October 17, 2016

Central Valley Regional Water Quality Control Board
c/o: Jay Simi
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

Re: Comment Period for Proposed Revision to 2012 303(d) list

Dear Jay Simi,

Thank you for giving this opportunity to provide comment on the proposed revision to the 2012 303(d) list. After reviewing the document, there are 6 water bodies that I would like to specifically comment on. I work as a farm advisor for the University of California Cooperative Extension and cover the counties of El Dorado, Amador, Calaveras and Tuolumne. I have firsthand experience working in and around these water bodies and know the potential issues that might arise from listing these water bodies on the 303(d) list as being impaired. The water bodies in question are located in Tuolumne County on the Stanislaus National Forest. They include:

- Bell Creek
- Bull Meadow Creek
- Jawbone Creek
- Jawbone Creek, unnamed tributary
- Niagara Creek
- Rose Creek

The proposed listings cite the pollutant as Indicator bacteria and the specific pollutant for each water body as fecal coliform and/or Escherichia coli (E. coli). For each of the above proposed listings, livestock grazing is identified as the contributing factor. Under the Environmental conditions or QAPP (Quality Assurance Project Plan) section for each identified water body, the following statements can be found; "the samples were collected after cows were present in the area", "samples were collected under the Bacteria Contamination of Surface Waters Due to Livestock Grazing in the Stanislaus National Forest, California".

Here are my concerns:

1. As the supporting information is currently written, livestock are listed as the primary cause for the impairment. Although livestock grazing may occur in these areas, they are not the only contributing factor for indicator bacteria. In fact, research has shown that small rodents and mammals can contribute much larger levels of indicator bacteria than cattle. According to a study by Dr. Edward Atwill published in 2002 "striped skunks, coyotes, California ground squirrels, and yellow-bellied marmots produce more oocysts per individual animal than either beef cows or dairy cows. Much regulatory attention is being placed on the role that livestock

play in contaminating watersheds with *Cryptosporidium parvum*. Assuming that collective our goal is to protect water quality and to minimize waterborne transmission of this parasite, it would be prudent to equally focus on the role that wildlife play in loading watersheds with this pathogenic protozoa if we are going to successfully protect the public's health from this pathogen."

2. Although livestock can be contributing factors to indicator bacteria in the watersheds, wildlife far outnumber livestock. Until DNA based molecular markers are used to screen species, livestock shouldn't be identified as the sole factor. This doesn't mean there isn't an impairment, but it does point the blame to the agricultural industry. Since many livestock producers are dependent on summer grazing on national forests, the unnecessary blame of the impairment directly on the livestock industry could have catastrophic consequences not only on this national forest, but could set precedence across the entire national forest system.

3. While the listings for these 6 creeks are entirely on United States Forest Service land, the listing of these water bodies will impact private landowners in these watersheds, as well as other local stakeholders and the community in general. Because these impairments were on public lands, I am concerned that neighboring private landowners were not notified as to the concern and the potential listing.

4. The data used to propose these 6 listings was submitted by a single source that has recently shifted to advocate a strong position against all livestock grazing in upper elevations of the United States Forest Service. In 2013, researchers from the University of California Davis published a peer-reviewed study titled "Water Quality Conditions Associated with Cattle Grazing and Recreation on National Forest Lands." Their findings tell a very different story than the data included in the listing proposal. In summary:
   o Relative to USEPA's national E. coli fecal indicator bacteria (FIB) benchmarks–the most contemporary and relevant standards for this study–over 90% of the 743 samples collected in the study were below recommended criteria values.
   o FIB concentrations were significantly greater when stream flow was low or stagnant, water was turbid, and when cattle were actively observed at sampling.
   o Recreation sites had the lowest mean FIB, total nitrogen, and soluble reactive phosphorus concentrations, and there were no significant differences in FIB and nutrient concentrations between key grazing areas and non-concentrated use areas.
   o The results suggest cattle grazing, recreation, and provisioning of clean water can be compatible goals across these national forest lands.
   o The whole paper can he read here: http://journals.plos.org/plosone/article/asset?id=10.1371%2Fjournal.pone.0068127.PDF

The current evaluation guidelines for determining fecal indicator bacteria is from the US EPA Ambient Water Quality Criteria for Bacteria – 1986. Fecal indicator bacteria are used by water quality and public health officials as an indication that a connection may exist between fecal sources in the watershed (e.g. livestock, wildlife, humans) and the water body of concern. There is an underlying assumption that when FIB concentrations exceed a certain level (i.e., water quality standard), it is possible pathogens such as *Cryptosporidium parvum*, *E. coli* O157:H7, and *Salmonella* present a risk to human health. The FIB themselves are not a direct measure of waterborne pathogens, and the assumed correlation between FIB and pathogens has been proven questionable (Fielda and Samadpour 2007). Recent

research by UC Davis in the Sierra Nevada further undermines the utility of FIB as a sentinel for safe recreational water (Atwill et al.). Work by Fielda and Samadpour outline a watershed scale FIB source search based on strategic water quality monitoring. Once clear impairments and sources are systematically identified, management alternatives can be implemented to reduce contributions from the sources. Outreach should simultaneously be conducted to improve manager and stakeholder understanding of microbial water quality, risk factors, and management alternatives to reduce risk.

To address concerns raised in the proposed listing of these 6 water bodies, local stakeholders, the U.S. Forest Service, state and regional water board staff, UC Davis researchers from the Rangeland Watershed Laboratory, and University of California Cooperative Extension are forming a water quality partnership that will address site-specific management practices designed to protect and enhance water quality. This partnership includes additional water quality sampling during 2016.

In summary, I am very strongly opposed to targeting the livestock industry for the proposed impairment of the above six water bodies. If an impairment does exist, the language for each of the corresponding water body impairments should be modified as to remove livestock as the source of the impairment. In addition, I would ask that the Central Valley Regional Water Quality Control Board support a collaborative approach as outlined above to address the impairment.

Cited References

Atwill, E.R. et. al. 2002. Environmental Loading Rates of the Waterborne Pathogenic Protozoa *Cryptosporidium parvum* in Certain Domestic and Wildlife Species in California. Proc. 20th Vertebrate Pest Conference. University of California Davis. Pp. 241-243.

Fielda, K.G., and M. Samadpour. 2007. Fecal source tracking, the indicator paradigm, and managing water quality. *Water Research* 41:3517-3538.

Sincerely,

Scott Oneto
Farm Advisor