



Blue Ribbon Committee for the Rehabilitation of Clear Lake

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Technical Subcommittee

Meeting #10

1:00 pm-3:00 pm

July 23rd, 2020

DRAFT Meeting Summary #10

Attendees:

See Attachment A

Action Items

CCP will:

1. In advance of the August 27th Technical Subcommittee (Subcommittee) meeting, Sam Magill will:
 - a. Determine if Tribes are eligible for Prop 68 funding
 - b. Resend the April 24th Subcommittee summary. Subcommittee members will provide comments within one week of receipt.
 - c. Follow up with Frank Aebly, US Forest Service, to set up a conversation with Charlie Alpers and Joe Domagalski, US Geological Survey (USGS).
 - d. Recirculate the USGS Sediment Fingerprinting Summary for Subcommittee review.
 - e. Work with Angela DePalma-Dow, Lake County Water Resources Department (WRD), to circulate her summary of Clear Lake water quality data.
 - f. Coordinate a Middle Creek Restoration Project (Project) overview and update presentation for the August 27th Subcommittee meeting.
2. Ms. DePalma-Dow and Carter Jessop, US Environmental Protection Agency (EPA), will meet to discuss methylmercury signage at public beaches and boat launches.
3. Mr. Alpers will provide an update on the development of USGS projects funded by the Bureau of Land Management (BLM) to monitor water quality and install gauges in the Scotts Creek area in advance of the August 27th Subcommittee meeting.
4. Broc Zoller, Mr. Alpers and Mr. Domagalski will discuss technical details related to the Subcommittee's proposed monitoring sites and report back to the Subcommittee at the August 27th Subcommittee meeting.
5. Ms. DePalma-Dow and Mr. Alpers will meet to discuss littoral insect monitoring in advance of the August 27th Subcommittee meeting.

6. Ms. DePalma-Dow will send information on urban stream monitoring to Mr. Magill for distribution to the Subcommittee by August 14th.
7. Sarah Ryan will follow-up with the Subcommittee to provide information on datasets that track harmful algal blooms, including gloeotrchia and microcystin in advance of the August 27th Subcommittee meeting.
8. All Subcommittee members will:
 - a. Review the April 24th meeting summary and provide edits to Sam Magill (s.magill@csus.edu), Sophie Carrillo-Mandel (s.carrillo-mandel@csus.edu) and Cristina Murillo-Barrick (murillo-barrick@csus.edu) by Friday, July 21.
 - b. Submit responses to recommendation funding brainstorming questions by Friday, August 7th to Mr. Magill, Ms. Carrillo-Mandel, and Ms. Murillo-Barrick.

Welcome and Introductions

Sam Magill (Facilitator), Sacramento State Consensus and Collaboration Program (CCP), opened the Technical Subcommittee (Subcommittee) meeting. The Subcommittee is a subset of stakeholders associated with the Blue Ribbon Committee for the Rehabilitation of Clear Lake (Committee). A full list of subcommittee meeting participants is included in attachment A.

The Facilitator noted that the goal of this meeting was to provide updates on projects relevant to water quality monitoring in the Clear Lake area and encourage members to brainstorm about sources of funding for the Committee and Subcommittee. The Facilitator then then provided a brief Committee update stating that, following the extended July 2020 State tax filing deadline, the availability of funds from the State of California remained unknown. There was a very real possibility that the Committee would not receive funding from the State in 2020 (due to the effects of COVID-19 and state prioritization of emergency response funding). Despite these challenges, the Facilitator encouraged the Subcommittee to maintain momentum and continue exploring sources of potential funding. In line with that effort the Facilitator was engaged in conversations with Committee Chair, Eric Sklar, California Fish and Game Commission, and they were exploring two promising sources of funding: Proposition 68 (Prop 68) funds and Wildlife Conservation Corps funds.

The following comments recorded:

- One member asked if Tribes were eligible to apply to Prop 68 funding? One concern with pursuing this funding source is that Tribes would be shut out of the funding process.
- Several members of the Subcommittee expressed their support to partner with Tribes if Prop 68 funds could only be acquired at the county level. One member suggested including Tribes early in the process in order to overcome potential limitations.
- Several members supported the idea of partnering around a “shovel ready” capital improvement project (as required by Prop 68); one idea included funding the Southeast Wastewater Treatment System.

Housekeeping Items

The Facilitator reviewed the Draft meeting minutes from the April 24th Technical Subcommittee meeting. Noting no changes or edits, these meeting minutes were approved by the Subcommittee.

The facilitator reviewed and provided updates on the action items from the April Subcommittee meeting (see action items above).

Ongoing Project Updates

The Facilitator stated that several updates were included in the agenda, these included updates from Tribes, Lake County and UC Davis Tahoe Environmental Research Center (TERC), State Water Resource Control Board (SWRCB) and the US Geological Survey (USGS). These all represented important topics related to ongoing monitoring and water quality efforts tied to the Committee and Subcommittee. The Facilitator asked if there were any other updates that should be added to the agenda, a request was made and accepted to add updates on harmful algal blooms and water quality monitoring, as well as an update provided by the US Environmental Protection Agency (EPA). These were accepted.

Update: Cyanobacteria Monitoring

Sarah Ryan, Big Valley Rancheria, provided an update on cyanobacteria monitoring of Clear Lake, stating that following restrictions linked to COVID-19 monitoring of both the interior and exterior of Clear Lake began in July after being put on pause in the month of March. The most recent samples indicate the lower arm of Clear Lake, near Rodman Slough, is experiencing high concentrations of cyanobacteria blooms. However, there do not seem to be any concerns with the upper arm of Clear Lake, although more sampling of the surrounding tributaries is desired. Given the observed concentrations of cyanobacteria a fish die-off is predicted. Ms. Ryan is currently coordinating with the US Department of Fish and Wildlife (USDF&W) to monitor further.

Ms. Ryan stated there have been reports of both human and pet illness on Clear Lake in the months of June and July; despite serious health concerns, there has been good communication between the State and county. An email distribution list has been set up to alert key county representatives (including several members of the Subcommittee) when cyanobacteria levels reach dangerous levels. Currently, roughly half of the drinking water systems near Clear Lake participate in voluntary monitoring for cyanobacteria, when collections reach dangerous levels a priority is to inform them in the hopes of enabling them to rapidly make changes to water treatment needs. As to local residents and interested parties, Big Valley Rancheria continuously updates its water quality and cyanobacteria monitoring data on its website (<https://www.bvrancheria.com/water-quality-dashboard>) as well as their related Facebook group (<https://www.facebook.com/pg/ClearLakeWaterQuality/posts/>).

Ms. Ryan further noted there are particular concerns related to gloeotrichia and microcystin, both of which have been found this year on Clear Lake in increasing concentrations and have particularly challenging implications for drinking water quality and fish die-offs. The Tribe of Big Valley Rancheria is very interested in comparing current high cyanobacteria concentration data to that of former years' (such as 2018, when concentrations were also very high) to analyze data and identify trends; there are several hypothesis as to how increased concentrations might be linked to the secondary effects of wildfires and/or precipitation, but ongoing studies are needed. Ms. Ryan concluded by committing to sharing datasets on harmful algal blooms with the Subcommittee (**Action Item 7**).

Update: Ammonia and Drinking Water Systems

Amy Little, State Water Resource Control Board, reported confirmed fish die-offs in Clear Lake in the month of June/July. Over the June 18th weekend ammonia was detected in several drinking water treatment systems adjacent to Clear Lake. The presence of ammonia in these systems is linked to numerous challenges to drinking water treatment, these include: significant increases in chlorine treatment (up to four times the usual dose), harmful levels of bacteria and problems with system equipment. While Ms. Little stated there is not a firm understanding of how ammonia concentrations reach harmful levels within Clear Lake, there is evidence to support that it is related to the breakdown of bacteria (haloecetic acid, specifically) derived from sediment run-off linked to wildfires. Monitoring data indicates haloecetic acid has increased significantly within Clear Lake since December 2018, coinciding with the Mendocino Complex Fires. Ms. Little expressed concern that if there is a link (albeit possibly one with some lag time) between wildfires, haloecetic acid and increased ammonia this may result in health concerns, an increased cost to water treatment and potentially necessitate updating or significantly investing in water treatment infrastructure.

Update: Monitoring Water Systems

Karola Kennedy, Koi Nation, provided an update on monitoring of water systems surrounding Clear Lake; she indicated that nine of the seventeen water systems surrounding Clear Lake participate in voluntary monitoring. In the month of June all of the water systems engaged in monitoring were reported as having toxicity levels below the EPA guidelines.

Within the same period, Ms. Kennedy also engaged in monitoring water on Clear Lake; this data confirmed the findings shared by Ms. Little and Ms. Kennedy and indicated there were elevated levels of ammonia and cyanobacteria in the lower arm of Clear Lake. Ms. Kennedy emphasized this represented a major health concern, particularly, for small communities, and owners of individual and private water systems, because they are often drawing water directly from the lake, frequently they do not test their water and/or have the means to update water systems in order to ensure they are consuming safe drinking water. Further, Ms. Kennedy reiterated that given the potential connections between increasing levels of ammonia and the implications for drinking water systems expressed by Ms. Little, there are significant economic concerns related to the investments required to upgrade water systems and the economic viability of the region.

Update: Lake County and UC Davis Tahoe Environmental Research Center (TERC)

Alicia Cortes-Cortes, UC Davis TERC, and Angela DePalma-Dow, Lake County Water Resources Department, thanked former presenters and the Subcommittee for their engagement and provided a combined update on water quality and sediment studies. Ms. Cortes-Cortes began by reporting that TERC was studying the internal loading and quantity of nutrient release on Clear Lake. TERC collected samples in a variety of locations on the lake and developed a model for phosphorous release. The next step in the research entailed conducting field tests intended to verify theoretical phosphorus release data. Ultimately, this data may be applied to verify conditions and inform management decisions.

Ms. DePalma-Dow reported on the results of research conducted on the effects of former wildfires on the water quality of Clear Lake. This study used publicly available data sets on wildfire burn areas within the Clear Lake watershed and water quality data. The data indicated that there was not a significant relationship between increased phosphorous found in the lake and proportion of land burned; however, it is possible that the effects of wildfires on the lake may have a lag time of 10-15 years or more. There

was a correlation between increased air temperatures and increased phosphorous indicating that predicted drought conditions could have adverse effects on Clear Lake.

The following comments and questions were recorded:

- One member pointed out that the depth at which sediment sampling takes place is important, as is the study of the role of cyanobacteria in phosphorous uptake and transportation. There are emerging theories about the important interface between cyanobacteria forms and is later distributed due to water currents. It was evident that TERC's research could further contribute this body of research.
- Ms. Cortes-Cortes confirmed that the TERC study on phosphorous release rates would add valuable data to this question of distribution. Further she stated that TERC would be putting together a report on their projects and work, this report would be made available to the Subcommittee in 2021.

Ms. DePalma-Dow concluded by reiterating the importance of continued water quality monitoring and research on Clear Lake, especially in light of predicted increases in drought and wildfires; despite the pressing need, three projects formally funded by the state have been cut in 2020, which represented a major concern.

Update: US Geological Survey (USGS)

Charlie Alpers, USGS, reported the Bureau of Land Management (BLM) intended to provide USGS with funding totaling \$3 million to be spent over the course of three years; there was a pending new agreement to add water gauging stations in the Scott's Creek area, downstream from BLM lands. These areas were affected by the 2018 Mendocino Complex fires. Some of the potential monitoring sites overlap with those proposed by the Committee. There is interest in adding four new gauging stations to the Scott's Creek area, including a site below Tule Lake (which had been identified as important for monitoring in former meetings by the Subcommittee). These stations will be used to collect sediment fingerprinting data and identify soil type, which can inform land use and research model, it would not, however, integrate the use of SPATIally Referenced Regression on Watersheds (SPARROW) models. Mr. Alpers will continue to update the Subcommittee as additional information becomes available.

Update: US Environmental Protection Agency (EPA)

Carter Jessop, EPA, provided an update on the cleanup progress of the Sulphur Lake Mercury Mine site. Current monitoring efforts included conducting water quality and more general environmental monitoring as well as human health assessments. As of yet, there is no clear answer as to how much mercury is coming off of the mine site, there are several sources of data on mercury, but no general agreement on what sampling is most representative. Findings will be made available to the public in the upcoming months. Next steps include installing well assessment tools in order to gauge next steps. The EPA is also working with the State and the country to incorporate fish signage and warn the public of harmful levels of mercury.

The following comments and questions were noted:

- One member expressed appreciation for the update and expressed interest in collaborating in efforts to increase the efficiency of signage (**Action Item 2**) as well as offer share information about copper mine sites in the Clear Lake area.
- Ms. DePalma-Dow and Mr. Alpers agreed to meet to discuss littoral insect monitoring (Action Item 5)

Brainstorming and Prioritization Session

The facilitator thanked Subcommittee members for their updates and explained what the following activity consisted of a review of several questions he had prepared for discussion today, these questions were as follows:

- What can the Subcommittee do now (for each recommendation) barring any state funding?
- What can't the Subcommittee do and why?
- Are there additional funding sources the Subcommittee should be exploring?
- Are there any shovel-ready projects members are aware of that the Committee may be able to authorize Prop 68 expenditures for? The Committee has \$5M in funding, but it's only for actual capital improvements- no planning/study.

He first asked the Subcommittee if these questions seemed appropriate and, second, if members would be willing to think about the questions over the next few weeks. Given that the majority of the time was spent sharing important updates, there was not sufficient time for ample discussion. The Facilitator proposed discussion be moved to the next meeting. Furthermore, the Facilitator welcomed suggestions for the upcoming Subcommittee meeting. The following comments were recorded:

- Several members agreed that addressing these questions comprehensively would likely take at least the entirety of one meeting of the Subcommittee.
- Another member highlighted they would like emphasis to be placed on reducing the amount of sediment going into Scott's Creek and Clear Lake. While a detailed understanding of how sediment affects water quality requires modeling and advanced research, it is generally understood that run-off worsens the water quality of Clear Lake. Thus, reducing erosion and sediment run-off was an area of concern that the Subcommittee can focus on in light of financial restrictions.
- Several members were interested in an update on the Middle Creek Restoration Project (Project), its process and developments. It was suggested the Subcommittee be provided with an update on the Project either by sending a representative to attend a meeting or by inviting a member of the Project to present to the Subcommittee (**Action Item 1f**). There was general agreement by part of the Subcommittee to prioritize this effort.
- One member noted that Lake County's Storm Water Management Plan will be ready to be rolled out very soon, it will be shared with members of the Subcommittee as soon as it is available.
- One member expressed concern that the Department of Water Resources (DWR) is no longer collecting water quality data in Clearlake; a request was made that the Subcommittee prioritize discussion of how to overcome lapses in general water quality monitoring, which are a major detriment to the efforts of the Committee.
- The Subcommittee expressed support for prioritizing and addressing current funding shortfalls and providing updates on projects that had recently lost State funding.

Public Comment

No public comments were provided.

Action Item Review and Next Steps

The Facilitator thanked the Subcommittee for their time and engagement and stated that they would be provided with action items within 24 hours. He requested that the Subcommittee review the brainstorming and prioritization questions (**Action Item 8b**) and provide feedback in a timely manner; he then reassured the Subcommittee he would take into account their recommendations for the upcoming August Subcommittee meeting agenda.

Ms. Kennedy and Ms. Ryan thanked the Subcommittee for the continued participation, especially in light of current challenges to funding. They thanked presenters for their updates and the Subcommittee for their continued efforts. They concluded by reassuring the Subcommittee they would touch base on existing monitoring and follow up with their concerns at the next meeting.

Attachment A: Meeting Participants

Participants		
First	Last	Organization
Alicia	Cortes-Cortes	UC Davis Tahoe Environmental Research Center
Amy	Little	State Water Resource Control Board (SWRCB)
Angela	DePalma-Dow	Lake County Water Resources Department
Broc	Zoller	Lake County Farm Bureau
Byron	Fuhrmann	SePro Corporation
Carter	Jessop	US Environmental Protection Agency (EPA)
Charlie	Alpers	US Geological Survey (USGS)
Joe	Domagalski	USGS
Karola	Kennedy	Koi Nation
Sarah	Ryan	Big Valley Ranch of Pomo Indians
Jim	Steele	Lake County Resident
Tom	Suchanek	UC Davis Tahoe Environmental Research Center
Sam	Magill	California State University, Sacramento
Cristina	Murillo- Barrick	California State University, Sacramento
Sophie	Carrillo-Mandel	California State University, Sacramento