

From: CCHAB Network Mitigation Subcommittee

To: Lake Manager

Guidelines: Preliminary Lake Evaluations for Managing Cyanobacteria and Harmful Algae

Thank you for agreeing to have your lake or reservoir be part of a limited test of a preliminary lake evaluation concept. The primary purpose of this project is to develop a mechanism to assist lake managers who may have limited knowledge or experience managing cyanobacteria and harmful algal blooms. This document briefly describes the proposed lake evaluations concept and provides instructions for filling out the lake evaluation spreadsheet. A small team of experts will evaluate the information you provide on the attached spreadsheet and produce a summary document specific to your lake. The document will highlight critical information that is missing from your program if it is required to advance the development of a sound mitigation strategy. The flowchart posted on the California Cyanobacteria and Harmful Algae Bloom (CCHAB) Network [website](#) will provide the framework for conclusions and recommendations, supported by the additional in-depth references cited on that website. With your assistance we will determine if this concept is worthy of further development and implementation to assist other lake managers.

The mitigation subcommittee of the CCHAB Network is developing methods to assist lake and reservoir managers in preventing and managing cyanobacteria and harmful algal blooms (CyanoHABs). Our first method is the website with resources for mitigating HABs. This, our second method, is in early development and consists of preliminary lake evaluations to assist lake and reservoir managers to better understand the underlying issues related to the development of CyanoHABs in their lakes. Filling in this spreadsheet will provide information needed to characterize your lake's trophic status; and identify the potential watershed sources, in-lake conditions, and water management activities that warrant further investigation. The goal is to provide focus for follow-up efforts you can make to develop effective mitigation and management strategies. These follow-up efforts often consist of one to two years of water monitoring to inform design of in-lake mitigation actions. Monitoring might also inform need for and design of upstream control actions (especially for nutrients), even though the lake manager typically does not have control over inputs. Focus is helpful to ensure cost-effective monitoring.

We selected preliminary lake evaluations as our second method because it is common, but certainly not universal, for lake managers to have limited knowledge about the limnology of their lakes. Water agencies, government agencies, and some homeowner associations often have comprehensive programs to manage water quality in their lakes but again, this is not universal.

The objective of using a few lakes or reservoirs as test sites is to assess the viability of this approach and whether the mitigation subcommittee using limited resources can offer site-specific preliminary evaluations that provide value to lake and reservoir managers.

Feedback from you on your test case results will be important in determining if this type of effort is useful or if modifications are needed to increase the usefulness of preliminary lake evaluations.

There are three steps in the lake evaluation process:

1) **Lake Manager fills out the preliminary lake evaluation spreadsheet**

The lake manager fills out the spreadsheet based on available information. The response can be in the form a written entry in the “description or comment” section, or as a supporting document attached to your response. It is expected that many line items can be addressed with NA or, unknown. In Part 1, Lake Evaluations, it is important to know if algae problems of any kind have been historically important or if they are relatively new to your lake. Secondly, the problems or issues in the lake should be characterized by the type of blooms and their frequency, magnitude, areal extent and duration, if known. It is not the intent of the spreadsheet to gather all of the monitoring data that might be available for your lake, but rather to gain an understanding of the patterns, trends and historical changes that have occurred. For example, nutrients are critical to a proper evaluation of any algal problem, but in this initial phase ranges and mean values may be adequate. However, if significant increases in nutrients over time have occurred, that information should be documented in the spreadsheet. Alternatively, annual or summary reports would be most useful if they can be submitted for review.

2) **Review team effort and follow-up with Lake Manager**

A few members of the mitigation subcommittee, including experienced lake managers, will form a small “review team.” The team will review the information in your spreadsheet and conduct a follow-up call and/or a site visit to ask additional questions and try to fill in gaps or clarify details as needed.

3) **Review team summary report**

Based on the evaluation, the team will produce a draft summary document that provides a pathway towards mitigation of the CyanoHAB problem (see [flowchart](#)). The document will briefly summarize existing conditions, identify critical knowledge gaps and, if possible, identify root causes, and suggest steps to develop a mitigation plan. The team will use the flowchart (decision tree), other references cited on the CCHAB network website and personal experience as the basis for the evaluation. It is likely that the summary report will conclude that some mitigation approaches can be eliminated from detailed consideration in the mitigation plan based on the limnological characteristics of the lake, characteristics of the watershed, source waters, and operational infrastructure. The summary report will likely include suggestions to the lake manager for an enhanced and focused monitoring program, the need for selective professional services, infrastructural modifications, and immediate actions the lake manager might take to begin alleviating the CyanoHAB problems. The draft report will be submitted to the lake manager for feedback on lake-specific suggestions and his/her opinion as to whether this evaluation process was useful and should be offered by the mitigation subcommittee to evaluate additional lakes. The final lake report will be sent to the lake manager and used for evaluating the project by the mitigation subcommittee.

Privacy

The mitigation subcommittee will not post any materials (e.g., checklist, notes, reports) related to the test site preliminary lake evaluations to our website. If outside parties request materials, we will direct them to the lake manager. However, please note that some members of the mitigation subcommittee work for public agencies, and therefore are subject to California's Public Records Act or the federal Freedom of Information Act. Both of these Acts require release of materials when requested, and within reason.

Decision to offer preliminary lake evaluations

First, after at least three reports are available, the mitigation subcommittee will determine whether to accept, reject or modify the idea to offer preliminary lake evaluations. If accepted or accepted with modification, the mitigation subcommittee will then consider implementation procedures to sustain this activity. The recommendation will then go to the CCHAB Network co-chairs. Lastly, the California Water Quality Monitoring Council has the final decision authority, if both the mitigation subcommittee and the CCHAB Network approve the subcommittee to offer preliminary lake evaluations.

Thank you for your participation,

Bill

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