

CA CyanoHAB Network (CCHAB Network) Meeting

Notes

July 27, 2017

9:00 am – 3:00 pm

Klamath Room, 2nd Floor CalEPA Building

1001 I Street Sacramento, CA.

Agenda:

- 1) Introductions, announcements and housekeeping- (15 Minutes)
 - a) Approve Minutes from April 13, 2017 CCHAB Meeting
 - i) **Approved**
- 2) Proposed Co-Chair Replacement (10 minutes)
 - a) Background: Within the State Water Board, the work related to harmful algal blooms (HABs) identification, response, and support is coordinated mainly through the Office of Information Management and Analysis (OIMA). While the Division of Water Quality will remain active in a planning and support role, OIMA has taken on a greater leadership role for HABs. Due to this shift, Zane Poulson in DWQ is proposing to step down as one of the three CCHAB co-chairs to allow Ali Dunn with OIMA to finish out his term as co-chair. The current chairs are Zane Poulson, State Water Board Division of Water Quality (DWQ), Susan Fricke, Karuk Tribe, and Meredith Howard, Southern California Coastal Water Research Project (SCCWRP).
 - b) Desired Outcome: CCHABs endorsement of Ali Dunn as the replacement Co-Chair for Zane Paulson's remaining term.
 - i) **Ali Dunn from OWIMA was approved as the new Co-Chair.**
 - ii) **Current Co-chairs are: Ali Dunn, Susan Fricke, and Meredith Howard.**
- 3) HAB Status Updates from around the State (We welcome updates from anyone in the CCHAB Network that would like to provide updates on waters in their area.) (60 minutes)
 - a) North Coast
 - i) **2 confirmed toxic blooms in the Klamath at Iron Gate and Copco reservoirs. There is nothing currently below the Iron Gate. There are postings at the warning level for Ana-toxin.**
 - ii) **The Russian river is posted at caution.**
 - iii) **Lake Pillsbury is being monitored by PG&E. They are going out next week to test with Abraxis.**
 - iv) **Mid Klamath public health testing will be posted to the Klamath Basin Monitoring Program (KBMP) website.**

Questions:

- a) Was Abraxis testing done on the Russian river?
 - i. ELISA testing was done on the Russian river and the samples were sent to the lab.
- b) Who Posted the Russian River caution sign?
 - i. The Public Health Department.
- c) Has PG&E changed their testing method when using Abraxis to freeze/thaw now?
 - i. No, there has not been any contact with PG&E yet. Will be hopefully communicating soon about the changes.
 - ii. PG&E is using the freeze/thaw method on Lake Britton.
- d) Are you using the Abraxis preservative solution on the Russian river?
 - i. Just using what Bend Genetics sent us.
- e) What type of testing are you using on the Eel River?
 - i. Grab samples for all toxin testing using Bend Genetics.
- b) Bay Area
 - a) 2 dog deaths in Napa pond.
 - b) Looking at two other reported sites but no confirmations.
 - c) East Bay Regional Parks has a number of lakes posted at danger.
- c) Central Valley
 - a) Clear Lake - Tribes have done bi-weekly sampling, cell identification and found that almost all the sites have dolichospermum. It has been very busy with low levels of toxins.
 - b) There have been small blooms in Blue Lakes. This cause a huge uproar in the county when Ana-toxins were detected in lower Blue Lake. Some resorts were denying water problems but this has sense been stopped. No caution sign was placed at Blue Lakes. While a women was visiting the lake, she asked the resort owner if it was safe to swim in the lake even though there was presence of a bloom, the owner checked the county website and it said the lake was safe to swim in, however after recreating in the lake the women became violently ill. After feeling better she contacted the county public health department to report the illness. There is no way to definitely say that the bloom was the cause of the illness however.
 - c) There have been 17 blooms in the Central Valley.
 - d) There was a dog death at a private lake below Black Butte Lake, which experienced a bad bloom. The private lake also experienced a bloom but sense it was the first time the lake owner had a bloom he was not sure what it was. He only called after his dog died and he learned about the toxic bloom in Black Butte Lake. There was not bet test but other dogs were falling ill after going in the water around the same time.

- e) Discovery Bay has a severe bloom. Contra Costa Public Health Department is monitoring the bloom. They have caution, warning and danger signs posted.
 - f) Lake Isabella has a really bad lake wide bloom. Kern County Health Department is testing with ELISA and placed appropriate signs. There was some articles about people getting sick in Lake Isabella but nothing confirmed.
 - g) Finished drinking water at Pyramid Lake appears fine even though raw water samples are as bad as shore samples.
 - h) DWR – San Lewis Reservoir is still posted at Danger with a confirmed 47.2 micrograms/L of microcystin on 6/30. No toxins detected at Forbay.
- d) Central Coast
- a) No updates
- e) LA area
- a) Lake Elsinore has high microcystins, foam sample had 40,000 mg/ L. Sampling is happening monthly for TMDL.
 - b) Castic Lake – Non-detect, Abraxis kits showed low numbers.
 - c) Lake Piru - Copper Sulfate treatment, no posting.
 - i. When do you know when to use a copper sulfate treatment?
 - (a) When you can't remove taste or odor issues.
- f) Southern California
- a) A child may have gotten sick due to a bloom at Pyramid Lake. The lake was posted but the parents say they did not see the sign. The caution sign has been posted sense July 19th. A copper sulfate treatment was applied. This created a non-detect, waiting for lab results to remove caution sign.
 - b) Lake Gregory – Has had reported illness (rash) and sampling is taking place.
 - c) Lake Diaz – Public health department is working on sampling.
 - d) Arrowhead Lake – Working on sampling because of an unconfirmed bloom.
- g) Other areas
- a) Colorado River and Havasu Lake – working on creating a program with Arizona to combat blooms on the boarder of California. Arizona requested assistance when a bloom showed up in the Colorado River and Havasu Lake. Bloom is now gone.

Questions:

- a) What was the most common cell identification this year?
 - i) So far its dolichospermum.
- b) Please observe effects of fires on HABS. It would be good to know if there is a correlation.

2) Abraxis issues

- a) Apraxis does not have clear instructions on how to use for microcystin.
- b) Test strips are proving unreliable for low levels of toxins/cells.
- c) Test strips are not detecting anything but lab results have come back with low levels of toxins.
- d) It's unclear what midrange colors mean on the test strips.
- e) Please send test strip photos to Marissa Van Dyke.

Break – 15 minutes

3) Update on Alum Application at Pinto Lake – Jackie McCloud (15-20 minutes)

- a) Received a grant through the State Board to deal with the problem of nutrients in sediments at the bottom of the lake. 80 percent of the nutrients are already in the lake and only 20 percent flow in.
- b) There was 118 thousand gallons of Aluminium Sulfate (Alum) was applied to the deepest parts of the lake.
- c) The application went smoothly, it's the first time the secchi disk was visible at 3 to 6 feet.
- d) Three monitoring test are required after the treatment.
- e) There was an average of 89 percent reduction of nutrients.
- f) Nitrogen had some reduction as well.
- g) In 2015-2016 there have been huge spikes of micorcystin, however in 2017 there appears to be a downward trend in micorcysin. So far this year there has been not toxicity in the lake.
- h) Currently working on ways to keep the sediment out of the lake.
- i) Will continue comitoring using Abraxis strips weekly.

Questions

- a) Is there concern using Alum in relation to how it affects wildlife?
 - i. Not testing for biological effects. There was a large carp die off but that was unrelated to the application of Alum.
- b) Would it be possible to get a breakdown of the cost of application?
 - i. Yes.

4) Thresholds for Benthic Blooms and Cyanobacterial Mats - Katherine Carter (40 minutes)

- a) Purpose: Provide an overview of benthic cyanobacteria blooms in California and discuss the challenges with the current guidance as it applies to rivers.

- b) Desired Outcome: CCHABs endorsement of implementing OEHHA's Action Levels for algal mats and crusts into the current Voluntary Guidance Document and Triggers Table.

Outcome after discussion: the OEHHA levels would be incorporated through Reggie and the GUS subcommittee.

- c) Summary of presentation:
- d) Benthic and Planktonic blooms are similar. Both produce multiple toxins.
- e) 70-80 miles of river can be affected at once. A dot on the HABs map does not cover bloom extent.
- f) Green alga can co-occur with toxic alga.
- g) The benthic alga can collect air bubbles that cause mats to rise to the surface of the water.
- h) People do not realize that benthic HABs can be brown and are looking for green or blue green alga. Dark alga also grows in fast moving water in contrast to traditional HABs.
- i) In 2016 there was sampling done in the Russian River using SPATT bags. The SPATT bags were only used to detect the presence of benthic HABs.
- j) Possibly adding OEHHA action levels for benthic blooms starting with 3.0 mg/L for cattle and 0.3 mg/L for dogs. Looking to be able to close beaches for dogs and cattle only.
- k) The goal is to let owners be informed about the dangers of toxins in the water and not just in the mats on shore. There is hesitance to post signs for something if it's not in the guidance document.
- l) It would need to be absolutely that the posting for dogs and cattle does not mean that there is any threat to children.

Questions

- a) Is it necessary to use ash-free dry mass? The original idea was to compare the samples to dog food. Ash-free dry mass seems too involved.
 - b) It seem like a good idea to compare different methods against the ash-free dry mass.
 - c) Are benthic blooms only in rivers?
 - i. No.
 - d) Would a new sign need to be created for this?
 - i. Yes.
 - e) Is there a monitoring guidance for SPATT bag testing?
 - i. Not currently, could be another agenda item. There is currently investigations going on as to how best to use the SPATT bags. There is no set use or even a creation process for the bags. There is currently a 4 year NOAA grant going on to study SPATT bag use that is only in year 2.
- 5) High-Frequency Nutrient and Biogeochemical Monitoring: Connecting the Dots between Drivers and Effects of Constituent Concentrations, Presentation by Brian Bergamasch (USGS) – 30 minutes

- a) Advantages of using High-Frequency Nutrient and Biogeochemical Monitoring is now you can use field equipment instead of bench top equipment.
- b) There are currently many stations in the Sacramento River and Delta working on identifying the links between physical and hydrological, chemical, biological effects of beneficial alga blooms (BAB) and harmful algal blooms (HAB).
- c) Creating better data allows for a clear picture of what is happening in the river. Before it looked like a cloud of data, now with the in situ monitoring stations it becomes much clearer. This also lets you do temporal variability.
- d) This type of monitoring allows for layers of data to show the overlay of drivers and effects in real time.
- e) Currently focusing on nitrogen in the water and its effects on beneficial and harmful algal blooms.
- f) Managing and assessing the data is challenging. Knowing how the sensors work is also important.
- g) Also working on high speed/ high frequency mapping. This will help create a map that show changes in a HAB or BAB over time.
- h) Also working on creating a water residence time map using water isotopes and evaporation.

Lunch – (60 minutes – 12:00pm – 1:00pm)

- 6) Use of FlowCAM in the Sacramento-San Joaquin Delta: An Innovative Technology to Rapidly and Reliably Perform Particle Analysis Presentation by DWR Staff (30 minutes)
 - a) A flow cam performs particle analysis using a microscope camera to analyze a water sample.
 - b) Information can be specified to up to 40 different parameters.
 - c) The benefit is that the sample can be rapidly analyzed, the device is transportable, you get data from every single image, and you can create a library of information as well as a host of other things.
 - d) The problem are issues with high debris in the samples, samples smaller than 5 μm .
 - e) Currently used for phytoplankton, microcyston, zoo plankton and can get counts and bio volume.

Questions

- a) Is there a full time staff to go through all the data?
 - i. Not really, tis a challenge we are having.
- b) When you get a clog what do you do?

- i. Push more water through it.
 - c) When you have a lot of sediment what do you do?
 - i. Dilute the sample.
 - d) What is the cost of the equipment?
 - i. 90,000 to 100,000\$
- 7) Status on the EPA Ambient Water Quality criteria for cyanotoxins – Sue Keydel (5 - 10 minutes)
 - a) The EPA criteria went out for public comment, which are now incorporated and are currently waiting for the green light from administration.
 - b) Some comments on technical issues, EPA’s authority under the CWA to regulate, and some monitoring, show concern.
 - c) The hope is to have comments done in December.
 - d) A study came out after the criteria was sent to the public on people 18 and under that supports the EPA criteria. The study used the 90th to 97th percentile.
 - e) EPA Las Vegas lab is being closed. Any EPA lab that is in rented space is closing due to budget restraints. The EPA Richmond lab is looking for a new location. If it does not find one it will close in a little over 15 months.

8) Subcommittee updates – (30 minutes)

- a) Purpose: Update CCHABs on any significant progress made since the last meeting.
 - a) Mitigation Subcommittee - Carrie Austin
 - i. Now have 22 members
 - ii. Produced a framework for all current methods in an excel spreadsheet.
 - iii. Working on creating a procedure for which mitigation method to choose.
 - b) Monitoring & Assessment Subcommittee – Marissa Van Dyke
 - i. SWAMP is creating a field monitoring SOP.
 - ii. Bloom watch app is available and well as report a bloom on the HABs web portal.
 - c) Education & Factsheets Subcommittee - Reggie Linville
 - i. Finalized the vet factsheet and a notice went out to the California vet group and California Department of Food and Agriculture’s contracted vets.

Questions

- i. Is treatment methods presented in the factsheet?
 - a. Yes
 - ii. The county public health offices are reaching out to vets, are you working with the county public health offices?
 - a. Good point. We will discuss this at the next meeting.
 - d) Data Subcommittee- Marisa Van Dyke
 - i. On hiatus but is accepting information on SPATT and algal matts for impute into CEDEN.

- e) Wildlife Impacts Subcommittee - Reggie Linville
 - i. We are working to contact Fish and Wildlife and gathering contacts that will eventually be shared.
- f) Benthic Work Group
 - i. This is an international work group.
 - ii. Working to define the group. Who we are, what people are currently working on etc.

9) CCHAB meeting format and Location (15 minutes)

- a) Does CCHABs want to continue with quarterly full day meetings or should other meeting schedule formats be considered in the future?
- b) Would it be helpful to move the meetings around the State?
- c) Future agenda items: Input from CCHABs on future agenda items
 - i) Would it be useful to have an agenda item discussing which monitoring tools and technologies people are using?

(1) Create survey for impute, like the idea of rotating throughout state.

10) Next CCHAB Network Meeting **October 26, 2017**

- a) **Location: North Coast Regional Water Quality Control Board, 5550 Skylane Blvd. Suite A, Santa Rosa, CA 95403**

11) Agenda item request

- a) Getting a sense of dominate species in relation to environmental influences.
- b) Connect with drinking water (data sharing)
- c) Satellite imagery ground trothing
- d) Information on Monitoring tools like test strips
 - i) Abaraxis
- e) Lab analysis methods
- f) Case study for mitigation
- g) Consider having a way for information sharing such as a blog.
- h) Having a joint meeting with the biostimulatory group