

**California Cyanobacteria Harmful Algal Bloom Network**  
**Tuesday, July 7, 2020**  
**Remote participation only via Zoom (see Zoom information below)**

**Agenda**

**Attendees**

Dave Caron, USC, co-chair; Beckye Stanton, OEHHA, co-chair; Marisa Van Dyke, SWRCB, FHAB program co-lead; Sarah Ryan, Big Valley Band of Pomo Indians, co-chair; Joe Westhouse, SWRCB; Isadora Noguira, CDPH; Kryssy Mache, DWR; Sean Murphy; Victor Ventura; Felix Adolpho; Andy Gordus, CDFW Region 4; Angela DePalma-Dow, Lake County; Asha; Carey Nagoda, WB Region 9; Carrie Austin, WB Region 2; Christine Joab, CDFW Region 3; Dylan Stern, DSC; Emily Duncan; Gene Oh; G. Herbon; Hal MacLean, EBRPD; James Downing; Jayme Smith, SCCWRP; Jennifer LaBay, WB Region 5; Josh Westfall; Keith Bouma-Gregson, SWRCB, FHAB program co-lead; Kevin Van Patten; Lauren Robinson; Melissa Daugherty, WB Region 3; Nick Martorano, SWRCB, WQMC Director; Ross Cooper, Sarah Ries; Shannon Murphy, OEHHA; Susan Fricke, Karuk Tribe; Susan Keydel, U.S. EPA Region 9; Violet Renick; Bill Taylor, mitigation subcommittee; Karola Kennedy, Kennedy Environmental; Bruce Macler; Debbie Webster; Lisa Purcell

**9:00 am – Welcome, Introductions, Announcements (20 mins)**

- **Review of March meeting notes**
  
- **Update on recent Water Quality Monitoring Council meeting (held July 1)**
  - Discussed Strategic Plan Summary, and the dynamic toolset being developed, the MPA Team Work team being worked on.
  - Dylan Stern, DSC - Science Action agenda (SAA) is being updated to prioritize management needs in the Delta. Beginning with management questions. Soliciting management questions from groups such as CCHAB. It was recommended DSC engage with CCHAB Directly. Survey is available to offer SAA feedback. Workshop will be provided Sept 29, 2020. REQUEST FROM GROUP: If there are any management questions already developed, please forward to Dylan.
  
- **Changes in the web portal (Marisa Van Dyke, WB)**
  - Updates were done in May. They organized existing information to increase ease of use, posted all of the benthic cyanoHAB posting guidance that was adopted at the March 2020 CCHAB meeting.
  - New FAQs for HAB Signs
  - New Web page developed to present Toxic Algal Mats FAQs
    - This provides new materials to educate users and assist in determining the need for Algal Mat signage

- Human Health Impacts Page added two new health fact sheets from Dept. of Public Health, illness tracking methodologies, a link to illnesses reported to CDC in California over the past few years
  - Resources for Response Agencies page was reorganized
    - General resources page was separated out for clear link to monitoring information and laboratory analysis
    - HAB related programs also separated out
  - Significant update to the Signs and Guidance for Posting page
    - Information was reorganized and response and collaboration methodologies were added.
  - Printable HABs factsheet was provided to give to the public as needed.
- **Other updates (open mic)**
    - None

**9:20 am – Update on FHAB Monitoring Strategy project (Jayme Smith, SCCWRP) (10 mins)**

- Goal with this project is to generate a monitoring framework, research special studies, and implementation guidance.
- Study is working to integrate state programs (incidence response and monitoring), voluntary programs, and satellite/remote tools.
- A technical advisory group was broken into three sub-groups for state led monitoring, voluntary monitoring, and satellite/remote tools to identify statuses, trends, and drivers and how to use these approaches to address these information needs
- Chapters with ambient monitoring approaches and how they can be used to monitor status and trends is being developed.
- Timescales in mind are immediate implementation (<2 years), near-term implementation (2-5 years), and long term implementation (>5 years)
- Advisory groups will be reviewing in August 2020
- FHAB Advisory Sign design was finalized and printed. An application went out via the California list serve and 46 signs were awarded
  - Applicants were surveyed and the majority have experience chronic HABS for more than 2 years
  - Majority have used CCHAB signage before
  - Barriers to using signage: The majority did not indicate they have experienced a significant barrier to use.
  - If anyone is interested in receiving these signs, please reach out to Keith Bouma Gregson via email at [Keith.Bouma-Gregson@Waterboards.ca.gov](mailto:Keith.Bouma-Gregson@Waterboards.ca.gov)

**9:30 am – ITRC HCBs: Intro and Status (Becky Stanton, OEHHA) (15 mins)**

- This team informs decision making, provides technical knowledge, innovative environmental technologies and approaches, and protects human health.
- Products expected by next year are a web based guidance document that includes information on monitoring, communication and response planning, management and control strategies, strategies for nutrient reduction, recommendations
- Interactive online tools will have content navigation, selection tools for monitoring method, in lake management and nutrient reduction strategies.
- Training section to also be included.
- Draft of this document is being routed for external review. If anyone is interested in reviewing by July 16th, please email Beckye Stanton at [Rebecca.Stanton@oehha.ca.gov](mailto:Rebecca.Stanton@oehha.ca.gov).

**9:45 am – HAB Communication and Coordination during an event: Sampling, Signage and Press Releases on Clear Lake (Sarah Ryan, Big Valley Band of Pomo Indians) (15 mins)**

- There are monitoring locations that are tribally important and are updated to change color based on toxin levels
- Communication with the public about the results and toxin levels is key
- The program is continually developing
  - Task force meetings quarterly
  - Focuses on testing at shorelines
    - 18 shoreline sites currently
- There is a multi-jurisdictional response
  - Consists of task force and messaging group that meetings regularly
  - Proposed decision tree - press releases
  - Posting information
  - Communicating information via various avenues
  - Drinking water response
  - Sampling response
  - Signage response
- Signs are posted as needed and are posted in heavy recreation areas
- Informational Kiosks are located at several locations around the lake
- Educate the public about water quality conditions
- Outreach to public re: drinking water to provide general information for small drinking water systems and how to stay safe
- A draft nutrient management outreach to clear lake public document is being developed
- Collaboration about blooms amongst various agencies, decisions about sampling and posting, and public communications
- Communication and transparency are key

**10:00 am – BREAK**

### **10:15 am – Update on Satellite Imagery (Keith Bouma-Gregson) (10 mins)**

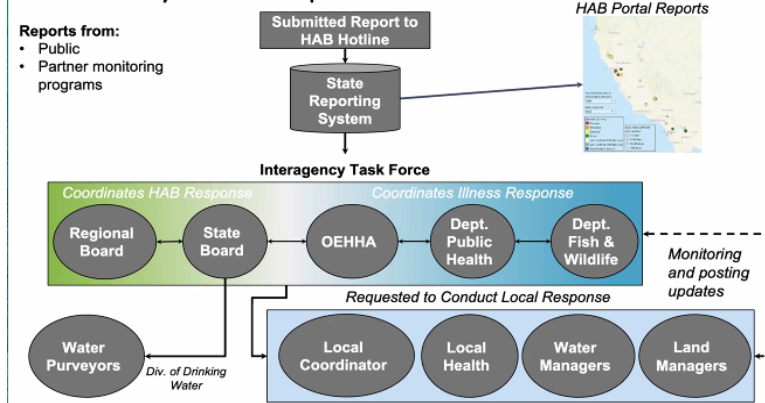
- Temporal and spatial variation of blooms makes sampling difficult
- Satellite imagery useful because cyanobacteria are observable from space
- Rapid turnaround - data is available next day whereas lab results can take longer
- Question arises: How can cyanobacteria be distinguished?
  - Chlorophyll-a is central to photosynthesis and fluorescence as red under a certain wavelength of exposure. There is a different fluorescence between cyanobacteria and other algae. This is due to different organization, the density of the blooms, and scattering due to small gas-filled aerotopes in the cells.
  - A cyanobacterial index was developed to estimate the abundance in the top of the water column
- 250 water bodies are picked up by the satellite
- Pixel locations are always the same, which allows for consistent readings
- Can get multiple measurements in a week
  - Clouds or odd sun angle may cause issues with reading
- CI values are developed by extracting the maximum value over a 10 day period, and generating a heatmap over the lake
- Limitations
  - Clouds and glare
  - Does not measure toxins
    - All we're getting is cell density
  - Large water bodies only and no shorelines
  - False positives and negatives
  - Data considered to be provisions so no postings based on results
- Satellite monitoring is merely a screening tool for waterbody assessment and field crew testing prioritization
- Field verifications attempt to “ground-truth” satellite data by going to the lake on the same day the satellite crosses over to verify the accuracy.
- QA/QC CI Satellite and field values are being cross referenced
  - Statistical regressions and analyses are being conducted
- Collaborating with UC Davis using underwater autonomous vehicles and drones to track spatial variation in blooms and compare to satellite data.
- Next steps are share the tool and encourage use for screening blooms, conduct more field verification sampling, contribute to the FHABs Monitoring Strategy being developed, and contract with SFEI to prioritize tasks to improve web interface and data accessibility

### **10:25 am – Update on Internet of Water Project (Keith Bouma-Gregson) (15 min)**

- Objective is to develop a process to integrate non-state data with state data to create a robust FHABs data management system
- Several organizations are contributing
- Multi-entity event response coordination

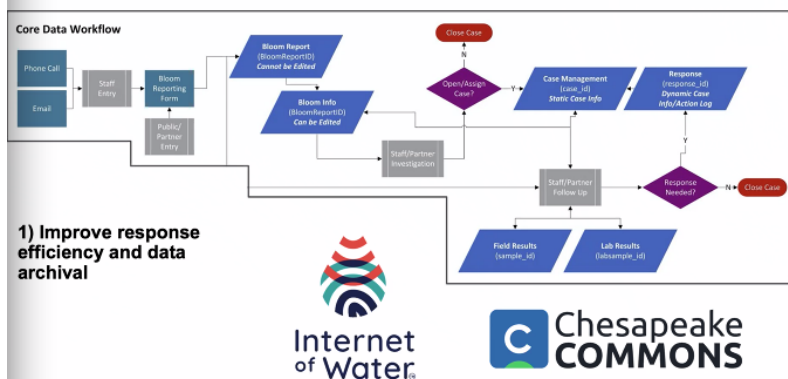
- Currently reports go to HABs hotline from the public which go to the state reporting system which goes to the interagency task force

### Multi-entity event response coordination

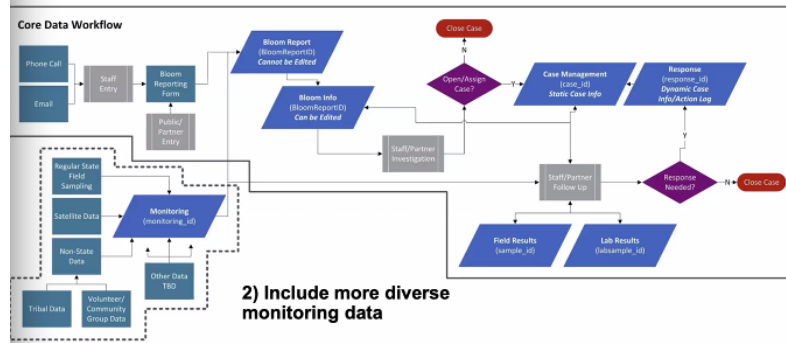


- Once the need was identified, stakeholders were gathered
  - Webinar 1: Identify user needs and values of HAB related data
  - Survey: Collect data collection methods, data storage and management, data sharing
  - Webinar 2: Work and data flow assessment
  - Feedback and review: Stakeholder review period
  - Webinar 3: Recommendations for draft review
  - Final Steps: Recommendations are being finalized
- Document expected to be out Summer 2020
- New Data Management Model:

### New data management model



## New data management model



- QA/QC Concerns - recommendations will be provided in the upcoming report
- Compliance and Local Support - Role of project to address issues of compliance and local levels around HAB notification
- All notes above are part of Phase 1: Develop recommendations based on stakeholder engagement for improved data management
- Phase II will support implementation and modeling for state agency capacity.

### 10:40 am – Regional HAB Coordinator and Subcommittee Updates (80 mins)

- Region 1
  - Salmon creek lagoon has a lot of benthic cyanobacteria but low toxins
  - Russian River is just starting to develop but overall holding off
- Region 2
  - Lots of “red dots” clustering in San Francisco Bay area
    - East Bay Regional Park District is managing and mitigating
  - Advisories are being posted
  - Parks are not open to swimming
  - Danger posting at Quarry Lakes, Lake Temescal, and Big Break
  - Working on Hypolimnetic Oxygenation Systems however pandemic is slowing this process
  - Alum treatment was going to be done in Lake Temescal however a nanobubbler pilot was chosen instead
- Region 3
  - No active sampling due to Shelter In Place orders
  - Lake managers and public works are providing results from drinking water reservoirs
  - Other agencies were able to obtain and post signs
  - No satellite activity
- Region 4
  - No active sampling
  - Regular updates have been going out to waterbody managers from DWR
- Region 5
  - Christine Joab has taken a position with CDFW
  - New Regional HAB coordinator is Matt Kraus

- Danger reports came in for Discovery Bay, outreach is underway
- Clear Lake has some Danger
- New study starting up in Clear Lake looking at environmental drivers for HABs. Being spearheaded by Dave and Jamie
- Moving forward with Mesocosm study in Discovery Bay with Dave
- Region 6
  - Two special studies
    - Red Lake in Alpine county
      - Monthly sampling taking place and map is being updated
    - Tahoe Keys Lagoon
      - A laminar flow aeration system was installed and is being sampled monthly as well. Showed a low abundance of HABs but no toxins
  - Indian Creek Reservoir - Caution posting
  - R6 worked with other agencies to create a general awareness press release to the fishing communities
  - DWQ continues to sample Silverwood Lake and post advisories as needed
- Region 7
  - None
- Region 8
  - Focusing efforts on Lake Elsinore. There has been a sustained bloom for months. Samples were taken at the beginning and end of June - caution signs are posted. Toxin levels are low. Anatoxin-a was found at Parrot Park. Discussing with City of Lake Elsinore with how to communicate to the public. The signs are not being recognized.
  - Big Bear Lake seems to have a bloom growing
  - Lake Hemet also has a bloom
  - Prado Regional Park has a bloom
  - Sampling at another regional park next week that may have a bloom
- Region 9
  - Red tide reports
  - Green algae reports
  - Main bloom of focus is Lake Henshaw
    - Working with Vista Irrigation District to mitigate
    - June 1st had high microcystin levels on shoreline however the rest of the lake was below caution levels
    - Vista Irrigation had warning signs available, which were posted
- Karuk Tribe
  - Upper Klamath Lake - Bloom
  - EPA Lab in Richmond is shutdown so phytoplankton samples are being done
    - Out of funding for this soon
  - Overall blooms aren't coming in due to cooler weather than normal

- Upper Klamath has a medium bloom
- HAB Related Illness Workgroup
  - Total of 16 potentially illness-related reports
    - 4 dogs
    - 5 fish kills
    - 6 human cases
    - 1 wildlife
    - No livestock
  - New consolidated webpage for work being conducted
    - Contains 2018/2019 summaries and map by county
    - Contains CDPH Physician's guide
- Mitigation Subcommittee
  - East Bay Regional Parks District provided a presentation on Lake Chabot mitigation. This was one of the cyanotoxin events in the bay region which included some dog deaths.
- Benthic HAB Subcommittee
  - Signs approved in March 2020 meeting went live. Feedback from everyone is appreciated.
  - New toxic algal mat web pages and guidance, which are already being used by the public

**12:00 pm – Wrap Up (10 mins)**

- None

**12:10 pm – Adjourn**