

Since the lack of streamflow is one of the principal constraints on coho salmon recovery in the Scott River basin (Kier Associates 1991, NRC 2004), a real solution to water allocation and water supply is needed, but not supplied, in the DEIR or likely under implementation of the Watershed Wide Permitting Program.

California Fish and Game Code §5937 says that CDFG will not allow streams to be dewatered. Many streams throughout the Scott River basin are routinely dried up each year during low flow season in violation of §5937. The DEIR does not mention any plan for CDFG's enforcement of §5937 under the Watershed Wide Permitting Program. Instead, compliance will be largely through "self-enforcement":

> "Notwithstanding any right the responsible party has to divert and use water, the responsible party shall allow sufficient water to pass over, around, or through any dam the party owns or operates to keep in good condition any fish that may exist below the dam, as required by CDFG Code §5937."

The DEIR states matter-of-factly that the Scott River Adjudication (SWRCB 1980) "allocates 36.0 cfs to the Farmers Ditch (22.3 cfs for consumptive use and 13.7 cfs for ditch losses). Typically, in August and September the ditch has the right to divert the entire natural flow of the Scott River." Likewise, photo documentation of such activity occurring on both tributaries Shackleford and Etna Creeks have been collected. This activity is illegal under CDFG Code §5937 and certainly antithetical to coho recovery. A series of three photos (Figure 1) of the Etna Creek diversion is below and clearly shows inadequate flows downstream of the diversion for salmonid habitat. The first photo is looking upstream from the diversion, the second is looking at the diversion and the third photo is looking downstream from the point of diversion. All photos were taken in August of 2003 by NCRWQCB staff, Bryan McFadin.

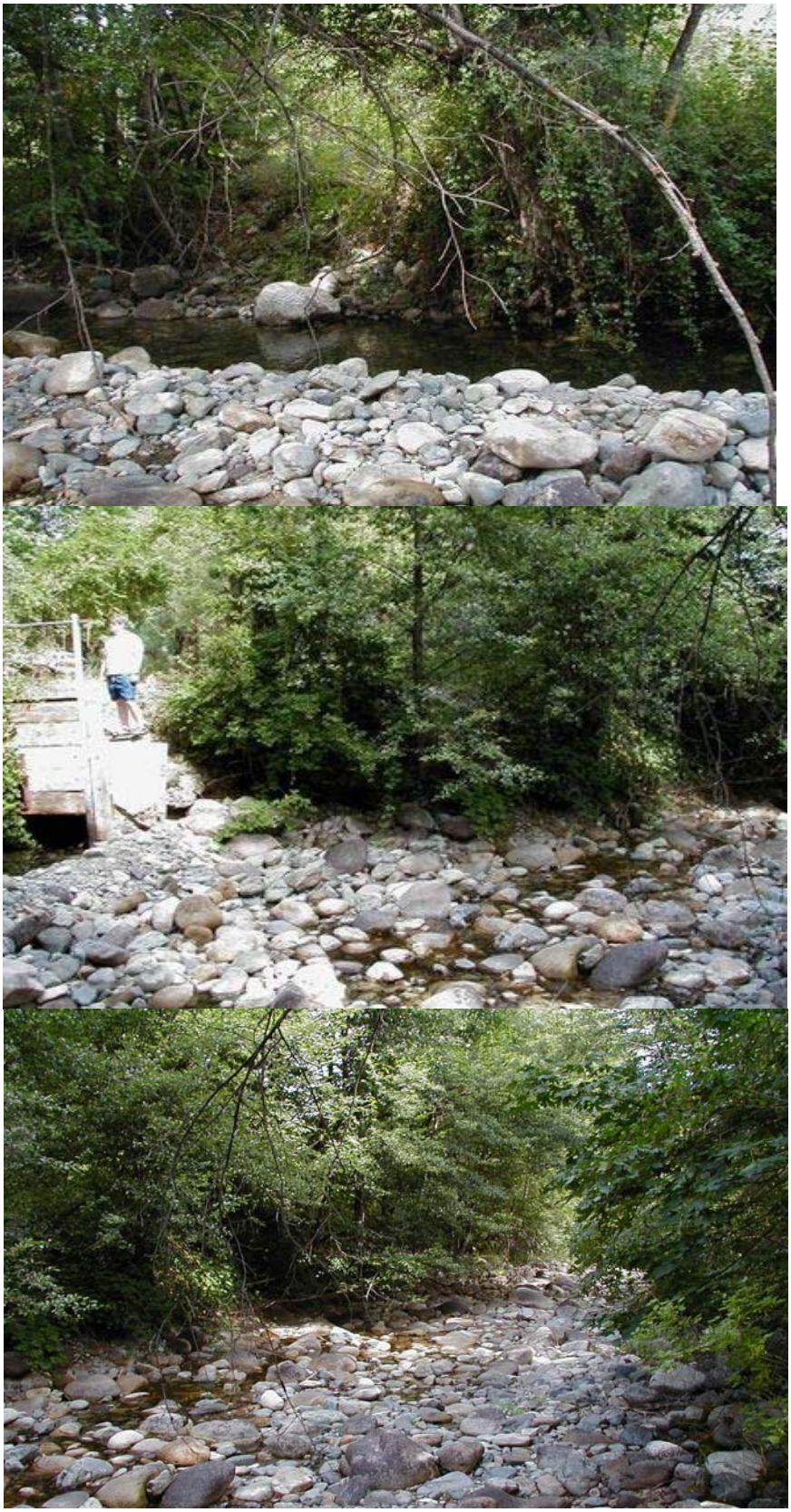

Figure 1 Photos of Etna Creek Diversion, top photo–looking upstream of diversion,

middle photo – looking downstream of the diversion, and bottom photo – looking downstream of the diversion. Photo taken by Bryan McFadin, NCRWQCB staff, August 2003.

Neither does the DEIR deal with non-enforcement by the SWRCB's WRD of California Water Codes § 1052 and § 1243, which state, respectively, that no dams will be constructed without a permit and that sufficient flows in California streams will be maintained to allow for "recreation and the preservation and enhancement of fish and wildlife resources." The flow depletion to the point of dewatering of the mainstem Scott River reaches (Figure 2) is ignored in the DEIS and the failure to meet adjudicated levels in the Scott River canyon as required under the SWRCB (1980) adjudication (Figure 3) are dismissed on the basis that the USFS water right is a junior right. Table 2 shows the minimum water flow levels needed to protect fishlife per the USFS' adjudication of Scott River flows at the Scott River canyon.
Currently (December 2008), the Scott River canyon is receiving 100 cfs at the USGS gauging station for the migration of coho salmon. However, the adjudication calls for 200 cfs between November and March (Figure 3). Currently tributaries around the valley are dry at the confluence with the Scott leaving coho the mainstem for spawning. This is not as ideal given the increased velocity and sediment aggregation in the main channel and the lack of side channels.

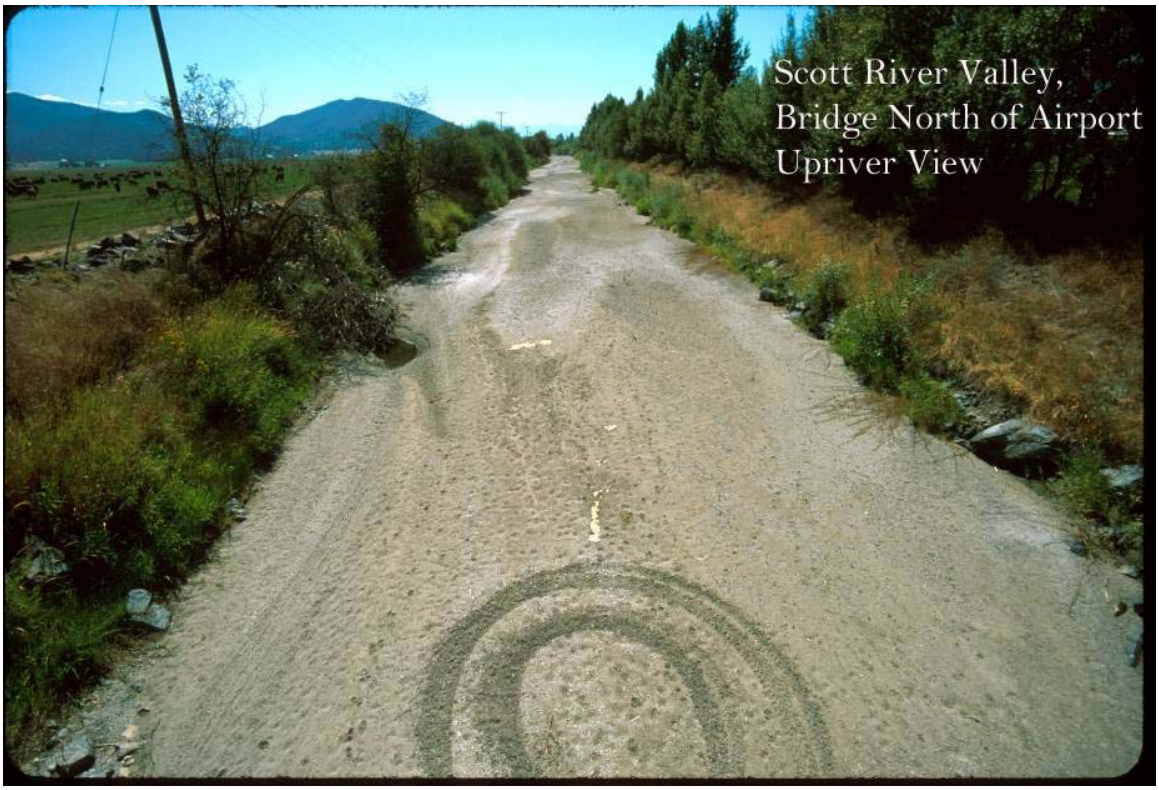

Figure 2. The dry bed of the Scott River in a reach near the airport looking upstream, a clear violation of CDFG Code 5937. Photo from KRIS Klamath-Trinity V 3.0 taken by Michael Hentz. 2002.

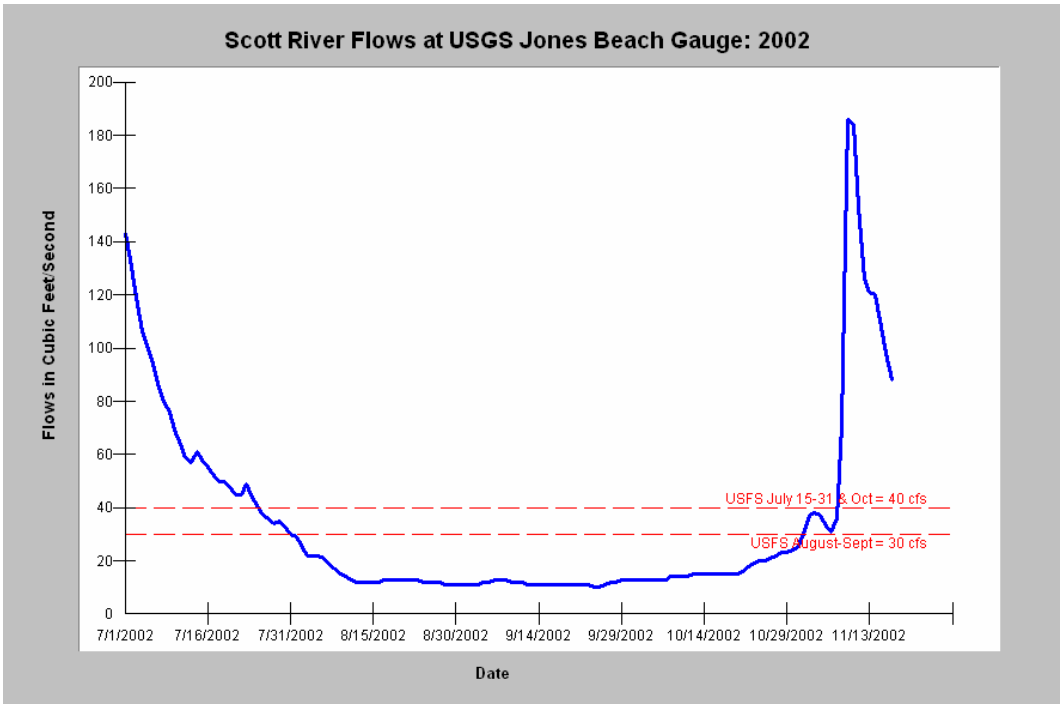

Figure 3. Jones Beach USGS flow gauge data from the irrigation season of 2002 show that flows failed to meet adjudicated levels for the USFS and flows needed for fish migration, spawning and rearing in August, September and October.

Table 2. Scott River Adjudication instream flow allotment for U.S. Forest Service needs for instream flow in Scott River canyon (CDWR, 1980 as cited in Kier Assoc., 1991).

Period	**Flow Requirement in Cubic Feet per Second**
November – March	200 cfs
April - June 15	150 cfs
June 16 - June 30	100 cfs
July 1 - July 15	60 cfs
July 16 - July 31	40 cfs
August – September	30 cfs
October	40 cfs

In fact, both CDFG and SWRCB are remiss in their public trust responsibilities for not assisting USFS in securing flows sufficient to maintain coldwater fish in the Scott River.

DWR and its Watermaster Service would be sub-permittees of the Watershed Wide Permitting Program. The DEIR mentions DWR's role in groundwater studies. The DEIR describes increased coordination with the Watermaster, who after 30 years of inaction and non-enforcement will somehow spring into action and coordinate with CDFG to resolve streamflow issues. The DEIR's statement that "the watermaster in some instances will need to take certain actions to avoid or minimize the take of coho salmon as it relates

to operating water diversions and managing water in the Program Area," is not to be taken seriously given the past track record.

In yet another section the DEIR says that a private watermaster might also be a sub-permittee or that such status would be conveyed "through an ITP outside the Program."

The likelihood of a locally-employed private watermaster increasing enforcement for the benefit of coho salmon when he is an employee or contractor to the water users themselves stretches the imagination.

The huge problem with groundwater allocation and over use is acknowledged in the DEIR, but no solution offered. In fact the increase in groundwater use described by Van Kirk and Naman (2008) (Figure 4) is consistent with the continuing installation of groundwater wells (Figure 5) and decreasing groundwater levels from well logs on the Scott River Valley floor (QVIR 2006). When patterns of long term flows are assessed for whether critical low flow levels drop below 40 cfs, the amount determined to be critical for the viability of salmon on US Forest Service public lands in the Scott River canyon, one can see the pattern of increasing flow depletion ultimately leading to years when adjudicated flow levels from July to October are never met (Figure 6).

The DEIR hypothesizes that all streams on the Westside Scott River Valley went dry historically, but does not provide convincing evidence in its support. In fact, available evidence indicates that this hypothesis is incorrect. For example, CDFG (1974) memos from the 1970's state that many of these streams (Kidder, Etna, Patterson) were going dry during summer for the first time. Logging and road building in the erodible terrain of the Westside Scott have caused major problems with erosion that have contributed to lack of surface flow (QVIR 2005). In the case of Shackleford Creek, the DEIR and CDFG likely ascribe to this hypothesis because they do not want to be drawn into enforcement of 5937, but the thermal infrared radar surveys (Watershed Sciences Ltd, 2004) show conclusively that the dewatering of Shackleford Creek (Figure 7) and water quality impairment are caused by diversions. Taft and Shapavalov (1935) noted that Shackleford Creek was being dewatered by diversion in 1934 leaving the stream bed dry where it had been historically perennial.

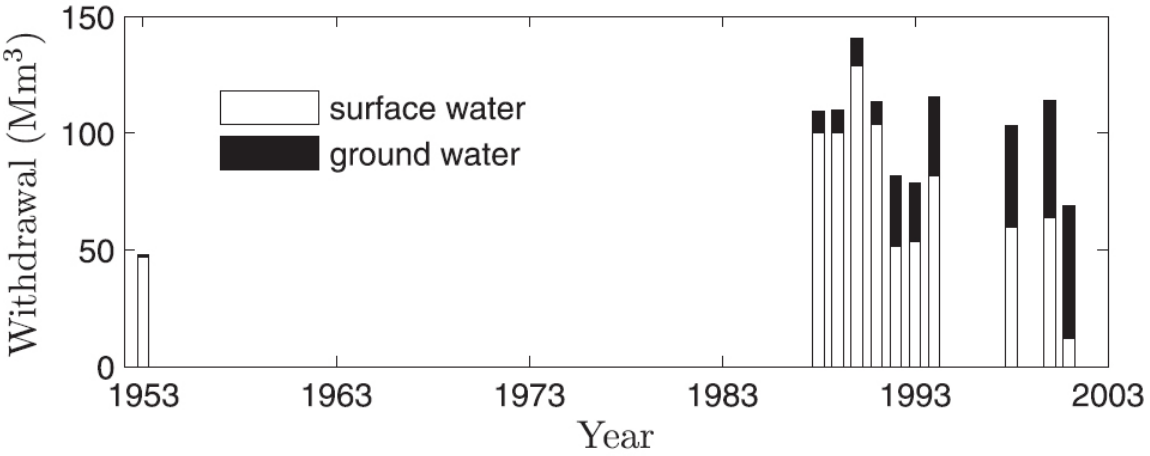

Figure 4. Groundwater and surface water use in the Scott River valley in millions of cubic meters showing a dramatic increase in overall water use, but especially in groundwater use. (This is Figure 7 in Van Kirk and Naman (2008).

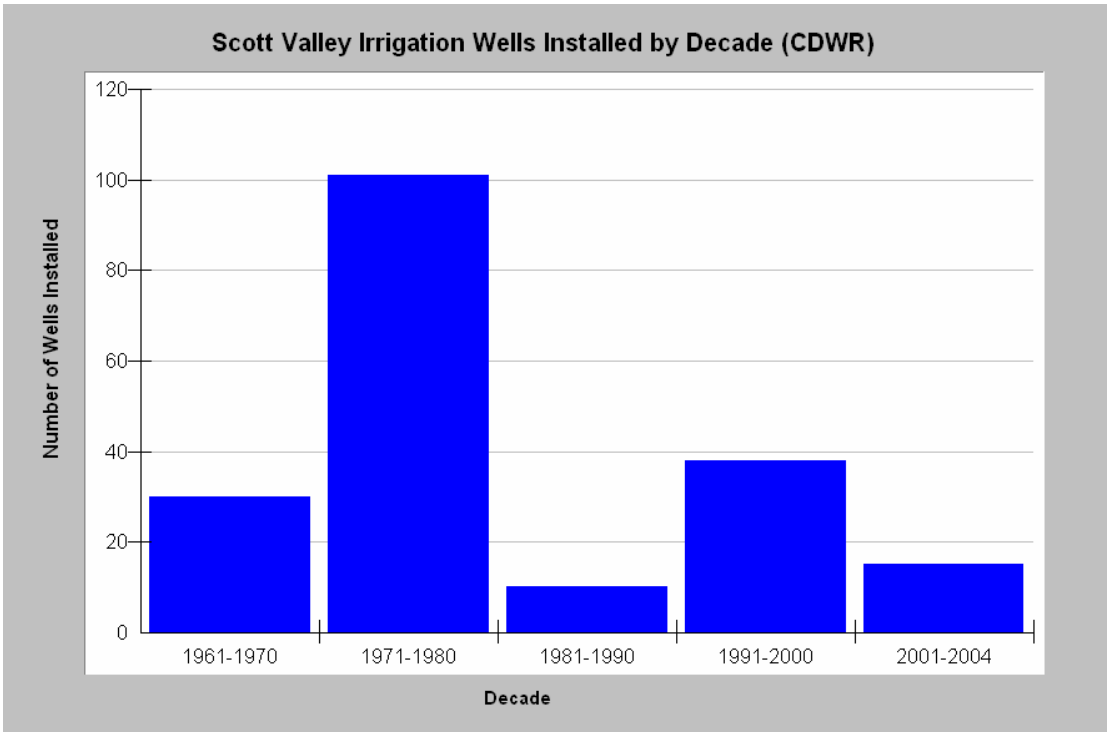

Figure 5. This chart shows the number of irrigation wells installed, by decade, according to California Department of Water Resources records. Not all parties installing wells file with DWR.

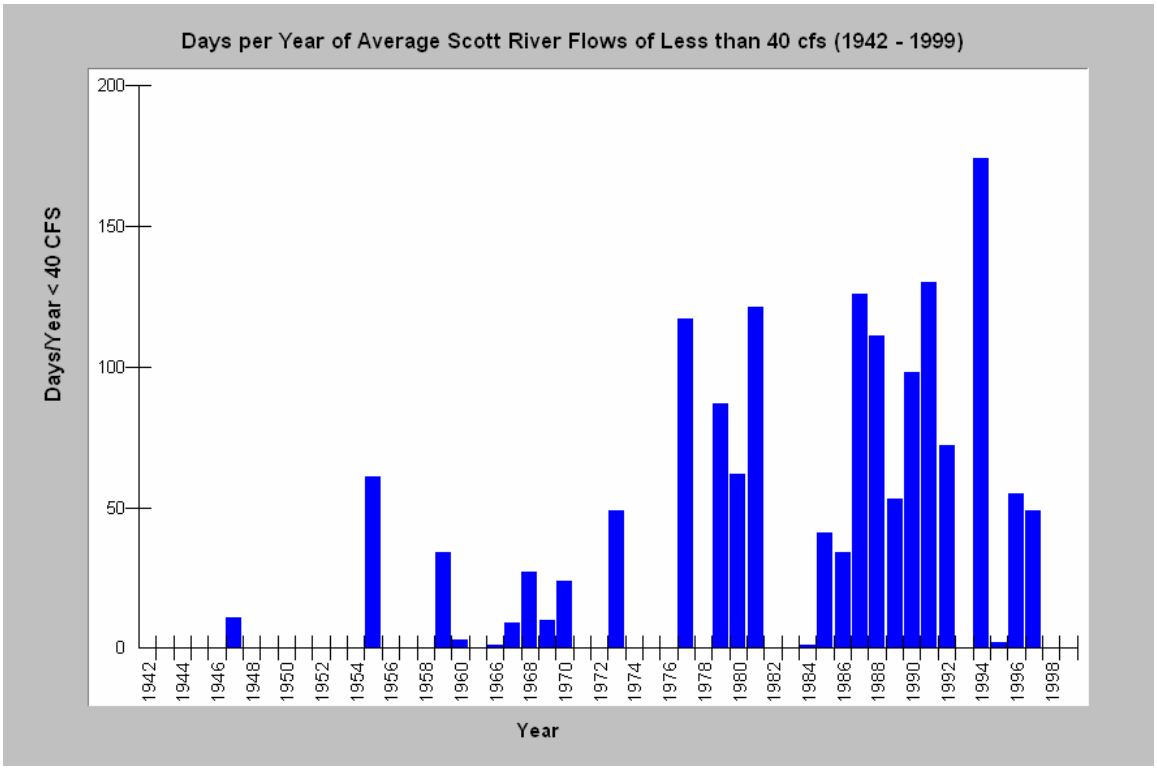

Figure 6. USGS flow data for the Scott River show a dramatic increase in the number of days of less than 40 cubic feet per second streamflow in the Scott River at Ft Jones -- a major increase in such days over the period of record. The 40 cfs level is significant with regard to flows adjudicated to the USFS to maintain salmon viability on public lands. Data from USGS and chart from KRIS V 3.0.

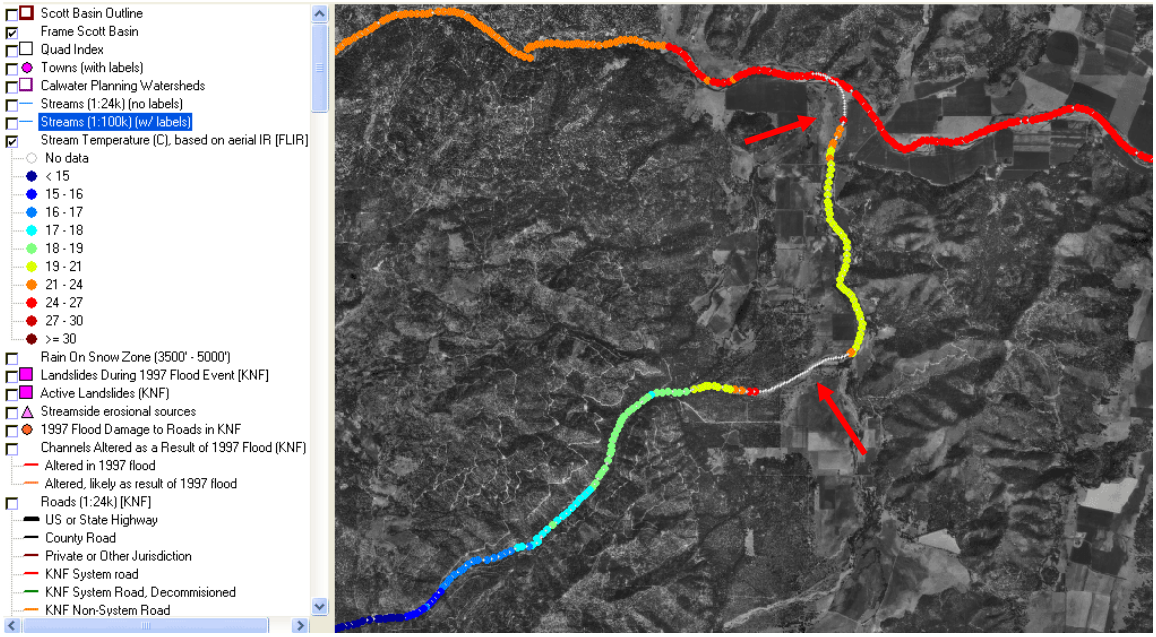

Figure 7. This map shows summary data of Scott River Thermal Infrared Radar (TIR) surveys for Shackleford Creek. Note that water temperature warms in a downstream direction as flow is

depleted. Reaches with no temperature coded color are dry (red arrows). Data from Watershed Sciences (2004).

Because CDFG does not provide a credible plan for reducing groundwater extraction, while over-allocation is leading to take of coho salmon, this aspect of the DEIR is particularly deficient and would ultimately continue the take and jeopardy status under the Watershed Wide Permitting Program.

With regard to surface water, the Scott River coho salmon Watershed Wide Permitting Program would set a particularly bad example where the State or other entities would pay diverters to leave water in the stream when coho salmon were there (Scott River Water Trust), despite the fact that diverters are legally obligated to leave water in the stream already. The Watershed Wide Permitting Program would allow coverage under CESA for actions illegal under other CDFG and California Water codes (§5937 and §1243). The Scott River Water Trust would enable irrigators to negate the additional costs associated with groundwater pumping through the reimbursement of leaving their adjudicated surface water right instream. However, groundwater pumping actions could also have impacts of reducing in-stream flows. The Scott River adjudication has recognized a zone of ground and surface water interaction and other areas in the basin with this type of connection will be better identified through implementation of the groundwater study plan. Therefore, it is really too soon to recommend and/or support such measures be implemented at this time.

Baseline Conditions and DEIR Scientific Foundation

The DEIR states that

> "Some of the activities the Program covers are historic, on-going activities that over time have caused and will continue to cause environmental impacts within the Program Area, including, for example, take of coho salmon. These activities and their impacts are part of the baseline and are expected regardless of the Program; that is, they will not be caused by the Program."

This statement fails to note the role CDFG and other State agencies have played in allowing coho salmon resources to become so reduced as to have to be listed as Threatened or Endangered under both the Federal and California ESA, and placing the Scott River population in jeopardy. In adopting the tone and assumptions of Siskiyou RCD documents (Quigley et al. 2001, Siskiyou RCD 2005), the DEIR strays from good, legally defensible science by focusing analysis and conclusions on valley sites (specifically locations monitored granting access), limited in data collection parameters, frequency, site locations and distribution and often ascribes anthropogenically-caused damage to ecosystem function as "natural conditions." Failing to understand the linkages between human induced habitat changes means that the DEIR does not address root causes of decline and recommendations for action barely overlap with a priority list that might be arrived at through a more valid scientific approach using a standard Pacific salmon restoration framework (i.e. Bradbury et al. 1995).

The DEIR describes human activities that cause habitat loss, but never clearly define linkages or need to change land use practices that are causing take of coho salmon:

> "Most of the lasting impacts observed today are the collective result of multiple actions and land management decisions, and it is often difficult to tease out the relative influence of any one particular action. Regardless, it is important to understand that historical or continuing practices such as beaver trapping, placer mining, flow regulation, and channel modification can affect contemporary river characteristics for decades, or longer." (p. 154)

Recognizing impacts is not enough, actions need to be taken to reverse coho habitat decline and prioritization of remediation needs to be based on peer reviewed, legally defensible science. The SQRCD primarily represents the agricultural landowners and it seems most appropriate that the CDFG in coordination with USFWS, NOAA and Tribes develop recommendations for priority remediation needs related to land uses (e.g. agriculture) for coho salmon. The Shasta and Scott Coho Recovery Team (SSRT) failed to incorporate Tribal coordination until the completion of the document (Scott and Shasta Coho Recovery Plan) at which time one Tribe, Quartz Valley, was invited to join the group.

Channelization and Diking: True baseline conditions of the Scott River Valley floor before disturbance would have included vast wetlands and beaver habitat (Kier Associates 1991) that promoted surface and groundwater connections and created abundant cold water habitat for coho salmon (Pool and Berman 2000, ODEQ 2008). The DEIR and CDFG fail to understand that floodplains need to be reconnected because disrupted channel conditions promote warming, reduce water storage and eliminate refugia essential to salmonid survival, particularly in large rivers systems like the Scott River that are temperature impaired (U.S. EPA 2003). U.S. EPA (2003) eloquently summarizes the importance of alluvial reaches such as the Scott Valley:

> "Alluvial floodplains with a high level of groundwater exchange historically provided high quality habitat that served as cold water refugia during the summer for large rivers in the Columbia River basin and other rivers of the Pacific Northwest. These alluvial reaches are interspersed between bedrock canyons and are like beads on a string along the river continuum. Today, most of the alluvial floodplains are either flooded by dams, altered through diking and channelization, or lack sufficient water to function as refugia."

The current condition of the mainstem Scott River and its larger tributaries are profoundly altered (Figure 8) and they are not likely to improve without substantial changes in practices (see Restoration Needs). The DEIR notes that channel straightening on the East Fork is exacerbating problems with bank erosion and causing loss of pools and side channels, but only upper reaches in isolated places are recommended for treatment, our probable conclusion, based on the current restoration trends, is that landowner access is only being granted in the upper reaches. This type of approach to restoration is not enough to recover coho salmon.

Figure 8. The mainstem Scott River and Etna Creek are confined, channelized and disconnected from wetlands and springs that likely provided coho salmon refugia before human disturbance. Note also that wells next to streams have the potential to deplete cold subsurface contributions. Aerial photo from is from 2005.

Riparian Conditions: The DEIR fails to understand that shade is only one element of riparian function (Pool and Berman 2000). Wide buffers similar to historic gallery forest conditions (true baseline) provided nutrient and bacteria buffering from overland flow, partial temperature buffering for the stream through creation of a cool microclimate, and assisted in maintaining a stable channel thereby reducing erosion. The loss of riparian in some cases, such as Moffett Creek (Figure 9), may be in direct response to drops in groundwater levels (QVIR 2005), and this is another critical issue that the DEIR does not address and that would not be remedied under the Watershed Wide Permitting Program. Once streams have lost their riparian zones, their stream channel becomes very wide and shallow contributing to stream warming. Widespread use of easements or acquisitions is needed to allow riparian recovery on a scale necessary to restore coho (see Restoration Needs).

Nutrient, bacteria and pesticide pollution is also increased with the lack of riparian vegetation. French Creek is a major Scott River coho salmon producer (Maurer 2001) but it is assumed that coho salmon juveniles rear in forested reaches above alluvial valley floors because of poor habitat conditions resulting from agricultural practices, including riparian degradation (Figure 10). However, it is possible, based on salmonid behavior observed during refugia studies by the Tribe and cooperators, that fish are finding groundwater upwelling refuges and holding there as flows drop and ambient temperatures

increase until the stream reach dries at which point then the groundwater refuge accretion stops. The CDFG fish rescue and relocating program is currently being utilized to move fish from these locations (without scientific research supporting the action) to areas of the river with assumed to have suitable temperatures for rearing. Some fish may be migrating upstream to these areas but the percentage, relative to the population of rearing salmon, is unknown. In 2008 from Patterson Creek 21,000 coho juveniles were rescued from the lower reaches and relocated (Mary Olswang communication @ Scott River Watershed Council Fish Committee meeting September 2008). The QV Tribe would like to see a "Salmonid Rescue and Relocate Study" implemented in the Scott River to assess the environmental impacts of this action that has been occurring for the past 50 years.

Wetlands and Hydrology: Wetlands store water, remove nutrients and bacteria and often discharge cold water that is associated with refugia for Pacific salmon species (U.S. EPA 2003), including coho salmon. The DEIR states that water temperature conditions in the Big Slough would have been warm, but that is not likely the case before disturbance because of typical wetland function (Pool and Berman 2000, ODEQ 2008). The DEIR talks about the unique conditions in the area west of the Scott River between Etna and Kidder Creeks, but does not accurately characterize human-induced changes, instead asserting that conditions are natural. Figure 11 shows where agricultural practices have obliterated the channels of Johnson and Crystal Creeks and Figure 12 shows that Big Slough has been systematically filled to the detriment of ecosystem function for coho salmon. Not only are discussions of wetlands lacking in the DEIR, but also Figure 3.4-3 that is supposed to show wetlands is so blurry it is nearly useless. The DEIR does not address the need to reconnect wetlands and groundwater, which is one of the reasons the implementation of the Watershed Wide Permitting Program will not avoid continued jeopardy for the Scott River coho salmon population.

Water Quality: The National Research Council (2004) makes a clear case that flow depletion is at the root of temperature problems in the Scott River. As flows drop, transit time for water increases allowing an opportunity for stream warming. If flow problems are not remedied, then temperature problems will not be either and, consequently, temperature sensitive coho salmon (McCullough 1999, Sullivan et al. 2000) will not likely be recovered. The DEIR claims that the Scott River mainstem was too hot historically, citing Quigley et al. (2001) as a basis, but ignores the likely historic role of refugia that would have been associated with side channels, beaver ponds and cold tributary mouths (U.S. EPA 2003).

The temperature map provided with the DEIR (Figure 3.2:1.1) uses a bracket for temperature categories from 14.8-17.8 C maximum floating weekly average water temperature (MWAT), but an MWAT of 16.8 C is recognized as the regional threshold for presence and absence based on field data (Welsh et al. 2001). Therefore, one cannot even determine whether locations are suitable for coho salmon from the map in the DEIR. This typifies the problem associated with exclusively relying on the Siskiyou RCD for scientific analysis and is another example of why raw data related to the ITP and its implementation need to be supplied to the scientific community and the public.

Figure 9. The Moffett Creek channel lacks definition and riparian trees because of drops in the groundwater due to pumping. The stream was once perennial and harbored coho salmon.

Figure 10. French Creek in an alluvial valley reach, which would have been optimal for coho historically, shows degraded riparian conditions, signs of sediment over-supply, flow depletion and disconnection from the floodplain. Aerial photo 2005.

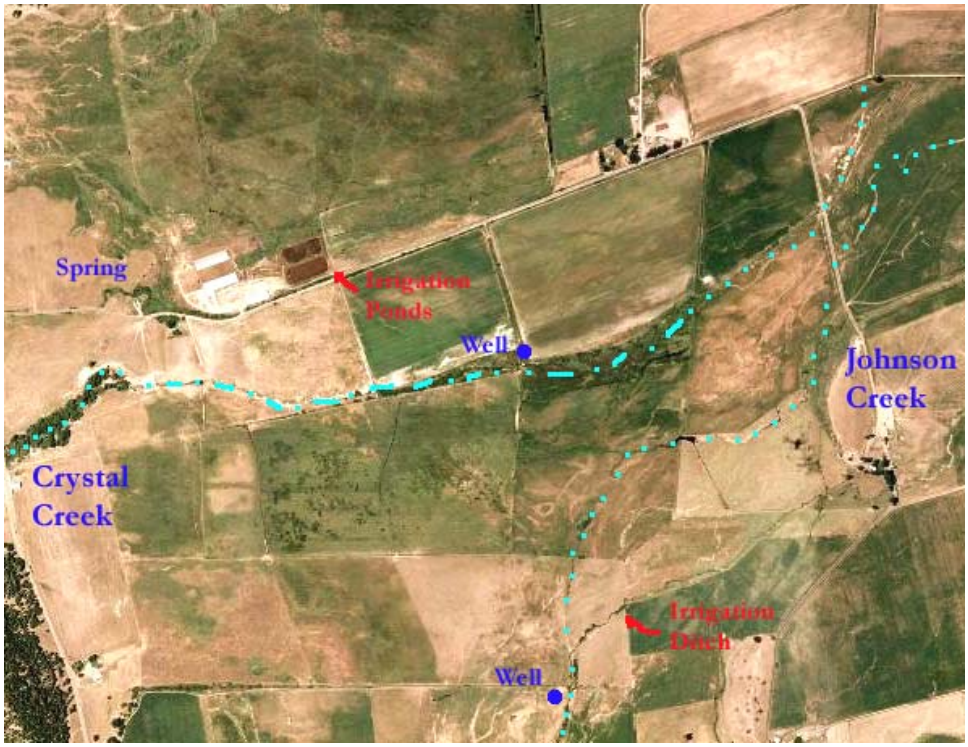

Figure 11. Crystal Creek's channel is at left (blue dots = USGS 1:24000 streams), but it disappears as it crosses the western Scott Valley floor and Johnson Creek is similarly disrupted. Notice that wells are immediately adjacent to old stream courses.

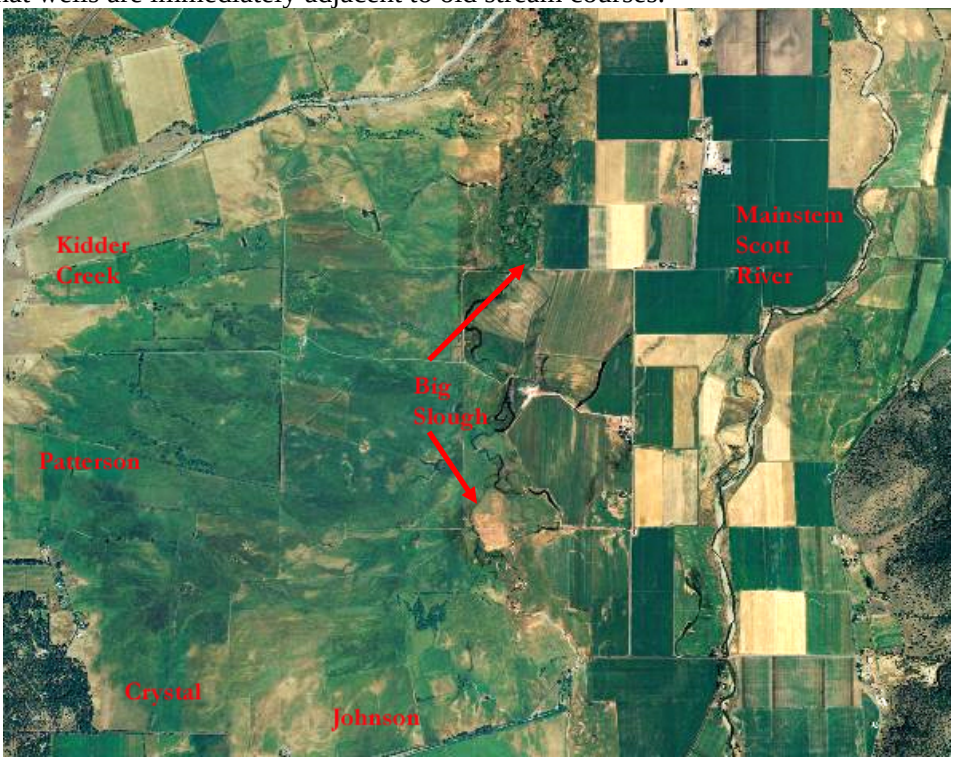

Figure 12. The channel of Big Slough has been filled and cut off (arrows) as have feeder channels from Johnson, Crystal and Patterson Creeks. Note also mainstem channelization.

The DEIR is similarly lacking its analysis of sediment trends in the Scott River mainstem and tributaries. It emphasizes decreasing fine sediment less than 0.85 mm between 1989 and 2000, when fines in this size class are generally not the problem in the Westside Scott River channels under study. In fact, data from Sommarstrom (2000) show that sand size particles (<6.4 mm) are still on the order of two to three times higher than recommended to meet water quality standards (NCRWQCB 2006). Kondolf (2000) showed that particles <6.4 mm decreased salmonid egg and alevin survival by 50% when they exceed 30% of the stream bed and results from the mainstem Scott show some locations have more than 80% sand in 2000 (Figure 12). Only Etna Creek, French Creek and one of mainstem Scott River locations showed decreasing trends while six mainstem sites showed increases.

Cumulative Watershed Effects: CEQA requires a consideration of cumulative impacts because "the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects". When the combined cumulative impact associated with the project and other projects is not significant, an EIR shall provide analysis and facts supporting this conclusion (Pollack 2002). In order to meet this standard the DEIR would need to show how cumulatively the Watershed Wide Permitting Program will rebuild weak coho year classes by improving coho habitat, including flows, and it has failed in this regard.

The DEIR shows a map of debris torrents and flood damage from de la Fuente and Elder (1998), and describes negative changes in channel conditions. However, there is no discussion about the consequences of channel changes in the alluviated canyon reaches of Middle and Kelsey Creeks and Townsend Gulch, which became unsuitable for coho salmon as a result. The problems in these tributaries, that formerly served as summer refugia for mainstem migrants and summer rearing and out-migrating juveniles, is combined with the loss of mainstem function caused by decreased surface flows that fail to meet USFS adjudication levels as described above.

The DEIR states that it is easy to stop sediment from roads, but does not deal with issues at the core of hydrologic perturbation, such as the amount of denuded and early seral areas combined with compacted surfaces such as roads and landings. The high amount of damage from the January 1997 storm showed indications of increased peak flows and a survey of vegetative conditions confirm signs of hydrologic risk (QVIC 2005, 2006). The DEIR notes channel damage to the East Fork Scott River from floods, but fails to link it to increased peak discharges associated with high road densities and early seral forest conditions (Jones and Grant 1996). The DEIS recommends gravel enhancement and placement of instream structures, but the success for such measures is limited when upland rates of disturbance are high and potential for increased peak flows and sediment yield is elevated (Frissell and Nawa 1992). Kier Associates (1999) documented high incidence of failure of instream structures in highly disturbed Lower Klamath River watersheds (see Restoration Needs).

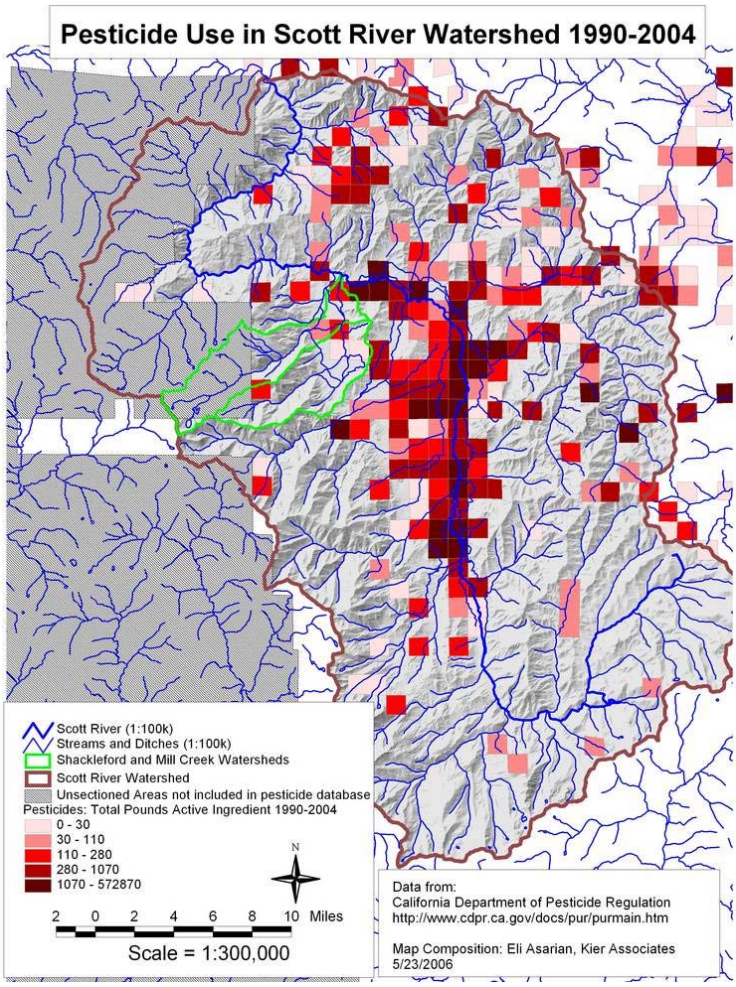

Figure 13. Map showing pesticide use in the Scott River basin. Colors represent cumulative total amount of pesticides used between 1990 and 2004. Data from the California Pesticide Use Reporting Database.

Pesticides and Herbicides: Despite a request in scoping comments (QVIR 2006) for a discussion of pesticide and herbicide use associated with agricultural practices in the Scott River basin, the DEIR fails to mention them. Figure 13 shows the records from the California Pesticide Database and use of chemicals to control weeds in the Scott River basin is concentrated in riparian zones. Thousands of pounds are being applied and many of the compounds used 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 effects on endangered species. These three pesticides are currently in use in the Scott River basin (see Table 3, and additional data in the California Pesticide Use Reporting Database[1]). 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 and USGS surveys commonly find this substance in agricultural aquifers. Not dealing

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

with the pesticide and herbicide issue related to Scott River agricultural activities is a CEQA violation.

Table 3. Top ten pesticides used in the Scott River and Shackleford-Mill Creek watersheds from 1990 to 2004. California Pesticide Use Reporting Database.

Use Rank	Shackleford/Mill	Scott River
1	Paraquat Dichloride	Paraquat Dichloride
2	Trifluralin	Hexazinone
3	Hexazinone	Diuron
4	Metribuzin	Glycophosphate
5	Glycophosphate	2,4-D Dimethylamine Salt
6	2,4-D Dimethylamine Salt	Metribuzin
7	2.4-D Butoxyethanol Ester	2.4-D Butoxyethanol Ester
8	Norflurazon	Trifluralin
9	MCPA, Dimethylamine Salt	2,4-D, Isooctyl Ester
10	Atrazine	Chloropyrifos

Monitoring and Adaptive Management

CEQA requires that data provided to support environmental reviews must be "generally available to the public" and "reasonably available for inspection." While the DEIR states that the Siskiyou RCD will provide data to CDFG, there is no mention of mechanisms or plans to share data with the scientific community and the public. Collison et al. (2003) point out that the scientific validity of any project can only be judged when raw data are provided. CEQA also states that "information developed in individual environmental impact reports be incorporated into a data base which can be used to reduce delay and duplication in preparation of subsequent environmental impact reports" (§ 21003). This requirement is even more important with regard to the Scott River Watershed Wide Permitting Program because in many cases private parties that are employees or contractors for extraction interests will be collecting the data. The recent precedent of CDFG is to not provide raw data from private land owners using the rational that, if information is disclosed, it would put the parties at a competitive disadvantage. Exemptions from full data sharing under CEQA recognize only "trade secrets" as a valid reason (§21160) and the circumstance of Scott Valley farmers and ranchers do not meet the criteria:

> "'Trade secrets,' as used in this section, may include, but are not limited to, any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate, produce, or compound an article of trade or a service having commercial value and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it."

If CDFG and the Siskiyou RCD were genuinely interested in recovering coho salmon they would willingly share data through a publicly available system, such as the Klamath Resource Information System (www.krisweb.com) that is in the public domain and available for use without charge.

Monitoring under the Watershed Wide Permitting Program would involve only site specific studies to see if restoration projects were working, when in fact what is needed is basin wide trend monitoring using standard techniques to quantitatively measure whether conditions become more supportive of coho salmon. For example, water temperature data needs to be collected systematically at widespread locations annually, pool volume trends (V*) (Hilton and Lisle 1992) need to be monitored in French Creek and other Westside tributaries with decomposed granitic sediment problems and bulk gravel samples should be collected at least every five years at the same locations as previously monitored (Sommarstrom et al. 1990, Sommarstrom 2000).

The DEIR states that the Siskiyou RCD "may opt to utilize photographs for additional effectiveness monitoring, when it believes photographs will enhance its ability to report on effectiveness of implemented activities and practices." The fact that the Permittee is not willing to provide photo documentation as a routine for every project does not show a tendency for full disclosure necessary for public trust protection and is unsatisfactory. While CDFG sees an increased role for itself in monitoring juvenile and adult coho salmon, the DEIR states that it is contingent on "additional funds for equipment, operations, and temporary field personnel." It does not discuss how coho salmon monitoring needs would be accomplished under the Watershed Wide Permitting Program if funding is not forthcoming.

Steps Needed for Scott River Coho Salmon Population Viability

The measured called for in the DEIR such as incremental changes in grazing practices, paying for maintenance of stream flow, and planting shade trees in riparian zones will not likely reverse coho decline or avoid further jeopardy. The preponderance of high intrinsic potential coho salmon habitat in the Scott River is on the valley floor and in lower tributary reaches (Williams et al. 2006). These low gradient reaches were formerly the most productive for coho salmon and they must be restored at least in part to regain population viability. Reeves et al. (1995) point out that viable refugia must be set aside for successful Pacific salmon recovery. Because of warm inland air temperatures and the historical dependence of coho on stable, slow water side channels and features like beaver ponds, at least selected alluvial valley reaches need to be fully reconnected to their floodplains. Coho salmon are much more likely to be recovered if easements or acquisition of extensive riparian zones in Shackleford, French Creek, South Fork and East Fork are arranged, livestock excluded, water rights re-apportioned and channels reconnected to the floodplain. These streams are among the last to have significant numbers of coho salmon and must be secured as a priority (Bradbury et al. 1995) because sub-populations within them retain critical gene resources.

The DEIR only mentions easements in passing, but they are a major tool in Maine for Atlantic salmon restoration (NMFS 2004), where some streams like the Pleasant River have almost their entire riparian zones protected. The DEIR also touches on reintroduction of beaver as part of the solution, but without acquisition of easements it is unlikely. There are some good projects like Flow Enhancement Mitigation 6 in the upper East Fork Scott drainage that are steps in the right direction, but reconnection of this potential refugia may take seven years and the unaddressed problems on the lower East Fork may confound ultimate success.

While the DEIR deals exclusively with agricultural impacts to Scott River coho salmon, effects of timber harvest in the basin are widespread. Reeves et al. (1993) note that timber harvest in over 25% of a watershed in less than 30 years leads to 10-45% reduction in pool frequency, decreased availability of large wood and diminished species diversity of Pacific salmon. Disturbance rates of uplands need to be decreased and forest stand conditions recovered in elevation susceptible to rain-on-snow events (2500-4000') or elevated peak discharge is likely to continue to disrupt channel conditions similar to the January 1997 storm (de la Fuente and Elder 1998, Kier Associates 1999). As a matter of urgency, CDFG needs to work with the NCRWQCB and California Department of Forestry to protect riparian zones from harvest in stream reaches known to be used by coho salmon. Change-scene detection from CDF using Landsat5 imagery from 1994 and 1998 (Fisher 2003) shows that riparian zones were heavily logged in that period (Figure 13). If continuing problems persist with short timber harvest rotations and logging road construction, it may be desirable to swap federal and private land in various Scott River tributary watersheds and manage land as Key Watersheds (FEMAT 1993) to allow full hydrologic recovery and to prevent cumulative effects that disrupt downstream reaches set aside for coho protection.

Probably the greatest need for restoring Scott River coho salmon is for CDFG, SWRCB WRD, DWR and the NCRWQCB to do a better job of enforcing existing laws. With the exception of the NCRWQCB, this does not seem likely since there is no specific language in the DEIR that shows this intent. In fact, the DEIR states that only non-enforcement CDFG personnel can visit permittee and sub-permittee's property and that 48 hours notice would be required.

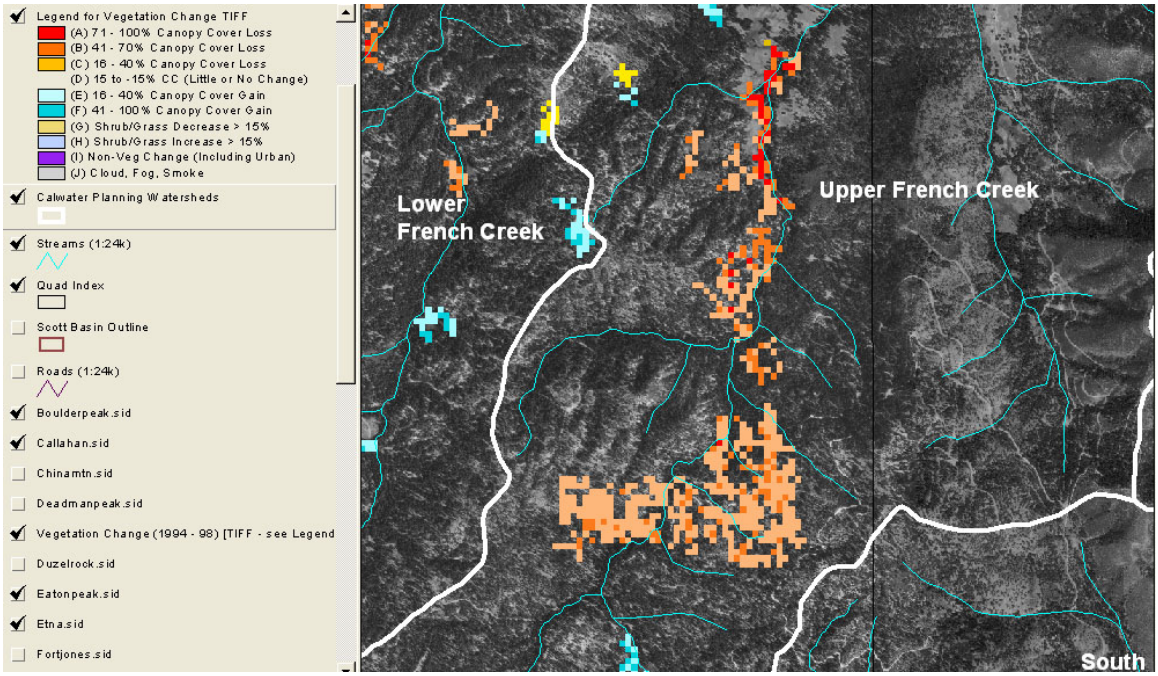

Figure 13. Vegetation change derived by comparing 1994 and 1998 Landsat images shows substantial decrease in riparian canopy of along almost the entire length of French Creek (red = 70-100%, orange = 41-70%). USGS 1:24000 streams are in light blue. Data are from CDF and USFS Spatial Analysis Lab.

CONCLUSION

The DEIR and the proposed Scott River Watershed Wide Permitting Program for coho salmon marks a dramatic shift from historical struggles by CDFG to maintain flows and fish in the basin. While the DEIR buys into the Siskiyou RCD argument that Westside Scott River tributaries naturally went dry, CDFG (1974) memos from the 1970's state that many of these streams (Kidder, Etna, Patterson) were going dry during summer for the first time. CDFG (1974) was fighting with the SWRCB WRD to provide more flow for the Scott River: "The flows required to maintain fishery values and support heavy agricultural diversions clearly are not in the system during the latter part of July, August, and often in September." Now this statement stretches through October, November, and in falls with little rain, through December.

Now CDFG has given up the fight for protection of flows, fish and public trust and wishes to delegate its authority back to water extraction interests. The following passage from the DEIR is illustrative of this point:

> "The ITP will require that the Siskiyou RCD to improve baseline instream flows and/or water quality in critical reaches of the Scott River and its tributaries and at critical life stages of coho salmon by installing water efficiency improvement projects and/or water management improvement projects on sub-permittees properties or by changing or adding points of diversion to keep flows in streams to point of use. Within one year of effective date of the ITP, SQRCD will provide

to CDFG, for its review and approval, a list of priority stream reaches for flow enhancement and/or water quality based on coho salmon life stage need."

The problems embedded in the foregoing passage are numerous. The statement that the Siskiyou RCD will improve flows "and/or water quality" implies that improving water quality and meeting water quality standards is optional, when in fact it is legally required. As the passage continues, we find that CDFG and the Permittee will only restore flow to "critical reaches" during "critical life stages for coho salmon", implying that non-coho bearing streams or reaches out of the season of coho use will continue to be dried up in violation of §5937. There are many diversions extracting large amounts of water above the highest point of anadromy in the Scott basin, for example, Shackleford Creek alone has three. The topper is the Siskiyou RCD will come back to CDFG within a year and will define which Scott River reaches will be recovered for coho salmon. CDFG codes do not allow some streams to be sacrificed and others to be saved, and it is particularly inappropriate for the water users and diverters to make critical decisions regarding coho salmon conservation.

The DEIR not only fails CEQA compliance tests on use of "best science", cumulative watershed effects and data sharing, it also runs counter to CEQA's direction on efficient use of resources which is "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 preparation of a DEIR that is deficient regarding key scientific issues and insufficient to avoid continuing jeopardy to the Scott River coho salmon population. CDFG should have spent that money on enforcing existing laws and getting stream flow back in the Scott River.

Previous comments (QVIR 2005, 2006) have pointed out that there is an 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 sometime between the years 2015 and 2025 (Collison et al. 2003). Timelines in the ITP need to reflect urgency, whereas the current DEIR allows seven years for some critical steps like getting fish passage at the Scott Valley Irrigation District diversion dam.

Scott River coho salmon cannot be managed at current extremely 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 cows in the riparian zone need to be eliminated to allow full riparian and hydrologic recovery (Kaufmann et al. 1997).

The current DEIR and proposed Watershed Wide Permitting Program would provide subsidies (i.e. paying for short-term water) and legal protections to farm and ranch operations in the name of protecting endangered species. Rather than enforcing existing laws and protecting public trust resources, CDFG has neglected its duties and instead

proposed a Program that would offer only marginal benefits to coho salmon while allowing larger ongoing cumulative threats (i.e. excessive water use) to continue unabated. Without addressing the factors that have driven coho salmon into jeopardy, the Watershed Wide Permitting Program will be ineffective and hence should not be enacted.

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