Aug. 8, 2021

Tahoe Science Advisory Council Peer Review Committee

Review of Aquatic Pesticide Application and Basin Plan Exemption -Section 4 Monitoring and Reporting Program (S4-MRP)

As an Aquatic Ecologist with thirty years of experience in California, and with detailed knowledge of fish, macroinvertebrates and general aquatic ecology, I have read and reviewed the S4-MRP and have found it more than sufficient. I found the following to be true:

- The scale, extent and methodologies employed in the S4-MRP are scientifically rigorous particularly with respect to the plant and BMI monitoring. I also want to applaud the groups decision to not use fishes as a monitoring tool as that would have been inappropriate in my opinion.
- The scope and physical coverage of the study area are more than reasonable and will allow the study to answer the question of which, if any, aquatic plant control methods are effective on these invasive plants in this location.
- The water quality analysis (including the standard and the continuous efforts, nutrient grabs and HAB monitoring) are all reasonable and fully justified.
- The methods to monitor herbicide and degradant chemicals in the water are good and should be effective, particularly with the use of the ELISA tests.
- The use of the rhodamine dye tracer is a great addition to this methodology and should provide a useful measure of understanding as to the water/contaminant transport in and out of the Tahoe Keys.
- The methods to prevent sample contamination(i.e. gear and personnel) is well conceived and extensive and should provide more than enough ability to protect the integrity of the efforts.
- The records keeping, sample preservation, shipping and QA/QC methodologies are all more than adequate.
- The post assessment of restored conditions efforts are also reasonable and will likely provide reasonable outcomes.
- Finally about the timeline for the research efforts and reporting. There is a lot of moving pieces involved in this effort, in terms of coordinating field collections, sample processing, data analysis, and reporting. I wouldn't be surprised if some of the dates for reporting are difficult to meet. None the less, it is worth trying to stick to the timeline, ambitious as it might be.

In summary I found no flaws in this monitoring and reporting program and think that it should be successful in both providing guidance for aquatic weed abatement and protecting the larger Tahoe aquatic resources. I do have to say that I think this amount of work/effort is a bit more than is necessary to both answer the questions and protect the resources. I understand the need for caution, but this may be excessive.

As for responding to the charge of this review namely: Will implementing the proposed monitoring plan provide sufficient data and analyses to assess whether non-target biological

communities (including macroinvertebrates, macrophyte, and fish populations) have fully recovered/restored following pesticide application?

I believe that the proposed monitoring plan will provide ample evidence to assess whether non-target communities have fully restored/recovered after the aquatic weed treatments. The criteria used for this assessment seem reasonable and appropriate (BMI and native plant communities) given the Tahoe Keys environment and situation. Although I do worry a bit that the current very low abundance of native plant species and the existing poor quality (in terms of tolerance values) of the BMI present in the Tahoe Keys environment are not something to aspire to. It is clear that the hope would be that following the treatment(s) these metrics would actually improve so it's a little odd/jarring to think there is a lot of effort to return the Keys to the previous poor condition (but I get what is being done).

If you have any questions, please don't hesitate to contact me at the address below.

Sincerely

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