

## North Coast Freshwater CyanoHAB Workgroup Meeting – February 25, 2016

### Workgroup Discussion:

- Karuk Tribe: Klamath cyanoHAB monitoring
  - Siskiyou County agencies are not proactive
    - Humboldt county much more proactive
  - Klamath is a remote area. There is need of a realistic solution for handling diagnostic testing of animals.
    - Ex.) For lab to do diagnostic testing of an animal, they require the whole animal for testing – difficult because of long drive, size of animal, owner may not want to relinquish animal
- Sonoma County Public Health: Need for evidence-based decision making
  - Anecdotal evidence doesn't allow public health agencies to make effective decisions
  - Better testing and verification of cyanoHAB toxin presence needed
  - Need to be able to verify an illness
- Regional Water Board: There is great variability in water column sampling
  - Depending on when and where sampling is done, toxin detections/levels in the water will vary greatly.
  - Algal mats are major mode of exposure. There can be very little toxin in water column itself – but ingestion of algal mats can cause acute exposure
    - Ex.) Clear Lake – sampling has shown there can be low concentration of cyanobacteria in water column, but mats on the shoreline can have much higher concentrations of cyanotoxins
  - Regional Water Board: Its important to note - can't look at water and know if cyanotoxins are present. Monitoring has shown toxins present in very high concentrations when there is no blue-green algae visible, and conversely no toxins present when cyanoHABs present
  - Yurok Tribe: In river systems the above concept is important as the mats might be upriver but access area with high toxin levels might not have any algal mats. Also, toxin levels can be higher as the bloom is dying and when mats are gone than they were when it was visible. Emphasis on algal mats doesn't really get to the toxin releases from benthic communities that won't be floating or on the surface.
  - Guidance document notes that you take an algal mat sample and a scum sample, not just a water sample → makes sure you get a HAB sample
- State Water Board: Guidance is voluntary – suggested framework
  - Try to use it, but you can adapt it for your county or waterbody
  - Klamath and Clear Lake – communities are more aware because this problem has been happening for a while
  - Russian River – people aren't as familiar with the cyanotoxin problem
  - What's appropriate for the Russian might be different than what worked for the Klamath
- 2016 Draft Voluntary Guidance:
  - Caution sign is the first sign - Used for awareness

- The one-page flow chart doesn't provide much detail, the detail is provided in the narrative associated with the flow chart.
  - Sonoma County Public Health was concerned that some will only use flow chart and won't dig deeper. Suggests adding a sentence to the flow chart that says something to the effect of "please read associated text for further details/guidance"
- Document is currently undergoing review by public. State Water Board still working on gathering comments and editing draft voluntary guidance.
- State Water Board would be happy to present the 2016 Draft Guidance to state health officials
  - We have to be strategic with time commitments
- When do we need to do a posting and when do we need to take the posting down?
  - Regional Water Board: Suggest following the draft 2016 voluntary guidance which includes language on when to post and remove postings. Can be tailored to each watershed depending on waterbody specific factors
- State Water Board: couldn't capture every situation in the guidance document
  - These recommendations should be tailored to each water body as needed
- PacifCorp: guidelines based on science and studies, suggests that on county or watershed level there needs to be a connection back to the scientists to help them develop a set specific to their situation, involve the appropriate stakeholders
- Veterinarian association should be included in outreach/education
  - CCHAB included information about vet association outreach in most recent newsletter
  - There isn't a systematic way to report animal deaths in CA like there is for human deaths. This is of concern.
    - Public health officials aren't experts in animal deaths so further work needed to coordinate with veterinarians
- Russian River Monitoring discussion:
  - Who funds monitoring and testing?
    - Last summer Sonoma County Public Health Department and North Coast Regional Water Board performed monitoring. There is currently no dedicated funding at either agency to pay for cyanoHAB monitoring
    - More funding is needed
  - When do we need to test? How often? Spatial and temporal aspects of monitoring need to be considered. Need to have a meeting to plan monitoring strategy
  - Need the environmental context around the cyanoHAB event
    - What kind of contextual monitoring might be helpful?
    - How are we going to approach the upcoming season?
  - Sonoma County Water Agency: benthic algal blooms – transitioned from periphyton to a bloom after the estuary closed
    - Is there a certain level of toxin when periphyton change from benthic to planktonic?
    - What percentage of benthic algae has gone planktonic?

- Planktonic – whole periphyton becomes unattached, flocculent mix of algal colonies, greens mixed with the blues
    - As estuary fills, periphyton move and float to surface
    - Summer recreational dams – increase in physical disturbance
    - Monitoring was focused on specific locations
    - Keith Bouma-Gregson: In general blue greens sit at the surface
      - Blue-green algae move a lot further and more influenced by the wind
      - Nontoxic algae more likely to settle out
      - SPATT – resin is in the water for an extended period of time, not just a snapshot, it’s an “integrated sample” reflecting toxin accumulation for the duration that the SPATT is in the water
        - In the Eel River, the actual water column itself does not reflect high toxin concentrations – toxins found mainly the mats → might be the same for the Russian. Thus it is important to keep people away from the mats, not the entire area downstream
  - Abraxis test strips could be used – low cost, rapid response (Anatoxin-a, cylindrospermopsin, Microcystin)
  - Regional Water Board: Johnson Beach – mats appeared overnight → carried downstream and settled in place
    - Somewhere along the river, they broke free and settled along the shoreline
    - Resilient, can grow back quickly
- General Monitoring discussion:
  - Where do we sample?
    - Sonoma County Environmental health perspective: got samples from where kids/people recreate
      - SPATT involves taking samples over time, but not necessarily protective of kids, dogs – not sure if SPATT would help from a public health perspective
    - Yurok Tribe: Need to monitor at public access points for public health monitoring
  - What is the timeframe we need to consider for monitoring?
    - Reservoirs on the Klamath
      - Microcystis bloom occurs every year by July – likely to happen this year
      - Planning on going to public sites around June to post signs before bloom season
  - Signage:
    - Clear Lake – signs get vandalized, removed
      - Post all public beaches all the time, but just informational signage
      - Have to be careful where we put the signs
      - Going to use signs like the fire department – sign with an arrow pointing to risk level
      - Someone needs to be monitoring the beaches to update the sign
    - Klamath Reservoirs - Karuk Tribe has a sign with an range from red to green



where cyanobacteria grows/accumulates → develop sampling around those locations/events

- Locate cyanoHAB trouble spots along the river
- Monitor before/during/after major river events that attract large amounts of people
  - Ex.) 4<sup>th</sup> of July celebration, Jazz Concert – human impacts on the river
- East Bay Regional Parks:
  - Many lakes overseen by Regional Parks so have to come up with a strategic monitoring plan
  - Hired interns to conduct photo documentation, grab samples for identification and testing purposes
  - None of these sites are located along the Russian River
  - Idea: target strategic sites along the Russian River → hire interns to conduct monitoring
- Regional Water Board: Need a map to characterize various stretches of the river, methodology for assessment, building resources to help determine where to sample and monitor
  - Russian Riverkeeper: Huge core of volunteers who could help out with these activities.
  - Regional Water Board: There is a cell phone app being released in June 2016 (Bloom Watch) that can be used for reporting. Also “cyanoScope” can be used to ID cyanobacteria → prepare microscope slide → capture a photo → send to iNaturalist website for ID (<http://www.inaturalist.org/projects/cyanoscope>)
  - Where should cyanoHAB information be reported?
    - State Water Board working on a reporting system. Until that is up and running Public Health and Regional Water Board should be notified.
  - Where do we need to do these visual inspections?
    - High-use areas, like public beaches
    - Collect data before blooms expected to occur at high-use areas to track any changes over time
  - SPATTs could be used as a screening indicator. Would be more useful than visual inspection in those events where toxins are present but no cyanobacteria are visible.
- Regional Water Board: Need to think about transition from status and trends monitoring to creating a risk management monitoring
  - Focus on areas where there is high-use and frequent human + animal entry
  - Develop a standard data sheet
- How do we time-integrate data? Translate observations to meaningful public health for high-use areas?
  - Sonoma County Public Health – coliform monitored from memorial day to labor day
  - Sonoma County Water Agency – Water quality monitoring is performed regularly
    - Data sondes (longitudinally) + grab samples

- Could shift part of this effort from the estuary to different parts of the river
    - Water Agency is working with Sonoma State faculty who are aligned with SCWA initiatives – potentially could use Sonoma state students to do some of the work
  - Regional Water Board has a fluorometer & phycocyanin probes – could use as a screening tools
  - Are there other agencies that have monitoring resources dedicated to the Russian?
    - Bodega Marine Lab?
- What role does Public Health hope to have?
  - Sonoma County Public Health will schedule a meeting to discuss Russian River coordination and roles. Public Health would want to discuss posting decisions with the Regional Water Board
- Media Contact and Information Dissemination:
  - Sonoma County Public Health: Need information dissemination guidelines so that information is released to the public/media with interpretation of what it means and background/educational information. Need for better outreach/coordination with the media.
  - Lake County Water Resources Dept: Have the message be uniform on every level of government (starting with maintenance workers, call center staff, etc.) because you never know who the public will ask
  - General suggestions to consider:
    - Designate a public affairs spokesperson to help communicate with the press
    - Regardless of who is the lead in a cyanoHAB response, everyone should use the same talking points/language
    - Timing of information dissemination should be synchronized
    - Different ways of sharing information → social media aspect
      - Different methods require different information
- Posting cyanoHAB events
  - Sonoma County Water Agency – not a regulatory agency, so not willing to post signs on the river (no physical posting) → but can post on twitter, website
    - Important for SCWA to be involved, because people are interested in where their drinking water comes from
  - County Public/Environmental Health are the designated leads for cyanoHAB events (including posting) unless they do not wish to participate/engage. In those cases the Regional Water Board could initiate posting.
    - Siskiyou County Public Health has traditionally not wanted to engage on this topic on the Klamath, but there is a new health officer so Regional Water Board will check-in about engaging them in this process
    - PacifiCorp posts in their area of the Klamath, Forest Service posts in their area or asks Karuk Tribe to post for them
      - PacifiCorp doesn't wait for Regional Board to do the posting → talks to Regional Board when they want to

post/de-post, waits for confirmation (because Siskiyou County Public health has traditionally not engaged in the process)

- Metal signs are a good idea to prevent vandalism
- Sonoma County Water Agency is trying to engage PG&E and the Army Corps to put out signs in reservoirs around the Russian
- North Coast Region CyanoHAB Event Notification List – handed out a one page sheet reflecting who to call if a cyanoHAB event is noted
  - First people to be notified: Public Health Department
  - Next need to notify the Regional Water Board and State Water Board
  - This is a starting point that can be tailored to different watersheds. Who to contact will vary depending on where the bloom is occurring
- State Water Board: state of CA is building a website for documenting cyanoHABs
  - Goal: lake manager or member of the public can fill out the web-based form → form is sent to the state → develop contact list → track what happens
  - Captured at the state level to help track what's happening
  - CA should also develop a standard/template press releases for agencies, different press releases for benthic, planktonic, drinking water
- Data Compilation and Information Sharing:
  - KBMP: has BGA tracker → presents a visual (map) of where blooms are occurring on the Klamath River and you can click on a section of river and get the data
    - KBMP site provides transparency and contextual information for people who want to know
  - Need: a centralized place where people can see information visually
    - Include maps, fact sheets, regular reports written by monitoring officials
    - Color-coded to define risk
- How we can better structure our outreach to the public and press? How can we provide the necessary background information?
  - Have a designated spokesperson – Emphasizes the importance of coordination
  - PacifiCorp: For the Klamath the head of public affairs will communicate with the press, get necessary information from staff and then talk to the press
  - Regional Water Board: message needs to be coordinated QUICKLY in REAL-TIME so that information can be disseminated quickly
  - Develop a better relationship with local media, look at the media as a RESOURCE for information dissemination
  - Inform/Educate the media PRIOR to the bloom season
    - Let the media know that we're heading into bloom season, so they can share information to educate the public ahead of time
  - Appoint someone as public affairs spokesperson to deliver unified message
  - Keep the press updated, let them know who is involved at the table
  - Keith Bouma-Gregson: try to tell the whole story of algae in the river, not just cyanobacteria and not just the toxic portion of cyanobacteria
  - PacifiCorp: the press want exciting news articles, might not be receptive to these informational pre-season press releases
  - Reporters aren't generally scientifically-literate
  - Work with the editorial board to have a discussion?
  - State Water Board: despite making efforts with local newspapers, there may be secondary media that will pick up on these stories and create sensational stories

- Sonoma County Public Health: we work with the media and try to foster a relationship with the media

## LUNCH BREAK

- Continued discussion on public/media outreach:
  - East Bay Regional Parks: has a staff person who connects with the newspaper
    - Russian River group could designate a public affairs person to communicate with the press
  - If you have a media person who has called you in the past, would be a good idea to contact them before they contact you
  - Find out who a good point of contact would be
  - Region and state-wide language can be developed for the media
    - Need consensus on messaging
  - Karuk Tribe: In the Klamath they issue joint press releases with EPA, tribes, other groups
    - Could present a coordinated effort
- Wrap-up:
  - Status of phycocyanin probes – education on how to use them and where to deploy
  - Develop methodology for visual monitoring inspection
  - Education for citizen scientists
    - State Water Board will hold HAB trainings with Beverly this spring/summer (citizens can attend)
    - Utilize phone apps + phone microscopes
    - Develop outreach/education process
  - Russian River – regional board is pursuing resources for the development of a Russian River Regional Monitoring Program
  - Sonoma County Water Agency – will consider adjusting monitoring plan to collect data outside the estuary, will need to discuss with NCRWQCB and NMFS
    - Some opportunity for flexibility to utilize existing resources
  - How applicable is SPATT, especially for the Russian River?
    - Karuk Tribe: SPATT probably not ideal for public health monitoring (won't indicate toxin levels at a particular point in time)
    - Keith Bouma-Gregson: Region 9 (Regional Water Board) is deploying SPATT as a screening tool to determine when where toxins present, which toxins present
  - How do we start consolidating this information? Do we have a mechanism through Beverly?
    - KBMP/SFEI: data/results should go into CEDEN
      - Problem: CEDEN has a lot of limitations at the moment
      - Russian River – R3MP would be an obvious place to house that data once its set up.
      - Add data to specific website within a region
    - Contact Marisa Van Dyke about putting data into CEDEN
    - KBMP/SFEI: EcoAtlas – data visualization
      - Possibility of a BGA component in EcoAtlas



- Start data sharing within our watershed groups
      - Have information available in our state database (CEDEN)
- Need to work with your watershed partners and determine when information indicates posting should occur
  - Determine level of posting
  - Work on protocol for dissemination of information to the public/media
    - Develop messaging and information sharing
- Regional Water Board will work on finding funding for Keith to do workshops – as part of education/outreach
  - Goal of workshops: to train people to be “eyes on the ground”, monitoring bloom status
- Sonoma County Public Health: Need a coordinated understanding and contribution/role from partner agencies/entities
- Yurok Tribe: Acknowledges that this group is only addressing response to HABs. More emphasis should be place on controlling inputs that generate bloom conditions, which are creating the economic losses. It is the blooms creating economic loss, not the posting of signs.
  - Reminder that monitoring is just one component of a much larger issue
- Suggestion to have permanent posting to educate public on what cyanoHABs look like
  - Would provide information on who to contact
  - Users should be able to make agencies aware of problem
    - They could have more of a vested interest
- Field sampling SOPs are currently being developed.
  - Beverly: this is part of the guidance already
- East Bay Regional Parks: coming up with a brochure
  - HABs can look very different – hard to capture in pictures
  - Great for kiosks and as a pdf online
  - Make brochures in both English and Spanish
- Talk to Marisa Van Dyke about signing up for state-wide CCHAB web list