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California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive #200  
Rancho Cordova, CA 95670-6114

Dear Mr. McClure

The Sierra National Forest appreciates the opportunity to comment on water bodies proposed for addition to the State of California's 303(d) List of Impaired Water Bodies and would like following information considered and included in the administrative record. Based on Appendix A, (Proposed Changes to the 303(d) List, Central Valley Regional Water Quality Control Board (CVWQCB) Clean Water Act Section 305(b) and 303(d) Integrated Report for the Central Valley Region, January 2009 Public Review Draft) the following water bodies or portions thereof are located on or near National Forest Lands and are under consideration for listing:

1. Fresno River (above Hensley Reservoir to the confluence with Nelder Creek and Lewis Fork - low dissolved oxygen, sources unknown),
2. Lewis Fork (ammonia, source unknown)

The Sierra National Forest respectfully challenges the above listing of the following rivers on or downstream of national forest lands as they are and remain unaffected by actions that could potentially affect the DO and ammonia on Forest Service lands. Information specific to each of these water bodies is provided in a following sections of this letter.

Sincerely,

David Martin, District Ranger  
USDA, Forest Service  
Sierra National Forest, Bass Lake Ranger District  
(559) 877-2218 ext. 3100



## **Best Management Practice Effectiveness**

A primary objective of the U.S. Forest Service (USFS) in managing the Sierra National Forest is to improve and protect watershed conditions (USDA Forest Service Strategic Plan, 2007). The USFS recognizes its responsibilities to protect water quality and supports the efforts of the Regional Board to enforce the Clean Water Act and the California Water Code through revision of its 303(d) list of impaired water bodies. The USFS in Region 5 is authorized as a Designated Management Agency (DMA) under a 1981 Management Agency Agreement (MAA) with the State Water Quality Control Board and implements State approved BMP's designed to maintain water quality standards and control nonpoint source pollution.<sup>1</sup> As the Forest's BMP's have been approved by the State in the aforementioned MAA, they become the primary mechanism for meeting water quality standards. Monitoring of our BMP protocol has shown our BMP's to be effective in mitigation of nonpoint source pollution and are therefore in compliance with applicable water quality standards.<sup>2</sup>

BMP implementation and effectiveness are monitored annually by the USFS and reported to the Regional Board. Between 1992 and 2008, BMP's monitored on the Sierra National Forest were found to be effective in 91% of the instances monitored. Most recent monitoring (2004-2008), found BMP's to be effective in 93% of the instances monitored. The Sierra National Forest provides copies of annual monitoring results to the Central Valley Water Quality Control Board on an annual basis. This board has never responded negatively or suggested our management to be inadequate. Reports to the Water Board provide evidence of compliance with water quality standards and protection of beneficial uses. Therefore the forest is confident that resource management activities provide a high level of protection for beneficial uses of water.

## **Information Specific to Proposed 303(d) Water Bodies**

### Lewis Fork

The sampling locations for Lewis Fork occurred at stations 539FRR020 and 539FRR010 along the Lewis Fork drainage. Each of the sampling sites is on Forest Service land, but occurs downstream from a developed private community (Figures 1 and 2). Sample station 539FRR020 is downstream of the community of Cedar Valley, a development of approximately 180 single family residences. Sample station 539FRR010 is downstream

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<sup>1</sup> Management Agency Agreement Between the State Water Resources Control Board, State of California And the Forest Service, United States Department of Agriculture., 1981.

<sup>2</sup> <http://www.epa.gov/waterscience/standards/library/npscontrols.pdf>, EPA, Water Quality Standards Handbook, Chapter 2, General Program Guidance, Page 2-25, NONPOINT SOURCE CONTROLS AND WATER QUALITY STANDARDS, August 19, 1987

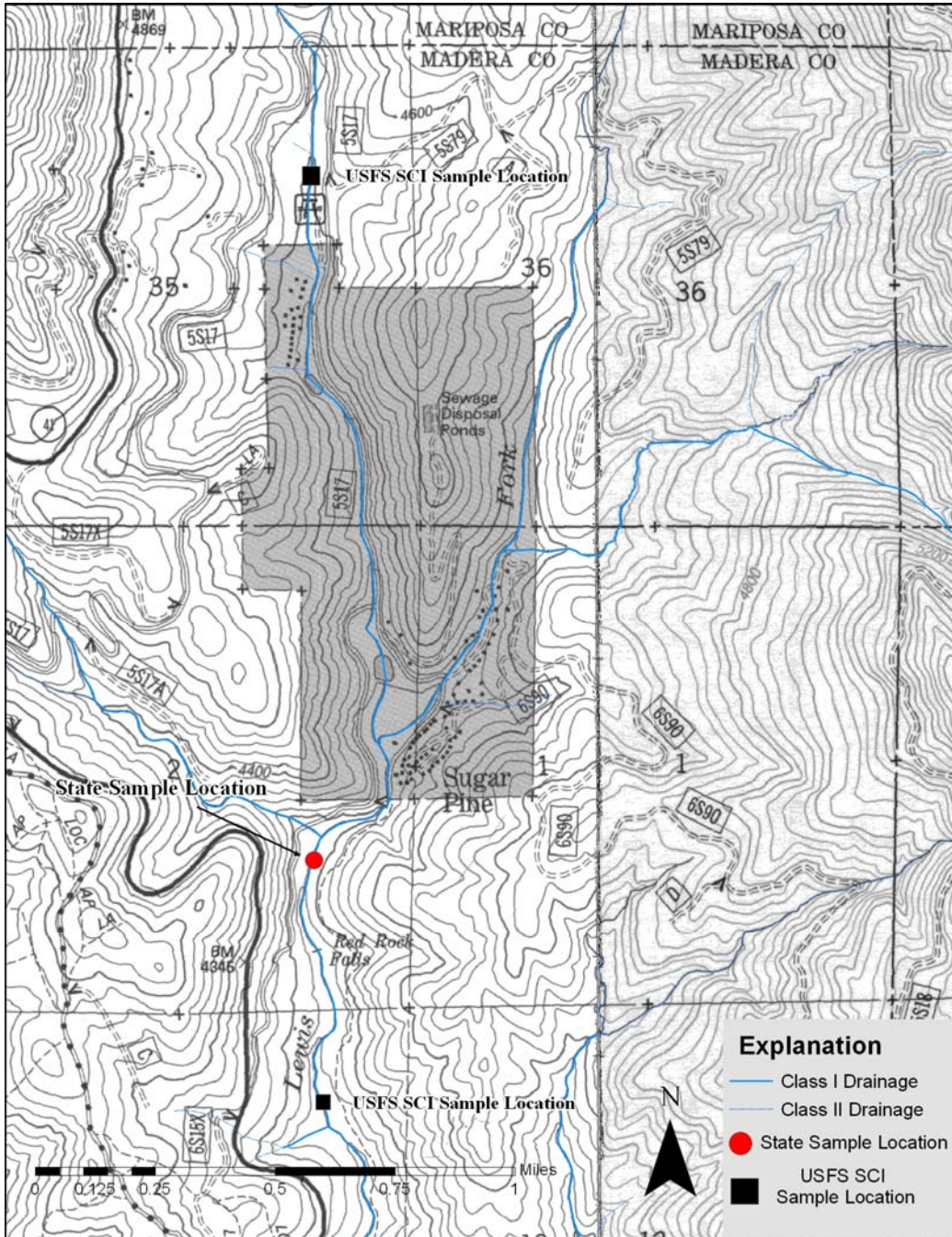


of the community of Sugar Pine, a development of approximately 85 single family residences. According to the Madera County Special Districts Department, the homes in both developments are not on a county sewage system; rather, each home utilizes an underground septic tank and drain field.

Studies of septic tank effluent have shown ammonia to be a possible contaminate. A study by the U.S. Geological survey showed that when oxygen is abundant in the ground water, ammonia changes to nitrate over short distances through nitrification. In the absence of oxygen in the ground water, denitrification can occur, and nitrate is changed to nitrogen gas. The presence of ammonia may indicate that the distances from a septic tank to a domestic well (or in this case the Lewis Fork drainage) were short enough that ammonia did not have the opportunity to be transformed to nitrate or nitrogen gas. Ammonia concentrations seem to be related to the distance of the septic system. The shorter the distance a water source is from a septic system drain field, the higher the concentrations of ammonia (Verstraeten, et al., 2004). Figures 1 and 2 show that many residences in both communities are less than a 100' from Lewis Fork.

Although ammonia was detected, only 2 of the 4 samples collected on Lewis Fork were reported as exceeding evaluation guidelines for ammonia. We respectfully question the statistical validity of only 4 samples and how representative these are of actual conditions. Stream Condition Inventory (SCI) data collected by the USFS suggest ammonia is not negatively impacting water quality. SCI surveys taken by the USFS on Lewis Fork near the communities of Sugar Pine and Cedar Valley (Figures 1 and 2) in the summer of 2007 did not directly sample for ammonia, but did sample for benthic macroinvertebrates, a proxy for water quality. Benthic Macroinvertebrates (BMI) have been demonstrated to be very useful as indicators of water quality and aquatic habitat condition (Resh and Price 1984; Hughes and Larsen 1987; Resh and Rosenberg 1989). They are sensitive to changes in water chemistry, temperature, and physical habitat. The samples processed by the National Aquatic Monitoring Center at Utah State University were evaluated using biotic indices from Hilsenhoff (1987) and Winget et al. (1979). Table 1 displays information for the samples, including metric results from the Hilsenhoff (HB Index); Community Tolerance Quotient (CTQ: predicted and determined); and Biotic Community (BCI) indices for aquatic macroinvertebrates. BCI data indicates water quality at these sites range from "good" to "excellent" (Vinson, 2008). The location sampled upstream of the community of Sugar Pine was evaluated as being in "good" condition (Sierra-03), while the sites sampled downstream of Sugar Pine and Cedar Valley were evaluated as "excellent" based on benthic communities (Sierra-01,02).





**Figure 1. State sample station 539FRR010. The sample site occurs on National Forest land, but downstream of the private community of Sugar Pine. SCI survey locations where BMI samples were taken (BMI samples “Sierra-02” and “Sierra-03”) are shown as black squares.**



**Table 1:** Metrics for benthic macroinvertebrates collected from several SCI plots. Sierra NF sub-watershed number, site location, HB Index, Indication, CTQp, CTQd, BCI and water quality indication.

<b>HUC8</b>	<b>Site</b>	<b>HB Index</b>	<b>Indication</b>	<b>CT Qp</b>	<b>CT Qd</b>	<b>BCI</b>	<b>Indication</b>
503.0010 (Sierra 03)	Above Sugar Pine	4.14	Moderate organic enrichment	50	61	82	Good
503.0055 (Sierra 02)	Below Sugar Pine	3.27	Slight organic enrichment	60	53	113	Excellent
503.0055 (Sierra 01)	Below Sugar Pine	3.14	Slight organic enrichment	50	50	100	Excellent

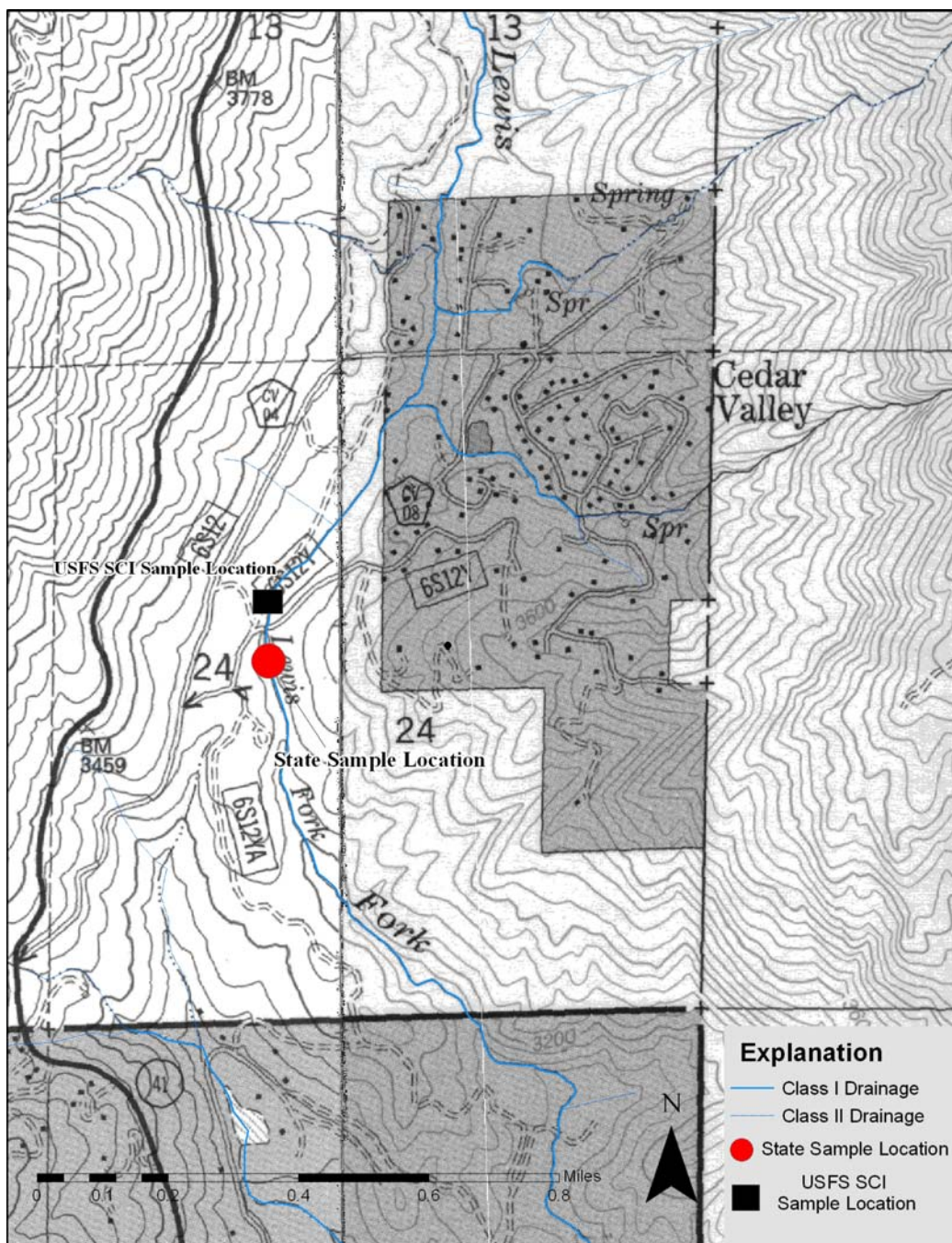
Ammonia detection likely relates to septic effluent from the private communities of Cedar Valley and Sugar Pine; our data, however, suggest that what ammonia may be present, is not negatively affecting water quality. The USFS does not have jurisdiction on private land and can thus not mandate standards and guides or implement best management practices in such areas. Based on our MAA with the State Water Quality Control Board, and the Clean Water Act and responsibilities under these authorities, the Sierra National Forest would not implement any type of management that would cause the introduction of ammonia or any other impairment to Lewis Fork drainage.

Fresno River

The segment of the Fresno River above Hensley Reservoir to the confluence with Nelder Creek and Lewis Fork is proposed for listing for low dissolved oxygen, sources unknown. The sample locations (stations 539FRR050, 060, 080, 090) are not on the Sierra National Forest, but do occur downstream. Dissolved oxygen (DO) is related to water temperature, and generally, cooler water has higher DO. Turbulence increases DO as oxygen from the air gets mixed into the water. Other factors that exert a control on DO include photosynthesis, respiration, and decomposition of plant material. Photosynthesis only occurs during the day, and it increases DO. Respiration and plant decomposition occur around the clock, and deplete DO. It is clear that there are many influences that control DO and that time of day or temperature can affect the degree of oxygen saturation. As such, the 15 samples taken in this segment of the Fresno River are, in our opinion, far too few to accurately define the true range of DO variability. Thus, basing a proposed listing on such limited information is not warranted until additional data are gathered. The USFS urges the State Board to better define the potential range of natural variability of dissolved oxygen along this segment of the Fresno River before including it on the State's 303(d) listing.







**Figure 2. State sample station 539FRR020. The sample site occurs on National Forest land, but downstream of the private community of Cedar Valley. The SCI survey location where BMI samples were taken (BMI samples “Sierra-01”) is shown as a black square.**



## **Summary and Proposal for a Partnership**

In summary, the Sierra National Forest would like to reiterate that water quality on the National Forests in California has been protected since 1981 through a Management Agency Agreement (MAA) between the State Water Resources Control Board (State Board) and the USFS. This MAA provides for a USFS Water Quality Management Program (WQMP) that is based on Best Management Practices (BMP's) developed for a wide variety of USFS resource-management activities. These BMP's were certified by the State Board and approved by the U.S. Environmental Protection Agency (USEPA).

The State's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (2004) supports the use of BMP's and MAA's as the primary mechanisms for meeting water quality standards on public lands. As described in this policy, successful MAA's are more efficient than direct regulation by the Regional Boards and limit unnecessary duplication of effort, and leverage limited staffing and financial resources.

Documented in this letter is evidence in the form of sampling, survey results and monitoring that:

1. Indicate the water bodies being considered for 303(d) listing are not in impaired conditions within the Sierra National Forest Boundaries;
2. Our Best Management Program Effectiveness Program monitoring indicate high levels of BMP implementation and effectiveness for the entire Forest

If the Water Board determines any of the proposed water bodies on or near National Forest Lands are to be listed, the Sierra National Forest respectfully requests that an alternative to TMDL be proposed. It would be improbable if not impossible to achieve TMDL load allocations for nonpoint source pollution as the Forest has reason to believe impairments identified have not been affected by management activity nor could they be address through management actions.

For water bodies that are added to the State's 303(d) list, the State's Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structures and Options (2005), allows Regional Boards to certify non-regulatory programs of other entities as appropriate TMDL implementation. As such, other agencies with programs affected by a 303(d) listing (e.g., government agencies, universities) within the proposed watershed could support the effort.

The 2007 Memorandum of Agreement between the USFS and the U.S. Environmental Protection Agency encourages the use of Category 4b in place of TMDL implementation plans for 303(d) listed water bodies on or downstream of national forest lands if proper implementation of preventative and restorative BMP's can reasonably be expected to achieve Basin Plan water-quality objectives. For Category 4b to be employed, the following conditions must be met:



1. Sources of pollution must be identified and the general treatments determined. The treatments must be designed to achieve State and Basin Plan water quality objectives.
2. A watershed-specific monitoring plan must be provided that identifies the current condition and the target conditions that will indicate compliance with Basin Plan objectives.
3. A realistic, aggressive schedule for implementing restoration BMP's based on currently available or reasonably foreseeable funding must be provided.
4. If monitoring indicates that recovery is slower than expected, an iterative cycle of more effective treatments will be applied until recovery goals are met.
5. The Regional Board retains the authority to revert to Category 5 if for any reason achievement of state or basin water-quality objectives appears to be unlikely.

Category 4b is likely to be a more cost-effective and efficient approach in meeting Basin Plan objectives than traditional TMDL development. As such, the Sierra National Forest welcomes an opportunity to work with the Central Valley Water Quality Control Board to develop a precedent for this approach to improving water quality on national forest system lands.





## **Additional References**

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