To: North Coast Regional Water Quality Control Board
From: Quartz Valley Indian Community of the Quartz Valley Indian Reservation
Date: September 5th, 2006
Re: Review comments on NCRWQCB's *Final Draft Scott River Total Maximum Daily Load (TMDL) Work Plan*

Summary

Not much changed with regard to the actions and timelines proposed by the NCRWQCB between the current proposed *Implementation Work Plan* and those which were proposed in Table 4 of the *Public Draft of the Scott River Watershed TMDL* (NCRWQCB, 2005). The remaining issues include:

- Cumulative effects of timber harvest and related roads, which include increased flood flows, channel widening and large wood depletion, remain unaddressed and will likely confound efforts to reduce sediment and temperature pollution,
- The upslope and instream monitoring measures proposed will neither support adaptive management nor will they provide an adequate basis from which to determine whether new Waste Discharge Requirement (WDR) permits or waivers are warranted, or whether existing permits and waivers should be continued,
- Groundwater and flow studies remain assigned to the County of Siskiyou, rather than to a competent State authority. This assignment is inappropriate and it will likely slow the implementation of necessary water quality improvement measures,
- Neither the current collapse of the Scott River fall Chinook salmon population nor the clear indications that the basin's coho salmon population are at a high risk of extinction are acknowledged, nor are the proposed recovery actions sufficiently timely, and
- The *Implementation Work Plan* fails to address the need to protect the coldwater refugia needed for salmon survival until such time that the mainstem Scott River water temperature problems can be remedied.

On the plus side, the language of the *Implementation Work Plan* appears to address the need to protect the river from invasive remedial actions like channel straightening and widening with heavy equipment, following floods such as the event of January, 1997.

Roads and Sediment Waste Discharge

Previous Scott River TMDL comments prepared by Quartz Valley Indian Reservation (QVIR) pointed NCRWQCB staff's attention to recognized thresholds for prudent risk with regard to road densities and crossings and watershed disturbances (see discussion of Timber Harvest issues, below). Road networks on private forestlands are well above/beyond these thresholds and many have been constructed on unstable slopes or unstable soils. The *Scott River TMDL* (NCRWQCB, 2005) grossly under-represented forest road networks (Figure 1) and it failed to acknowledge the risk that they represent to increased flood flow peaks and the contribution of other cumulative watershed effects that degrade water quality.

In sum, the actions recommended in the *Implementation Work Plan* are not sufficiently focused such that they can be expected to abate the Scott River's water pollution, and do not, therefore, comply

with Section 13242 of the California Water Code which requires (a) a description of the measures needed to achieve the objectives of the Water Quality Control Plan for the North Coast Region – the Basin Plan – the reason that we are making this TMDL effort; (b) a time schedule for these measures, and (c) a plan for monitoring these measures to determine that they are, in fact, achieving the Basin Plan objectives.

The *Implementation Work Plan* requires Erosion Control Plans (ECPs) only "for sites with significant sediment discharges." ECPs should be required of all major landowners and the focus on only major road and crossing failures exemplifies the mindset of NCRWQCB staff that concerns only point sources of pollution, when an equal or even greater impact on aquatic habitat and beneficial uses stems from dispersed locations and cumulative watershed effects. This is especially true in the Scott River basin because of the widespread occurrence of unconsolidated soil types in elevations in the basin susceptible to rain-on-snow events.

Cooperative actions to reduce sediment from State and county roads may achieve the desired reduction in sediment there, but logging road networks are far more extensive, they cross highly erodible terrain, and they are not addressed adequately to achieve the purposes of the *Scott River TMDL* nor do the water quality objectives of the Basin Plan (see Timber Harvest below).

Temperature and Vegetation

Previous comments prepared by QVIR identified significant removal of riparian conifers by logging in Scott River tributaries between 1994 and 1998, including those stream reaches where coho salmon spawn and rear (Figure 2). It is obvious that the timber harvest permit review process conducted by the California Department of Forestry has failed to prevent damage to coho habitat attributable to the loss of thermal buffering over the streams in these reaches, and the reduction of the large wood recruitment necessary for pool formation. The failure of the *Implementation Work Plan* to specifically protect the riparian zone in stream reaches inhabited by coho salmon is a critical shortcoming (see Timber Harvest).

Removal of large riparian trees has occurred as a result of agricultural activity along alluvial reaches of the Scott River and its major tributaries (Kier Assoc., 1999). Riparian gallery forests stabilize banks, they buffer water temperatures and they filter nutrients from overland flow off of adjacent farmlands. The *Implementation Work Plan's* stated purpose of creating a memorandum of understanding (MOU) with the Scott River Watershed Council is a good idea, as far as it goes, but the harvesting of riparian trees in farm- and ranchlands should be immediately and explicitly prohibited.

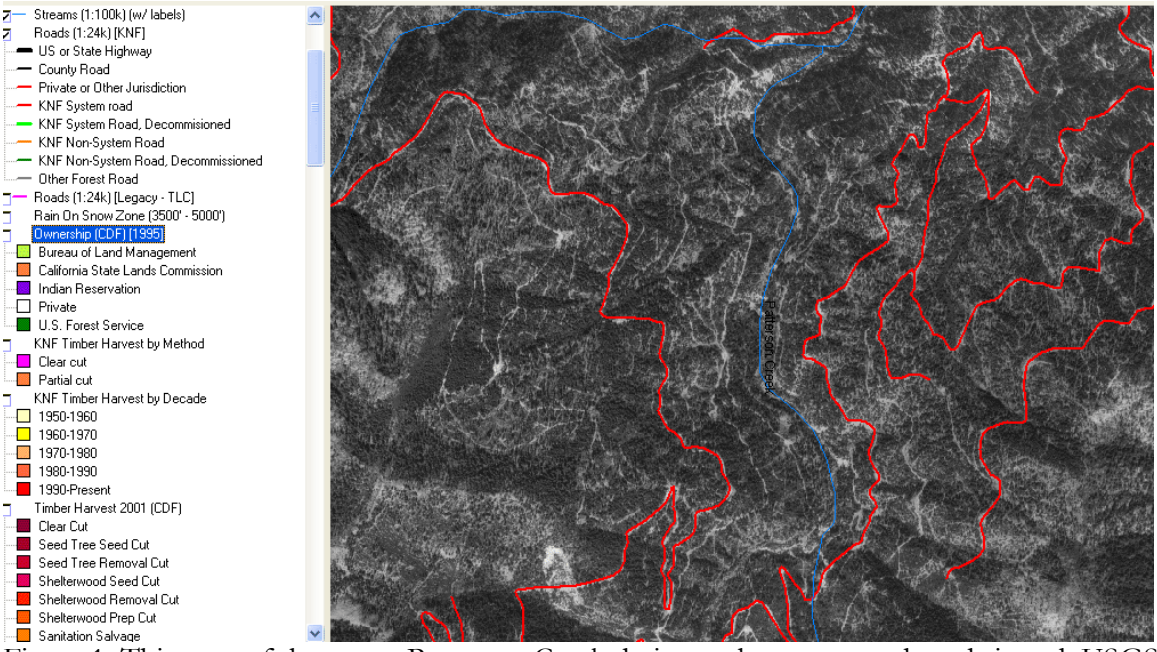

Figure 1. This map of the upper Patterson Creek drainage shows mapped roads in red. USGS orthophotos, however, show many more roads than are mapped and shown here.

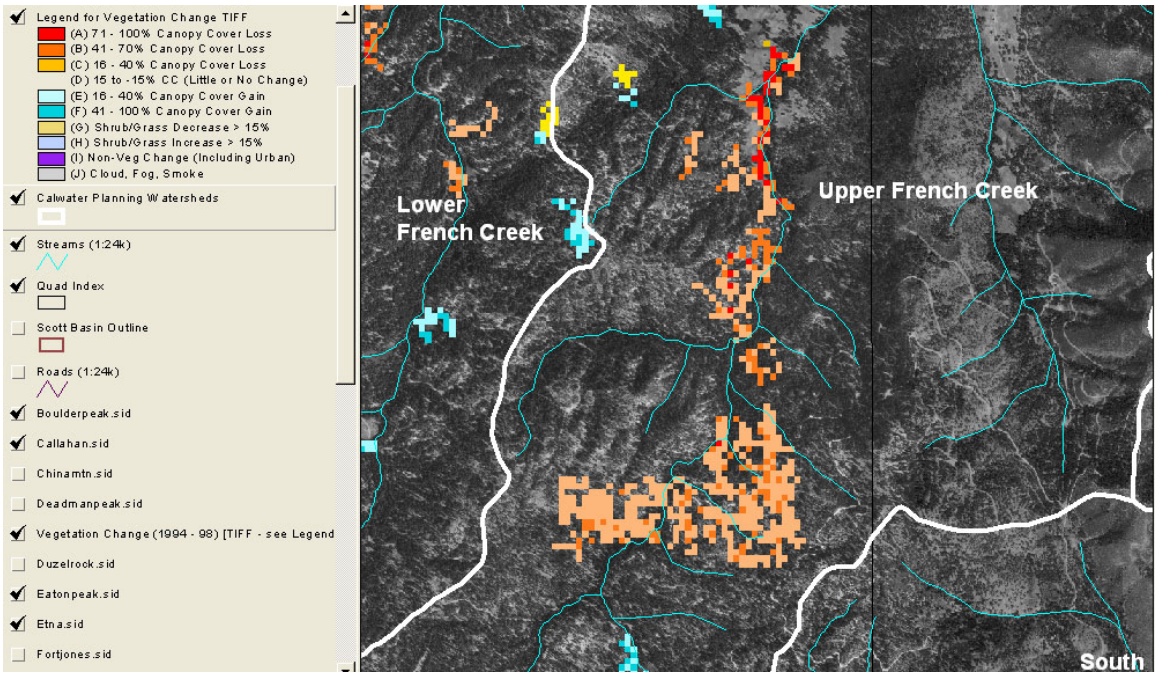

Figure 2. Vegetation change determined by comparing 1994 and 1998 Landsat images shows substantial logging in streamside areas in lower French Creek reaches. Data are from CDF and the USFS' Spatial Analysis Lab.

Water Use

The lack of action on flow issues is a major flaw in the *Implementation Work Plan*. U.S. Geologic Survey data for the Scott River show that flows have decreased substantially in recent years, such

that the adjudicated flows levels (Table 1) required for ecosystem function for U.S. Forest Service lands in the Scott River canyon are not being met (Figure 3).

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

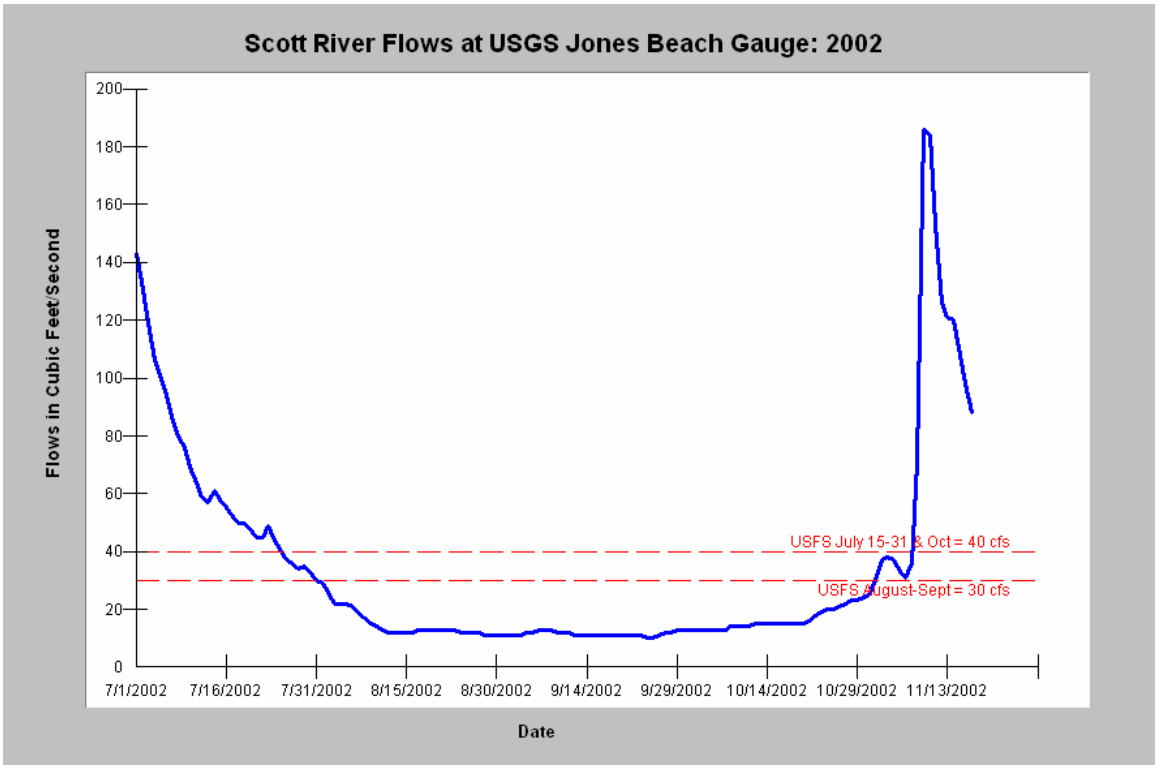

Figure 3. USGS Scott River flow gauge data indicate that flows failed to meet adjudication levels for the USFS and flows in August, September and October.

The resulting Scott River streamflows are insufficient to meet rearing habitat requirements for juvenile salmonids during summer and are too low to enable spawning migrations of adult fall Chinook salmon (see Risk of Stock Loss discussion below). The National Academy of Science (2003) has recognized a link between flow depletion and thermal pollution that contributes to the decline of Scott River salmon and steelhead.

California Department of Water Resources data presented to the NCRWQB in previous QVIR comments show that the number of wells in the Scott Valley has continued to grow in recent decades at the same time that surface flows have decreased. Monitoring well log data from DWR also show that minimum groundwater levels are descending. Immediate action is needed to abate the over-drafting of groundwater. Instead, the *Implementation Work Plan* delegates the study of groundwater-streamflow relationships to the County of Siskiyou. The County has not demonstrated

capacity to conduct nor manage such a study. The result of the NCRWQCB's delegation can only be further delay in gaining the information necessary for remedial action.

The *Implementation Work Plan* should have, instead, explicitly provided that the State Water Resources Control Board conduct, or manage, the groundwater/streamflow relationships study – as it has in other settings throughout the state when questions of inappropriate use, or overuse of water have arisen -- if the NCRWQCB is reluctant to do so itself. The current conjectural language (example below) that NCRWQCB staff might consider involving the SWRCB staff if it deems such involvement necessary has no place in a mandatory water quality restoration "action" plan:

> "Staff understands that the State Water Board has expressed interest in helping to fund and/or conduct a study correlating surface and ground water conditions. Staff will determine the level of involvement proposed by the State Water Board; if the State Water Board is proposing to conduct the study, we will adjust the work plan tasks below accordingly."

Sufficient evidence has been presented to demonstrate conclusively that the reduction in Scott River streamflow contributes directly to water temperature increases. The Scott River and its tributary reaches are completely dewatered during irrigation season, making the support of the river's beneficial uses impossible. Previous comments prepared by QVIR cited a Supreme Court precedent (U.S. Supreme Court, 1994) that would clearly enable NCRWQCB action to improve Scott River streamflows on the basis that temperature and fish habitat cannot be resolved without improving streamflow conditions.

The final statement on flow in the *Implementation Work Plan* is:

> "If at any time during the short, mid, or long term, staff determine that there is credible evidence that stream flows in the Scott River are decreasing in comparison to present levels, the Executive Officer will notify the Regional Water Board."

This statement is nonsensical given that streamflows are <u>already</u> inadequate to meet the requirements of the *Scott River Adjudication* (SWRCB, 1980); to protect or recover salmon and steelhead stocks (see below), and are, therefore, already inadequate to attain the objectives of the Basin Plan.

Flood Control and Bank Stabilization

This section of the *Implementation Work Plan* is sufficiently explicit that it is likely to prevent future use of heavy equipment to reconfigure riparian zone areas after future storm events similar to that of January 1997.

Timber Harvest

The *Implementation Work Plan* continues its reliance on the existing timber harvest permitting process to prevent further sediment and temperature pollution and, consequently, will not likely succeed. The California Forest Practice Rules have been determined to be incapable of preventing damage to anadromous salmonid populations and their habitats, primarily because they fail to set limits for prudent risk levels of disturbance, and they do not deal adequately with cumulative watershed effects (Ligon et al., 1999; Dunne et al., 2001; Collison et al., 2003).

Previous comments prepared by QVIR, and provided to NCRWQCB staff, have shown that watershed disturbance in the Scott River basin related to logging is well above levels known to cause damage to aquatic habitat including:

- High levels of timber harvest likely to increase peak flood flows and sediment yield in certain sub-basins,
- Significant alteration of canopy cover in the transient snow zone,
- Lack of forest growth in specific Scott River watersheds likely to prolong periods of elevated risk of rain-on-snow events and related channel damage,
- Allowance of timber harvest on unstable soil types, and
- Active harvest of riparian trees, including along stream reaches utilized by coho salmon.

Without explicit recognition of the problems cited above, NCRWQCB timber harvest review team participants will lack specific guidance with which to address problems of cumulative watershed effects through the WDR or waiver processes. Table 2 restates the prudent risk limits that would be effective in remediating water pollution problems by restoring natural hydrologic function and sediment regimes.

Table 2. Upland target conditions needed to minimize cumulative effects risk and to insure recovery of aquatic conditions.

Parameter	**Upland Target Conditions**	**References**
Road Densities	<2.5 mi./sq. mi.	NMFS (1996)
Road-Stream Crossings	<2 road crossings per mile of stream	Armentrout et al. (1999)
Timber Harvest	<25% of a watershed in 30 years	Reeves et al. (1993)
Unstable areas	No disturbance in SHALSTAB high risk zones w/o geologic review	Dietrich et al. (1998)

Kier Associates (2005d) use a widely-accepted shallow landslide stability model (Dietrich et al., 1998) to show that 80% of the active landslides in the lower western portion of the Scott River basin intersect with 7% of the landscape indicated as "very high in risk." The failure of the Scott TMDL and *Implementation Work Plan* to specifically recognize and incorporate the value of tools like the SHALSTAB model leaves NCRWQCB staff without the tools to guide timber harvest activity away from these problematic areas – and the existing patterns of watershed disturbance, including increased sediment yield, will likely continue.

Monitoring

Upslope effectiveness monitoring will likely be required only if non-standard erosion control techniques are used to abate sediment sources. Collison et al. (2003) point out that estimates of sediment saved by erosion control surveys are speculative and that the treatment may in some cases result in a new sediment source. Consequently, specific upland monitoring to measure soil loss at restoration sites is advisable.

The Scott River TMDL and the *Implementation Work Plan* should require specific aquatic monitoring methods, emphasizing continuing on-going activities useful for trend monitoring. Bulk gravel sampling (Sommarstrom et al., 1991; Sommarstrom, 2001), fine sediment in pools or V* (Lisle and Hilton, 1992) and the use of automated temperature sensors have already proven useful. These methods have been typically recommended in previous northern California TMDL's (U.S. EPA, 1998; U.S. EPA, 1999) along with recognized thresholds for properly functioning conditions. Consequently, explicit targets for fine sediment, V* and water temperatures should have been provided.

It unacceptable that the NCRWQCB staff has failed to include in the *Implementation Work Plan* a program of trend monitoring that builds on existing Scott River water quality data in a way that will enable adaptive management. Only such a monitoring commitment could assure water pollution recovery in the timeframe necessary for salmon recovery.

Risk of Stock Loss of Pacific Salmon

Scott River coho salmon show only one strong year class out of three, which means that they are at very high risk of extinction (Rieman et al., 1993). Scott River fall Chinook salmon returns in 2004 and 2005 are the lowest on record and showing warning signs of decline towards extinction (Figure 4). Previous comments prepared by QVIR demonstrated that fall Chinook salmon were restricted to lower canyon reaches (Figure 5) due to low fall flows in violation of the Scott River Adjudication. These lower reaches have high sand loads that can mobilize during increased flows, shift into redds and smother eggs and alevin. This combination of sediment pollution and flows that confine Chinook salmon to the lower canyon reaches are likely contributing to year class failures. Consequently, the NCRWQCB needs to take measures to improve flows in the lower Scott River beginning in October immediately or risk the loss of the Scott River's fall Chinook salmon stocks.

The *EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards* (U.S. EPA, 2003) emphasizes that cold water refugia must be explicitly protected through TMDL's, especially if mainstem river environments are over temperature levels suitable for supporting Pacific salmon. The Scott River reaches stressful or lethal temperatures for salmonids, yet neither the TMDL nor *Implementation Work Plan* provide specific measures for protecting refugia, such as lower Scott River tributaries (i.e. Boulder, Canyon and Kelsey Creeks).

Conclusion

The Quartz Valley Indian Community may recognize that the *Final Draft Scott River Watershed TMDL Implementation Work Plan* is an improvement over some other northern California TMDL's that simply defer implementation actions. Unfortunately, actions to abate water pollution in the Scott River, under the proposed *Implementation Work Plan,* remain voluntary and the actions clearly needed remain largely ill-defined. The lack of recognition of the relationship of cumulative watershed effects to sediment and temperature pollution, and the failure to set explicit limits to watershed disturbance will likely confound the *Implementation Work Plan's* success.

The groundwater and flow study delegation to Siskiyou County is misguided and inappropriate, when what is needed is action by the NCRWQCB to improve streamflows as the only way to restore beneficial uses of the Scott River associated with salmon and salmon recovery. Immediate action is needed to stem the precipitous decline of fall Chinook salmon and to allow for coho salmon recovery. The slow pace of action and the failure to include appropriate monitoring do not reflect the urgency of the need to restore the Scott River's coldwater fish beneficial uses of water.

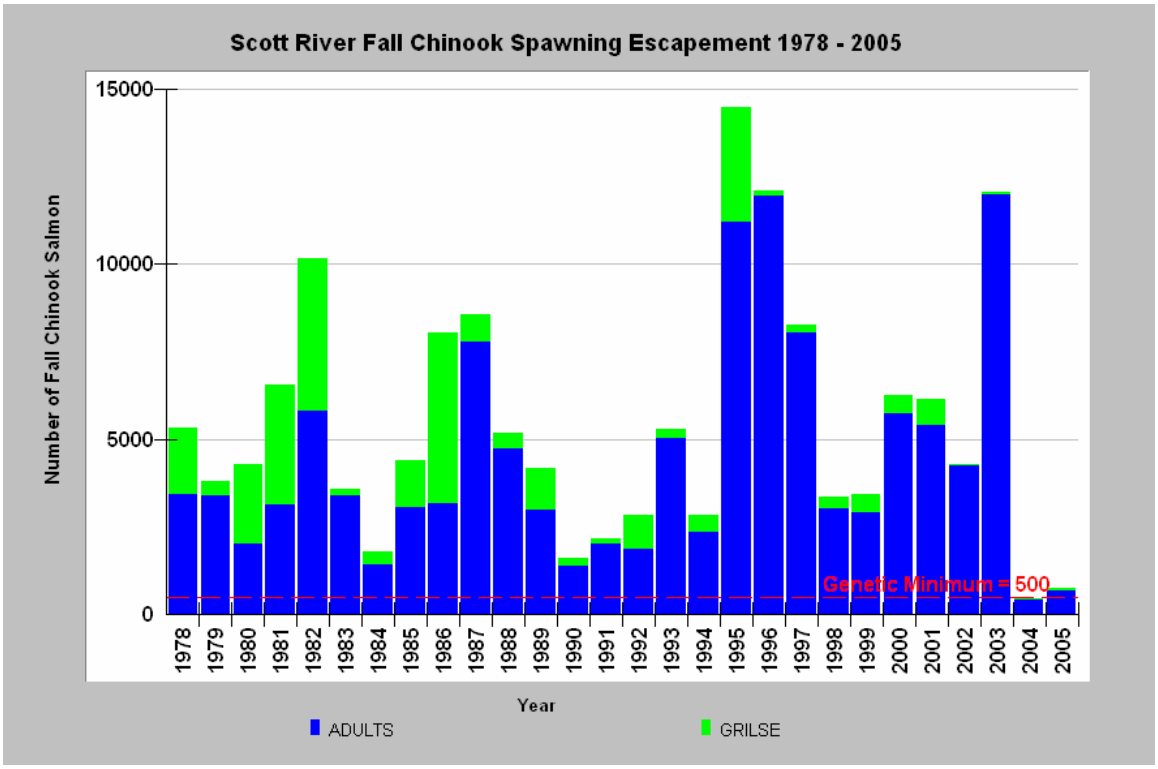

Figure 4. Scott River fall Chinook escapement shows both 2004 and 2005 as the lowest years on record. Data from CDFG.

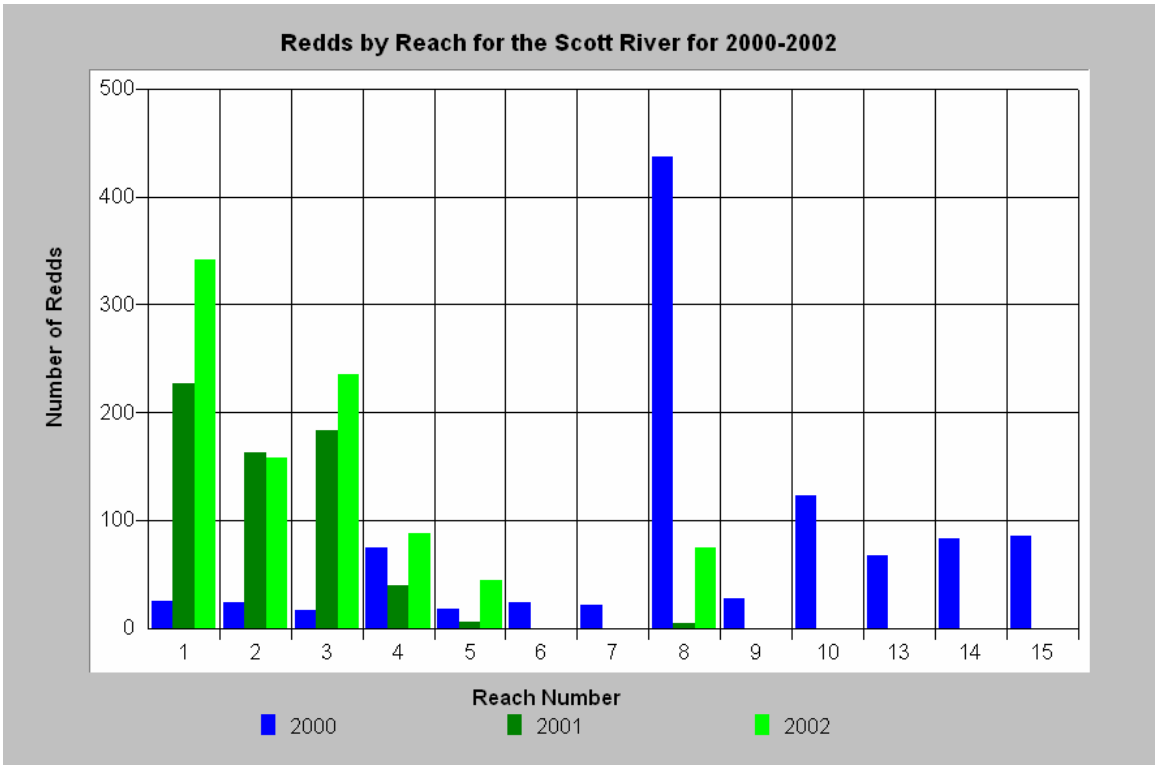

Figure 5. Fall Chinook salmon spawned mostly in the lowest five reaches of the Scott River in 2001 and 2002 because flows were insufficient for passage upstream. Data from CDFG.

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