

Attendance:

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|---------------------------|------------------------------------|--------------------------------------|
| Jay Davis, SFEI | Billy Jakl, CDFW | Karen Worcester, Central Coast RWQCB |
| Jennifer Salisbury, SWRCB | Richard Fadness, North Coast RWQCB | Chris Foe, CV RWQCB |
| Stacey Swenson, MLML | Lilian Busse, SD RWQCB | Kim Ward, SWRCB |
| Ellen Willis-Norton, SFEI | Lori Lim, OEHHA | Thomas Jabusch, SFEI |
| Karen Taberski, SFB RWQCB | Jon Marshack, SWRCB | Robert Brodberg, OEHHA |
| Dave Crane, CDFW | Michael Lyons, LA RWQCB | Stephan Louie, CV RWQCB |
| Meredith Howard, SCCWRP | Lori Webber, SWRCB | Terrance Fleming, EPA |
| Cassandra Lamerdin, MLML | Cristina Grosso, SFEI | Janis Cooke, CV RWQCB |
| Gary Ichikawa, CDFW | | |

Item 1: Introductions, Agenda Review, Goals of Meeting [Jay Davis]

Jay Davis reviewed the goals of the meeting which were to discuss the details of the cyanotoxin white paper, the Safe to Eat Portal, and the long-term plan for the BOG.

Item 2: Proposed Workplan for Cyanotoxin White Paper [Thomas Jabusch]

Thomas Jabusch reviewed the two discussion items at the last CyanoHAB meeting: 1) partnering with the National Oceanic and Atmospheric Administration (NOAA) to monitor cyanotoxins via satellite imagery and 2) the goals for the cyanotoxin white paper.

Presentation and Discussion:*Monitoring Using Satellite Imagery*

NOAA and the EPA have submitted a proposal to NASA to monitor for cyanotoxins in larger lakes in Florida, Washington, and Maryland using satellite imagery. To evaluate whether it would be useful for California to join the partnership, Rick Stumpf at NOAA has completed a proof of concept for the following lakes in California: Clear Lake, Lake Elsinore, Franks Tract, Iron Gate Reservoir, and Pinto Lake. Gary Ichikawa noted that the City of Watsonville recently decided to try to eradicate 80% of the carp in Pinto Lake to reduce phosphorous levels, which may affect the concentration of cyanotoxins in future years.

Thomas stated that the proof of concept results look promising, but there are some issues the lakes that are relatively small (e.g., Pinto Lake). Lilian Busse stated that the cyanotoxin team is working with Rick to determine how to monitor the smaller and narrower lakes. Thomas noted that he just received the results and there will be a write-up about the proof of concept exercise that will address the issues with the smaller lakes. Jennifer Salisbury stated that she will post the write-up on the BOG meeting website. If the California CyanoHAB group is satisfied with the proof of concept, monitoring can begin when the new satellite is released in 2015. The cost for the satellite monitoring will be \$50,000; the funds would be dedicated to GIS work to turn the satellite information into a press release bulletin.

Thomas ended the discussion on the satellite imagery work by stating that the California CyanoHAB network has formed three subcommittees: 1) overall strategy, 2) compilation/monitoring/assessment, and 3) communication. Meredith Howard asked the BOG members to email her (Mhoward@sccwrp.org) if they are interested in joining one of the subcommittees.

Action Items:

- Jennifer Salisbury will post the proof of concept write-up on the BOG meeting website.

Cyanotoxin White Paper Approach

1. *Scope*

Thomas stated that the current plan for the cyanotoxin white paper is to develop a monitoring and assessment framework for cyanotoxins. The paper will address top priority questions, information that can be gained from monitoring over the next five years, possible information products, and how the monitoring will be coordinated with the broader California CyanoHAB strategy. The question for the BOG is whether the paper should consider anything broader than monitoring and assessment, such as communication strategies. Karen Taberski and Meredith Howard agreed that risk communication was outside of the scope of the BOG, but that the BOG could be in charge of communicating the results of the monitoring data.

Jon Marshack asked if the cyanotoxin white paper was only going to focus on bioaccumulation monitoring. Jay responded affirmatively; monitoring would include fish tissue where appropriate as well as other matrices, such as water. Karen Taberski stated that the Cyanotoxin Workshop group agreed that cyanotoxin monitoring should extend beyond bioaccumulation, but the BOG was the only place where resources were available to produce a white paper. The SWAMP Roundtable approved the BOG's proposal to develop a monitoring plan that extends beyond bioaccumulation monitoring. Jon replied that he misinterpreted the SWAMP Roundtable discussion as being focused on bioaccumulation monitoring. Jay responded that he can confirm with the SWAMP Roundtable that they approved the use of funds to develop a white paper with a broader scope than bioaccumulation monitoring.

Thomas then listed the deliverables, which include a strategy outline, draft paper, and final paper by the end of the year. He noted that the individual chapters would be reviewed in-between the major deliverables. Lilian Busse noted that the white paper should include the possibility of creating volunteer monitoring programs, similar to California's Marine HAB group. Karen Taberski added that the paper should also include a discussion of statewide cyanotoxin monitoring guidelines and protocols.

2. *Elements*

Thomas then listed the elements that the white paper will include:

1. Information needs and desired products
2. Monitoring and assessment approach
3. Data management and analysis
4. Reporting
5. Program review
6. Implementation plan (how the work will be completed and funded)
7. Coordination/Integration with other agencies and efforts (e.g., the NOAA/EPA satellite imagery project, the Ocean Protection Council, Coastal Commission, Coastal Conservancy, California Fish and Wildlife, etc.)

3. *Writing and Review Team*

Thomas stated that the white paper will be written by a core group of BOG and California CyanoHAB workgroup members. The core team will meet frequently throughout the writing process and will report their progress to the BOG, SWAMP, and the California CyanoHAB network. The majority of the writing and coordination would be conducted at SFEI. Lilian stated that the title should not only state "Cyanotoxin White Paper" because in some cases the cyanobacteria rather than the toxin will be monitored.

The white paper will first be reviewed by the BOG Cyanotoxin subgroup; the second review will include the entire BOG, the SWAMP Roundtable, and the California CyanoHAB network; the final review will occur in December 2014 and will include external reviewers. The white paper's workplan and outline will be completed by the end of April 2014. The assessment questions and information products will be finalized in May 2014 and the draft paper will be completed in the Fall of 2014.

Terry Fleming asked how the white paper will be different from the Cyanotoxin Workshop summary. Thomas responded that the white paper is a specific plan for how to move forward on cyanotoxin monitoring over the next five years. Terry then stated that a representative from the Central Valley Regional Water Quality Control Board should be added to the core writing team. Additionally, Susan Keydel should be included as a reviewer.

Action Items:

- Thomas Jabusch will send a draft outline of the white paper to the BOG within the next month.
- Once the outline is complete, Jay Davis will confirm with the SWAMP Roundtable that they approved the use of funds to develop a white paper with a broader scope than bioaccumulation monitoring.

Item 3: Proposed Workplan for Portal Development and Maintenance [Cristina Grosso and Jay Davis]

Cristina Grosso provided an overview of the workplan for the 2013/2014 Safe to Eat Portal.

Presentation and Discussion:

Uploading New Data

Cristina stated before updated to the Safe to Eat portal are made, there will be an unpublished version that Jay Davis and other BOG members can review. In 2013/2014 new data will be uploaded to the portal including:

1. Adding follow-up lake data
2. Posting flat file or excel files with results from the Wildlife Study (both year one and two)
3. Adding links to latest OEHAA advisories
4. Reporting the addition of CEDEN to BOG on quarterly basis and uploading the data to the Safe to Eat Portal as appropriate.

Cristina explained that new CEDEN data is not currently added to the Safe to Eat Portal on a regular basis. In 2014, SFEI's Data Management Team will provide Jay Davis with a quarterly report of additions to the CEDEN database. After discussions with the BOG, Jay will advise the team on the data that should be uploaded to the portal. Adding data to the portal takes approximately eight hours because of QA scripts that need to be run. Jon Marshack noted that there are already QA procedures that need to be followed before the data is entered into CEDEN. Cristina replied that sometimes the units are not correct, there are duplicate data entries, or station name typos. Jay added that there are sometimes problems with data that passes QA procedures and he would like to look at the data before it is uploaded. Robert Brodberg if data completeness will be a requirement for upload into the Safe to Eat Portal. For example, length is often a missing piece of information

in CEDEN. Cristina replied that CEDEN does not have a data completeness check and the BOG would have to decide whether incomplete data should be added to the Portal.

Jennifer Salisbury asked about the reasoning for posting flat files of the Wildlife Study data. Jay responded that he did not want to create a new interface for the data and the data does not belong on the Safe to Eat Portal; but, he would like to post the reports as well as key graphics. Once the reports are complete the BOG will discuss exactly how the information will be communicated.

Tool Maintenance/Enhanced Functionality/Future Improvements

Cristina then listed tool maintenance improvements that will be made to the Safe to Eat Portal this year including:

1. Improving the workflow between the development and production site.
2. Improving the build/deploy/test/release procedures, including creating software that tracks recommendations and suggestions in same place.
3. Evaluating whether to upgrade maps from google to open source.

Plans to improve the functionality of the Portal this year include:

1. Populating the trends tab with data for all years at a particular station.
2. Improving the map, such as creating symbology definitions and threshold mouse overs
3. Adding a feedback/comments form to the Portal.

Cristina ended her presentation by listing future Improvements including:

1. Adding the ability to print a pdf report.
2. Creating the ability to filter by waterbody.
3. Re-writing code to be able to switch to open source technology, or updating the code to make using Google maps for efficient.
4. Creating a user interface/user experience survey and implementing the survey's recommendations

Terry Fleming asked Cristina to define what she means by "users". Cristina responded that the users are people who use the site. Terry asked why Google Analytics isn't sufficient for seeing who is using the site; Cristina replied that Google Analytics does not include why people use the site and what their needs are. Jon added that there is a data gap for Google Analytics because when the Portal switched to a different domain, the Google Analytics tracking was not initially set-up.

Jay noted that the every year the BOG allocated \$15,000 to the Portal, which is the minimum amount to keep the Portal functioning. To complete a user survey, it will cost approximately \$40,000. Terry stated that completing a survey now is premature because the Portal has not reached its full potential. Janis Cooke supported the survey because she thinks the user base could be broadened and that the functionality could be improved to make it friendlier to fish consumers. Janis stated that the Portal improvements could be thought of as the State Board's contribution to exposure reduction. Janis and Jon agreed to craft a formal proposal to bring to the State Board about how improvements to the Portal are contributing to the Board's exposure reduction goals. Jay thought it may be useful to talk about a user survey after the Triennial Council Review, when all State Board Portals will be discussed.

Jay stated that the BOG can decide later whether they would like to complete a user survey, but the group needs to make a decision about whether to switch to an open source base map. Moving to open source will cost \$30,000 in programming. The cost for updating google maps will be \$10,000 in 2014/2015 and \$8,000 in subsequent years (updates will not always need to occur annually).

Action Items:

- Janis Cooke and Jon Marshack agreed to craft a formal proposal to bring to the State Board about how improvements to the Portal are contributing to the Board's exposure reduction goals.
- Cristina Grosso will send the BOG updated cost figures for moving the map to open source versus updating google maps.

Item 4: Brainstorming on Long-Term Plan for BOG [Jay Davis]

Jay Davis stated that the BOG needs to begin thinking about its long-term plan in more detail. Jay noted that as of yet the BOG has not completed any trend monitoring, which is typical of a monitoring program. He suggested conducting a base level of trend monitoring every year (~\$250,000 worth of monitoring annually). Even if long term trends were not observed, it would be useful to characterize interannual variation.

On the California coast the Regional Monitoring Program and the Southern California Bight programs conduct trend monitoring, but there are large areas of the coast that are not monitored. One possibility is repeating the coast survey on a 10 year cycle, which cost \$500,000. Jay thought that trend monitoring in lakes was not as essential since the Statewide Hg TMDL will be conducting monitoring.

Karen Taberski noted that clear trends in concentrations haven't been observed within 10 years. Stephan Louie replied that changes in small fish Hg concentrations can be observed within a year. Billy Jakl added that with the rapidly changing environment (e.g. droughts and wildfires) it may be more appropriate to sample more often to determine if concentrations are changing. A BOG member suggested alternating cyanotoxin and trend monitoring annually. Karen Taberski stated that her preference would be to focus funds on cyanotoxin monitoring and repeating the Coast and River and Streams survey every 10 years.

Jay ended the discussion by stating that another role for BOG in the future would be a synthesis of all bioaccumulation monitoring data being generated in the State. Terry Fleming agreed that a synthesis of all the bioaccumulation data would be an appropriate role for the BOG.