

## CALIFORNIA WATER QUALITY MONITORING COUNCIL

### Monitoring Council Meeting Notes

Tuesday, August 23, 2016 – 9:30 AM to 4:00 PM

Second Floor, Klamath Room  
Joe Serna Jr. Cal/EPA Headquarters Building  
1001 I Street, Sacramento



#### Monitoring Council Members and (Alternates) in attendance:

Bob Brownwood	Sarge Green	Armand Ruby	(Shelly Walther)
Beth Christman	(Bruce Houdeheldt)	(Stephani Spaar)	
(Greg Gearheart)	Phil Markle	Stephen Weisberg	

#### Others in attendance or (on the phone):

Beverly Anderson-Abbs, State Water Resources Control Board  
(Justin Ashworth, South San Joaquin Irrigation District)  
Carolyn Balazs, Sacramento Regional County Sanitation District  
Dori Bellan, State Water Resources Control Board  
Gina Benigno, Department of Fish and Wildlife  
(Carol Boland, City of San Jose)  
(Rich Breuer, State Water Resources Control Board)  
(Erick Burres, State Water Resources Control Board)  
Stefan Cajina, State Water Resources Control Board  
Katharine Carter, North Coast Regional Water Quality Control Board  
(Jeffrey Caudill, California State Parks)  
Ed Cheslok, PG & E  
(Leslye Choate, Sonoma County)  
Susan Corum, Karuk Tribe  
(Dave Crane, Department of Fish and Wildlife)  
Terry Flemming, US Environmental Protection Agency—Region 9  
(Rebecca Franklin, Association of California Water Agencies)  
Karen Gehrtz, Department of Water Resources  
Tony Hale, San Francisco Estuary Institute  
(Tom Hall, EOA, Inc.)  
(Paul Frank, Flow Wets)  
(Suzanne Healy, City of Santa Cruz)  
Meredith Howard, Southern California Coastal Water Research Project  
Christine Joab, Central Valley Regional Water Quality Control Board  
(Lorene Jackson, Marin County)  
Kris Jones, Water Quality Monitoring Council, Department of Water Resources  
Joe Karkoski, State Water Resources Control Board  
(Wendy Killou, State Water Resources Control Board)  
(Dawn Koepke, McHugh, Koepke & Associates)  
Amy Kronson, State Water Resources Control Board  
Regina Linville, Office of Environmental Health Hazard Assessment  
Rafael Maestu, State Water Resources Control Board  
Tom Maloney, California Ocean Science Trust  
Jon Marshack, Water Quality Monitoring Council, State Water Resources Control Board  
Jeanie Mascia, State Water Resources Control Board  
(Melissa Martel, Humboldt County)  
(Jessie Maxfield, State Water Resources Control Board)

Stephen McCord, McCord Environmental, Inc.  
(Sandy McNeal, Department of Public Health)  
(Rachel McNeal, Department of Fish and Wildlife)  
(Melissa Morris, State Water Resources Control Board)  
(Shannon Murphy, Office of Environmental Health Hazard Assessment)  
Angela Murvine, State Water Resources Control Board  
(Peter Ode, Department of Fish and Wildlife)  
Dan Orr, Department of Fish and Wildlife  
(Dave Paradies, Bay Foundation of Morro Bay)  
(Jennifer Phillips, Ocean Protection Council)  
Zane Poulson, State Water Resources Control Board  
Gary Prost, Congressman Jerry McNerney's Office  
Rik Rasmussen, State Water Resources Control Board  
(Paul Rochelle, Metropolitan Water District of Southern California)  
(Amy Rutledge, Kern County)  
(Jennifer Salisbury, State Water Resources Control Board)  
Rohit Salue, PG & E  
(Brianne Sakata, Department of Water Resources)  
(Mark Smythe, Santa Ana Regional Water Quality Control Board)  
(Karen Taberski, San Francisco Bay Regional Water Quality Control Board)  
(Rachael Tadlock, State Water Resources Control Board)  
Jennifer Timmons, State Water Resources Control Board  
(William Tsai, CSU Monterey)  
(Randy Turner, San Francisco Estuary Institute)  
(Shradha Upadhyay, Metropolitan Water District of Southern California)  
Tanya Veldhuizen, Department of Water Resources  
(Rick Whetsel, Santa Ana Watershed Project Authority)  
(Karen Worcester, Central Coast Regional Water Quality Control Board)  
(Laura Young, Santa Clara Valley Water District)

<b>ITEM:</b>	1
<b>Title of Topic:</b>	<b>INTRODUCTIONS AND HOUSEKEEPING</b>
<b>Purpose:</b>	<ol style="list-style-type: none"><li>1) Introductions (in the room and on the phone)<ol style="list-style-type: none"><li>a) Welcome Karen Larsen as the new Monitoring Council Co-Chair representing the California Environmental Protection Agency</li><li>b) Welcome Bob Brownwood as the new Monitoring Council Member representing the California Division of Drinking Water</li></ol></li><li>2) Review draft notes from June 1, 2016 Monitoring Council meeting</li><li>3) Review agenda for today's meeting</li></ol>
<b>Desired Outcome:</b>	<ol style="list-style-type: none"><li>a) Approve June 1, 2016 Monitoring Council meeting notes</li><li>b) Preview what was covered today and overall meeting expectations</li><li>c) Adjust today's agenda, as needed</li></ol>
<b>Attachment Links:</b>	<ul style="list-style-type: none"><li>• <a href="#">Notes from June 1, 2016 Monitoring Council meeting</a></li><li>• <a href="#">Letter to Agency Secretaries nominating Karen Larsen and Bob Brownwood</a></li></ul>

	<u>as new Monitoring Council Co-Chair and Member, respectively</u>	
<b>Contact Person:</b>	Jon Marshack	<a href="mailto:jon.marshack@waterboards.ca.gov">jon.marshack@waterboards.ca.gov</a> , (916) 341-5514
<b>Notes:</b>	Jon Marshack welcomed Karen Larsen as the new Monitoring Council Co-Chair representing the California Environmental Protection Agency, and Bob Brownwood as the new Monitoring Council Member representing the California Division of Drinking Water. Shelly Walther of the Sanitation Districts of Los Angeles County attended as a new Alternate representing the Regulated Community – POTWs.	
<b>Decisions:</b>	Notes from the June 1, 2016 Monitoring Council meeting were approved without amendment.	

<b>ITEM:</b>	2
<b>Title of Topic:</b>	<b>PUBLIC FORUM</b>
<b>Purpose:</b>	Any member of the public may address and ask questions of the Monitoring Council relating to any matter within the Council's jurisdiction under <a href="#">California Senate Bill 1070 (Statutes of 2006)</a> provided the matter is not on the agenda.
<b>Desired Outcome:</b>	Information and potential agenda topics for a future meeting. No decisions can be made regarding items that have not received prior public notice.
<b>Attachment Link:</b>	<a href="#">California Senate Bill 1070 (Statutes of 2006)</a>
<b>Contact Person:</b>	Jon Marshack <a href="mailto:jon.marshack@waterboards.ca.gov">jon.marshack@waterboards.ca.gov</a> , (916) 341-5514
<b>Notes:</b>	No persons requested to address the Council.

<b>ITEM:</b>	3
<b>Title of Topic:</b>	<b>ANNOUNCEMENTS AND UPDATES</b>
<b>Purpose:</b>	These are brief informational items that could be expanded into more detailed discussions for future meetings: a) Authorization to advertise to fill Monitoring Council vacancies (Jon Marshack) b) Meeting dates for late 2016 and 2017 (Jon Marshack) c) Steering Committee for the Data Management Workgroup (Tony Hale) d) Other brief announcements and updates related to the Monitoring Council's mission pursuant to Senate Bill 1070, Statutes of 2006
<b>Desired Outcome:</b>	Information and comment
<b>Background:</b>	a) <b>Monitoring Council Vacancies</b> <ul style="list-style-type: none"><li>• <b>Public</b> – Sara Aminzadeh resigned from the Monitoring Council in late January. Her alternate, Travis Pritchard, has continued to act as Sara's</li></ul>

	<p>Alternate.</p> <ul style="list-style-type: none"> <li>• <b>Agriculture</b> – Parry Klassen has indicated via email that he would be resigning from the Monitoring Council and endorsed his Alternate, Bruce Houdesheldt of the Northern California Water Association, to take his place. Parry offered to stay on as an Alternate in this position. Neither Parry nor Bruce has attended a number of Monitoring Council meetings. No formal endorsement of Bruce's position has been received from the agricultural community.</li> </ul> <p>Council Director Jon Marshack proposes to advertise these two vacancies targeted to relevant organizations.</p> <ul style="list-style-type: none"> <li>b) <b>Legislative Priorities for 2016</b> – In its February meeting, the Monitoring Council established an ad hoc committee to compose legislative priorities. The committee developed amendment language to AB 501 and AB 1755 that would strengthen the Monitoring Council and provide a potential pathway toward additional funding, along with a <a href="#">fact sheet</a> and <a href="#">background document</a>. Jon Marshack reported on this legislative package at the June 1 meeting, in which Monitoring Council Members decided to use the information to conduct outreach with the legislature.</li> <li>c) <b>Data Management Steering Committee</b> – In its February meeting, the Monitoring Council decided to provide a letter of support for developing a Steering Committee to provide direction and potential staff resources to the Data Management Workgroup.</li> <li>d) <b>Late 2016 and 2017 Meeting Dates</b> – The next meeting was scheduled for November 29, the same week as the National Water Quality Monitoring Council annual face-to-face meeting. Jon Marshack cannot attend both. A new December 13 meeting date was selected via a poll of Council Members.</li> </ul> <p>For the last few years, the Monitoring Council has met quarterly, in late February, late May/early June, late August, and late November/early December. What are Council Member preferences for meeting frequency, days of the week, and times of the month for 2017?</p>				
<b>Attachment Links:</b>	<ul style="list-style-type: none"> <li>b) <a href="#">Notes from June 1, 2016 Monitoring Council meeting</a> (see Item #4)</li> <li><a href="#">Draft notes from February 2016 Monitoring Council Meeting</a> (see Item #6)</li> <li><a href="#">Legislative Priorities Spring 2016 fact sheet</a></li> <li><a href="#">Monitoring Council Background Information Regarding Strengthened Legislation</a></li> <li><a href="#">Assembly Bill 1755</a> – text, votes, history, analysis, amendments, and status</li> </ul> <ul style="list-style-type: none"> <li>c) <a href="#">Data Management Workgroup (DMWG) Update</a> – presented by Tony Hale of the San Francisco Estuary Institute</li> <li><a href="#">Letter of invitation to join the Steering Committee for the Data Management Workgroup</a></li> <li><a href="#">Draft notes from February 2016 Monitoring Council Meeting</a> (see Item #5b)</li> </ul>				
<b>Contact Persons:</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; width: 33%;">Jon Marshack</td> <td style="padding: 5px;"><a href="mailto:jon.marshack@waterboards.ca.gov">jon.marshack@waterboards.ca.gov</a>; (916) 341-5514</td> </tr> <tr> <td style="padding: 5px;">Kris Jones</td> <td style="padding: 5px;"><a href="mailto:kristopher.jones@water.ca.gov">kristopher.jones@water.ca.gov</a>; (916) 376-9756</td> </tr> </table>	Jon Marshack	<a href="mailto:jon.marshack@waterboards.ca.gov">jon.marshack@waterboards.ca.gov</a> ; (916) 341-5514	Kris Jones	<a href="mailto:kristopher.jones@water.ca.gov">kristopher.jones@water.ca.gov</a> ; (916) 376-9756
Jon Marshack	<a href="mailto:jon.marshack@waterboards.ca.gov">jon.marshack@waterboards.ca.gov</a> ; (916) 341-5514				
Kris Jones	<a href="mailto:kristopher.jones@water.ca.gov">kristopher.jones@water.ca.gov</a> ; (916) 376-9756				

<b>Notes:</b>	<p>a) Sara Aminzadeh, who represented public interests on the Council, resigned in late January 2016. Travis Pritchard will continue to act in her absence, despite his being unable to attend today's meeting. A request was made to the Council to announce and seek candidates to fill this vacancy.</p> <p>Alternate Bruce Houdeheldt of the Northern California Water Association was present to represent agriculture interests on the Council.</p> <p>Phil Markle, who represents the regulated community, will leave the Council in January 2017. He has assigned a new Alternate, Shelly Walther. Phil will provide a recommendation for a new Council Member in the upcoming months.</p> <p>b) Amendments were made to AB 1755, since the Council was briefed at the <a href="#">June 1 meeting</a> (see Item #4). Much of the proposed amendments that were proposed to assign specific tasks to the Council were not accepted; the Department of Water Resources is designated to create, operate, and maintain a statewide integrated water data platform and to develop standardized data sharing and documentation protocols. The current language now calls for those actions to be carried out in collaboration with the Monitoring Council, the State Water Board, and the Department of Fish and Wildlife.</p> <p>c) Tony Hale of the Data Management Workgroup gave an update on the workgroup's recent activities and future planning, including a presentation to the Interagency Ecological Program's Data Utilization Workgroup (IEP DUWG) and the California Estuary Monitoring Workgroup on the Environmental Data Summit's 'vision document'. A letter was also sent to invite representatives to serve on the Data Management Workgroup's Steering Committee, to provide authoritative guidance on ongoing workgroup initiatives and to increase state agency staff involvement in the Data Management Workgroup. Fact sheets were prepared for review by the Steering Committee on web services, data management plans, and the data federation. Outreach continues to organizations with data sharing initiatives. Recent presenters to the workgroup include: Abdul Kahn from DWR, Patrick Atwater from the California Data Collaborative, Sakura Evans from the IEP DUWG, and Dorian Bellan from the Groundwater Monitoring Program, GeoTracker GAMA. The Steering Committee will consist of mid- and high-level decision makers within Natural Resources, DWR, DFW, SWRCB, Delta Conservancy, and Delta Stewardship Council. Future plans of the Steering Committee will include: providing authoritative guidance on workgroup activities in support of the vision document implementation recommendations and related goals, promoting resources for interagency coordination (and communication) regarding new and ongoing technology initiatives, ensuring consistent and broadly representative Workgroup meeting attendance and initiative support. Jon Marshack asked about sharing the fact sheets with the Monitoring Council members. Tony suggested that these documents could be shared after the Steering Committee members have had an opportunity to review them. Steve Weisberg asked if the Data Management Workgroup was tied into AB 1755. Tony answered that the Steering Committee may be a good forum to discuss what it means to bring data infrastructure to fruition, and to identify points of conflict and where we can synergize.</p> <p>d) The next Monitoring Council meeting will follow up on harmful algal blooms on December 13, 2016 in the Klamath Room at CalEPA. Meetings for 2017</p>
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	will continue with the same quarterly schedule as in the past.
<b>Decisions:</b>	The request was approved by the Council to announce the vacancy for and to fill the Public position on the Council.
<b>Action Items:</b>	Jon Marshack will poll the Monitoring Council Members regarding prospective dates for 2017 meetings.

<b>ITEM:</b>	<b>4</b>
<b>Title of Topic:</b>	<b>HARMFUL ALGAL BLOOMS (HABs)</b>
<b>Purpose:</b>	<p>Speakers from a number of organizations and perspectives reviewed existing and planned efforts related to monitoring, assessment, reporting, coordination, and response actions for harmful algal blooms:</p> <ul style="list-style-type: none"> <li>• Marine HABs coordination (Meredith Howard)</li> <li>• HABs impact on fisheries (Tom Maloney)</li> <li>• Freshwater HABs strategy (Bev Anderson-Abbs)</li> <li>• Potential sources of funding (Joe Karkoski)</li> <li>• Response actions (Katharine Carter)</li> <li>• Drinking Water Program (Stefan Cajina)</li> <li>• Standards, planning, and assessment actions (Rik Rasmussen)</li> <li>• CCHAB Network activities and plans (Susan Corum and Zane Poulsom)</li> <li>• HABs web portal (Jon Marshack)</li> </ul> <p>Discussion between the speakers and Monitoring Council Members to identify:</p> <ul style="list-style-type: none"> <li>• Gaps in monitoring, assessment, reporting, and response</li> <li>• Where efforts are not coordinated and barriers to coordination</li> <li>• Targeted sources of funding to fill the gaps</li> <li>• How the Monitoring Council can help to support the development of a comprehensive and coordinated HABs program for California</li> </ul> <p>Instructions to staff from the Monitoring Council.</p>
<b>Desired Outcome:</b>	Instructions to staff from the Monitoring Council regarding how the Council can help to support the development of a comprehensive and coordinated HABs program for California.
<b>Background:</b>	<p>On February 23, Beverly Anderson-Abbs provided the Monitoring Council with a summary of the <a href="#">California Freshwater Harmful Algal Blooms Assessment and Support Strategy</a> developed by the Water Boards' Surface Water Ambient Monitoring Program (SWAMP) and members of the California Cyanobacteria and Harmful Algal Bloom (CCHAB) Network briefed the Council on recent updates to its <a href="#">CyanoHAB Voluntary Guidance for Recreational Water Uses</a>. At its June 1, 2016 meeting, the Monitoring Council asked that substantial staff time be focused on the topic of harmful algal blooms and how the Monitoring Council</p>

	<p>could lend support to the development of a comprehensive and coordinated HABs program for California. Staff should work with the CCHAB Network to identify and address their needs, especially in the areas of data management and access, consistency of methods or monitoring, analysis, assessment, and reporting, QA/QC, and potential funding opportunities.</p>
<b>Attachment Link:</b>	<ul style="list-style-type: none"> <li>• <a href="#">HABs complexity slide – inputs, impacts, agencies</a></li> <li>• <a href="#">Marine Harmful Algal Bloom Programs</a> – presentation by Meredith Howard of the Southern California Coastal Water Research Project</li> <li>• <a href="#">Harmful Algal Blooms and California Fisheries: Responding to the 2015-2016 Domoic Acid Event and Future Impacts</a> – presentation by Tom Maloney of the California Ocean Science Trust</li> <li>• <a href="#">Freshwater Harmful Algal Blooms (HABs) in California and SWAMP's Statewide Strategy</a> – presented by Beverly Anderson-Abbs of the State Water Board, Surface Water Ambient Monitoring Program</li> <li>• <a href="#">Providing Financial Assistance for Projects that Serve the Water Boards' Mission: Preserve, Enhance, and Restore California's Water Resources</a> – presentation by Joe Karkoski of the State Water Board, Division of Financial Assistance</li> <li>• <a href="#">North Coast CyanoHAB Risk Factors and Water Quality Management Strategies</a> – presentation by Katharine Carter of the North Coast Regional Water Board</li> <li>• <a href="#">Harmful Algal Blooms and Drinking Water</a> – presentation by Stefan Cajina of the State Water Board, Division of Drinking Water, North Coastal Section</li> <li>• <a href="#">Standards, Planning &amp; Assessment Actions</a> – presentation by Rik Rasmussen of the State Water Board, Division of Water Quality</li> <li>• <a href="#">California CyanoHAB Network</a> – presentation by Susan Corum of the Karuk Tribe and Zane Poulson of the State Water Board, Division of Water Quality</li> <li>• <a href="#">California Harmful Algal Blooms Portal</a></li> <li>• <a href="#">California Freshwater Harmful Algal Blooms Assessment and Support Strategy</a></li> <li>• <a href="#">CyanoHAB Voluntary Guidance for Recreational Water Uses</a></li> <li>• <a href="#">Draft notes from February 23, 2016 Monitoring Council meeting</a> (see Items #3 &amp; 4)</li> <li>• <a href="#">Notes from June 1, 2016 Monitoring Council meeting</a> (see Item #4)</li> </ul>
<b>Contact Person:</b>	Jon Marshack <a href="mailto:jon.marshack@waterboards.ca.gov">jon.marshack@waterboards.ca.gov</a> , (916) 341-5514
<b>Notes:</b>	<p>Karen Larsen provided some context by mentioning that the Monitoring Council decided at the last meeting to focus its efforts on the impacts of harmful algal blooms (HABs) on beneficial uses and the need for improved coordination.</p> <p>Sarge Green brought up that there are also a number of issues regarding health advisories, e.g. copper, lead, etc. The Council may consider at a later date to help with a more forthright process to managing these health advisories released by disparate agencies and bringing them to the attention to the public.</p>

**Marine HABs** (Meredith Howard, Southern California Coastal Water Research Project)—2015 was an unprecedented year for the most extensive marine harmful algal blooms recorded from Alaska to Santa Barbara. Meredith emphasized that the impacts of these blooms remain long after they are gone. Domoic acid concentrations were very high in 2015 compared to those blooms observed in 1998. She indicated that domoic acid has been detected in marine wildlife all the way up the food chain. Dungeness crab and other fisheries were closed along the entire California coast and the direct estimated loss for California catch was \$49 million. Marine monitoring, largely conducted by volunteers, is in place to perform trend analysis for toxins, HAB identification, nutrients and chlorophyll and marine mammal health. This marine monitoring program includes screening, event response and trends. The next step is to establish a forecasting system for HAB development, intensity and transport. Estuaries do not have a comprehensive HABs monitoring network and only has a minimal program, a few select sites with no freshwater species or toxins being monitored. The marine monitoring program can serve as a model for what is needed in estuarine and freshwater systems. Temperature and pH are emerging as analytes correlated with blooms and toxin production respectively.

**HABs impact on fisheries** (Tom Maloney, California Ocean Science Trust)—The 2015-16 west coast-wide *Pseudo-nitzschia* bloom resulted in some of the highest concentrations of domoic acid ever observed in California. This resulted in a number of health advisories and fishery closures, resulting in devastating economic impacts. The Ocean Protection Council convened an Interagency Marine HAB Task Force. A FAQ document was developed on building common understanding across all engaged in the issue by answering questions on HABs and California fisheries, as well as advancing the science by convening an OPC Science Advisory Team Working Group to develop science guidance on HAB and toxin monitoring. This guidance will address the state of the science, guidance on HAB and biotoxin monitoring, addressing information needs and gaps, and linkages with broader changing ocean conditions. Following Tom's presentation, Steve Weisberg asked whether there was a need for better resolution for thresholds, and asked for clarification regarding what gaps could be filled to improve our understanding in this area. Tom indicated that thresholds are complicated to study, and acknowledged that there are gaps in our knowledge and a need for improved resolution. Steve also asked about the gap between research and monitoring in Estuaries—the intersection of ocean and inland HAB monitoring. Steve added that it did not appear that the State Water Board was involved in the ocean HAB efforts. Greg Gearheart indicated that SWAMP does not have a strong ocean footprint (with the exception of bioaccumulation monitoring), and that they have mainly focused on inland waters.

**Freshwater HABs strategy** (Bev Anderson-Abbs, State Water Board, Surface Water Ambient Monitoring Program)—SWAMP has taken the initiative to outline what is needed for freshwater monitoring for HABs. Freshwater HABs are mainly associated with cyanobacteria. Freshwater toxins were extremely high in 2014/15, which caused lake closures and dog deaths. The drought has exacerbated the effects of the blooms, with forty blooms reported in 2016. Rivers and streams act as conduits, carrying freshwater toxins to the ocean, which can affect wildlife such as the sea otter deaths associated with microcystin accumulation in the shellfish they eat. SWAMP developed a support strategy that outlines what is needed in the state to address HABs, the response to events as

well as risk assessments. The goal of the strategy is to develop and communicate a coordinated and widely supported long-term vision to mitigate freshwater HABs. SWAMP is working on infrastructure to support the strategy. It has developed SOPs, contributed to the HABs Portal, and provided training and outreach. They are also working towards developing tools that use satellite imagery to identify where HABs are occurring in larger water bodies. Next steps include determining the roles of state, county and local agencies in HAB mitigation and management and identifying long-term funding to maintain the program. Steve Weisberg asked if there is a system in place to have volunteers start monitoring for HABs in freshwater. Bev answered that this is outlined in the Strategy and the Clean Water Team is gearing up to start this effort with citizen monitors. Videos have been produced for training, which are posted on the HABs Portal. They are also working to get aerial photos from volunteer pilot groups to help identify HABs. Sarge Green asked what the prognosis was for lab capacity in California, since we have been sending samples to Florida and can wait weeks for the results. Bev replied it is an issue with California not having the labs to do the testing. Phil Markle asked whether there is a goal to identify the conditions that trigger HABs, so that monitoring could occur less frequently. Bev indicated that the challenge is that triggers appear to be specific to the water body and the area, which can make forecasting difficult statewide. She added that forecasting and response efforts would likely need to be regional or water body specific.

**Potential sources of funding** (Joe Karkoski, State Water Board, Division of Financial Assistance)—Joe indicated that funding for HABs will likely have to be redirected from existing resources. There is a need for monitoring and assessment, reporting public notification and control actions. Control actions are where we have the most potential for funding, especially from bond funds like Prop 1, that are largely restricted to funding on-the-ground projects, rather than planning and monitoring activities. Joe discussed the options and financing terms of loans (e.g., state revolving funds), grants (e.g., 318h nonpoint source grants) and Prop 1 funds. The Department of Water Resources also has funding for projects that could address HABs through Integrated Regional Water Management Plans and their website has more information. Steve Weisberg says there are three things that should be fleshed out.

- 1) Monitoring community;
- 2) Technology development (e.g., predictive models, analytical methods); and
- 3) Mitigation (how to fix problem once it is identified).

It seems that funds for mitigation will be easier to obtain than money for monitoring. Sarge Green asked if we have the capacity for voluntary contributions or funding if contributed. Meredith Howard talked about the Klamath Basin Monitoring Program that was not able to accept money but was able to use TMDL contract dollars along with matching fund from other organizations to form a partnership to do comprehensive monitoring. Legislation similar to the Clean Beaches Initiative may be needed to dedicate funding for HABs.

**Response actions** (Katharine Carter, North Coast Regional Water Board) — High nutrients and temperatures in the Klamath Basin and associated reservoirs need to be addressed to reduce chlorophyll a, low dissolved oxygen and microcystins. The North Coast Cyano HAB Program provided evidence to dam owners on the Klamath River that it would be cheaper to resolve HAB problems

by removing dams to improve conditions rather than continue to operate the dams. So the dams are scheduled for removal. Another issue is that HABs in the Klamath basin also occur across the state line in Oregon, where wetlands were reclaimed for farm land along inlets to Klamath Lake. As a result, higher nutrient levels are reaching the lake. HABs are also occurring on the Russian and Eel Rivers, largely dominated by benthic algal species. The North Coast Region is still facing many challenges with reduced staff, varied resources and levels of participation, and expensive monitoring. Clean Water Act 318h nonpoint source grants have been made available through adoption of TMDLs.

**Drinking Water Program** (Stefan Cajina, State Water Board, Division of Drinking Water, North Coastal Section)—HABs are a growing concern for drinking water. There have been no HAB related human or animal illnesses due to drinking water in the U.S. The 2014 Toledo, Ohio water crisis spurred efforts within the EPA to accelerate health advisories when the city issued ‘Do Not Drink or Boil’ advisories. Stefan indicated that there is a need for early warning and that rapid responses are essential. He added that lab availability, capacity, turnaround time, limitations of analytical methods and cost present obstacles for rapid responses. He also added that public communication of risks is hampered because algal toxins are not regulated drinking water contaminants. Drinking water systems are not required to notify the public if health advisory levels are exceeded. The drinking water community is learning as it goes and all agencies need to work together.

**Standards, planning, and assessment actions** (Rik Rasmussen, State Water Board, Division of Water Quality)—The Inland Standards Unit is currently working on a nutrients objective to protect against eutrophication, focusing on rivers and streams, lakes, and estuaries, in that order. There are no numeric water quality objectives for algal toxins. Narrative objectives, ‘No toxics in toxic amounts,’ can be used to set regulatory conditions based on science. Impairment can be assessed without numeric objectives by using narratives and peer reviewed guidelines for toxins. A weight of evidence for blooms can also be used such as cell counts, visual/photographic evidence and perhaps satellite imagery. There are HABs-related impairment listings in the North Coast and Central Coast Regions. Other Regions have listings for nutrients or eutrophication. There is no current statewide guidance; Central Coast is looking at OEHHA guidelines for human health, recreation and wildlife. The State Water Board’s Division of Water Quality is working with the CCHAB workgroup to develop signage, appropriate thresholds for posting and draft voluntary guidance. A question was raised about how to assess toxicity data when the toxicity comes from HABs. Rik suggested that the Council could assist with this in the future. Terry Fleming says the assessment issue will be a topic of discussion at the upcoming water quality standards meeting.

**CCHAB Network activities and plans** (Susan Corum, Karuk Tribe; Zane Poulson, State Water Board, Division of Water Quality)—The Klamath River has some of the highest toxicity levels seen in the world. There are no standards, only World Health Organization guidelines were available--no federal leadership exists to help with this problem. The speakers indicated that the CCHAB workgroup needs more participation from other agencies. A web portal has recently been launched where blooms can be reported and tracked. Signs for posting are also available on the portal. SWAMP has been helping with training and outreach to the public. CCHAB is working to complete the 2016 voluntary guidance document amendments. The speakers added that there is a need to

create a formal state funded program (including sampling), a uniform mandatory response to blooms, dedicated resources for education and outreach and research to better understand blooms. The Council can help by supporting efforts toward a statewide coordinated program of dedicated staff, resources, reporting and public notification. New legislation and/or interagency memoranda of understanding should be considered. Support is also needed to coordinate state and local agencies and to support research to address and prevent blooms. The next CCHAB meeting is September 29, 2016 at CalEPA.

Greg Gearheart then spoke regarding high level coordination efforts relating to Harmful Algal Blooms. Recently Gordon Burns, the Undersecretary for Environmental Protection, initiated a process for communication among state agencies regarding Harmful Algal Blooms. The California Health and Human Services Agency, the Water Boards, the Department of Water Resources, State Parks, the Department of Fish and Wildlife, and the California Department of Public Health are involved. There have been about five meetings in the last three weeks. Greg was put in charge of dealing with notifications among state agencies and what is being done to communicate the validation of an incident, while other teams will work to coordinate the messaging side (e.g., how to notify the public). A diagram will be generated to show how the alert system will work with an inputs and outputs. The goal is that once a bloom is validated, the information can quickly be handed over to the Department of Public Health to notify local health agencies through an established alert system. All documents that have been developed over the last few weeks will be distributed once they are all vetted and approved. This high-level communication and response action system should be coordinated with CCHAB. Sarge Green wants to know if the process will be robust enough to be effective. The Council could help with the communication. Posting is a huge problem in Region 1, for example. Sarge believes that a Water Master could also help; the Water code has information about the concept of a Water Master for the Klamath.

**HABs web portal** (Jon Marshack)—Jon demonstrated the portal to the Council. The portal was put together in a rush effort to get the information up quickly in the last few weeks. A link on [www.MyWaterQuality.ca.gov](http://www.MyWaterQuality.ca.gov) leads to the HABs home page. A set of Questions Answered links provides access to pages with more detailed information. A HAB event map is featured with a list of blooms. Eventually, the map will give more information about the start, status, and end of the blooms. The portal provides several ways that blooms can be reported, including an online report form, a hot line and an email address. Terry Fleming expressed concern regarding safety where people are testing toxic water. He suggested that content on personal protection in the training should go up on the portal immediately.

**General Discussion**—Current gaps identified were commercial lab capacity, standard methods for toxin analyses, and regulations. Sarge Green asked if there are any national labs or universities that are working on treatment or detection capabilities. Stefan Cajina indicated that UC Santa Cruz and UC Davis are doing work on this subject. Funding sources need to be available for labs to see an economic incentive to do research. Sarge also asked about economical screening tools. Abraxis test strips were mentioned as a good screening tool for detecting cyanotoxins. However, these field tests still need to be confirmed in the lab.

Steve Weisberg sees parallels between HAB monitoring and what happened with the standardization of coastal beach monitoring for fecal bacterial indicators

	<p>in 1997. Different monitoring methods were being used, the data was not being used, warnings were not posted and there were no clean up actions occurring. Steve indicated that a uniform warning system was needed. Steve also suggested that the approach in 1997 could be used as a guide. He added that five things had to happen: 1) agreed upon standards; 2) Legislation to mandate consistent warnings; 3) TMDLs based on beneficial use impacts to guide remedial actions; 4) funding for response, research, monitoring methods and tools, and causal assessment; and 5) improved communication between responsible organizations. Beaches in California are incredibly cleaner now. The issue of HABs could be addressed in a similar manner. Prop 1 money could possibly be used to support these efforts. CalEPA and state agency attorneys are looking at who has existing authority to post and they are exploring gaps. Leadership needs to bring together agencies to cooperate in posting health threats.</p> <p>Steve Weisberg indicated that he did not feel that the Council should pursue legislative support to address these issues. Rather, he indicated that the Council should seek guidance from the Agency Secretaries regarding a path forward. Jon Marshack asked for clarification regarding the proposed path forward. Should the focus be on the recreational use issues and not drinking water? The Council members agreed with this assessment. Steve Weisberg suggested that a position paper be developed (2 pages), which would accompany a letter to the Agency Secretaries. Steve said the position paper should:</p> <ol style="list-style-type: none"> <li>1) Define the nature of the problem, highlighting the public health threat, economic impact, and impacts on recreation, fisheries, and livestock; and</li> <li>2) Present the challenges with dealing with issue at hand, including the need for adequate information to make decisions through a comprehensive system – monitoring network, problem characterization, consistent methods, and reporting.</li> </ol> <p>Steve added that the letter should provide recommendations regarding how to overcome these challenges, including increased participation in an empowered CCHAB and funding (e.g., redirecting Prop 1 funds) to bound the scope of the problem and to daylight information. Sarge Green suggested that we request feedback from Gordon Burns regarding the letter and position paper before sending them to the Agency Secretaries. He also suggested that the Council Co-Chairs should be consulted regarding how to formulate our requests for the Agency Secretaries. Steve Weisberg suggested that the CDPH be copied on the letter to inform them of the Council's actions and to solicit their involvement. Armand Ruby made a motion to have Jon work with the Council Co-Chairs to write the letter and position paper. Phil Markel seconded the motion. All members approved, with the exception of Bob Brownwood who abstained.</p>
<b>Action Items:</b>	Jon Marshack will work with the Council Co-Chairs to produce a letter and position paper from the Council to the Secretaries of CalEPA and the Natural Resources Agency.

<b>ITEM:</b>	<b>5</b>
<b>Title of Topic:</b>	<b>NEXT MEETING AGENDA</b>
<b>Purpose:</b>	Plan agenda for December 13, 2016 Monitoring Council meeting in Sacramento.

	Potential items include: <ul style="list-style-type: none"><li>a) Harmful algal bloom strategy (Jon Marshack)</li><li>b) The future of data – open data, data management plans, web services, data federation (Tony Hale of SFEI, Greg Gearheart)</li><li>c) Interagency Ecological Program governance model – fostering ad hoc teams for specific tasks (Greg Erickson and Sakura Evans of CDFW)</li><li>d) Human Right to Water – beginning of a Safe-to-Drink Portal? (Wendy Killou, SWRCB-DDW)</li><li>e) Assessing aquatic habitat connectivity and low-flow ecological thresholds (Robert Holmes, CDFW Water Branch)</li><li>f) Data quality and data management standardization efforts of SWAMP (Melissa Morris, SWRCB)</li><li>g) State stewardship for the National Hydrography Dataset by the Department of Water Resources (Greg Smith, DWR)</li><li>h) Possibility of holding a Monitoring Council annual conference</li><li>i) Monitoring Council strategic planning</li></ul>
<b>Desired Outcome:</b>	Develop agenda ideas for the December 13, 2016 meeting.
<b>Contact Person:</b>	Jon Marshack <a href="mailto:jon.marshack@waterboards.ca.gov">jon.marshack@waterboards.ca.gov</a> ; (916) 341-5514
<b>Notes:</b>	Items to discuss at the next meeting: follow up on HAB issues and the position paper to the agency secretaries. Comments on the HAB portal should also be added as a topic. Armand Ruby suggested that we arrange for the statewide Storm Water Strategy (STORMS) Urban Pesticide Reduction project to present.
<b>Action Items:</b>	Jon Marshack will correspond with Monitoring Council members via email regarding potential agenda items for the December 13, 2016 Monitoring Council meeting.

September 28, 2016  
Approved December 13, 2016