



California Water Quality Monitoring Council



Matthew Rodriguez
*Secretary for
Environmental Protection*

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Edmund G. Brown Jr.
Governor



John Laird
*Secretary for
Natural Resources*

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Sent via email

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HARMFUL ALGAL BLOOMS DESERVE GREATER GOVERNMENTAL ATTENTION AND COORDINATION

Dear Secretaries Rodriguez and Laird,

Strengthened by prolonged drought and climate change, harmful algal blooms are increasingly posing threats to public health and safety and the environment. This year saw blooms in over forty of California's lakes, reservoirs, rivers, and streams. Dogs and sea otters have died, people have become ill, lakes have been closed to swimming, businesses dependent on recreational opportunities have lost significant income, and drinking water supplies, fisheries and livestock have been threatened.

State, federal, and local governmental agencies, tribes, academic institutions, and waterbody managers have responded by diverting resources from other critical programs to determine the nature and extent of these blooms and to warn the public about the dangers posed by the toxins present. Under the oversight of the California Water Quality Monitoring Council, staff from a number of these organizations have come together to form the California Cyanobacteria and Harmful Algal Bloom (CCHAB) Network that recently updated guidance materials to help agencies respond to blooms and to protect the public. The Water Boards' Surface Water Ambient Monitoring Program (SWAMP) diverted funds to develop the first phase of a strategy to address harmful algal blooms in freshwaters. Attached is a brief issue paper outlining the problem and response actions to date.

But these actions have merely scratched the surface of the problem. CCHAB needs increased participation from state and local environmental, natural resource management and public health agencies. The State needs strengthened procedures for interagency communication and public education, including uniform posting of signage to warn the public of the dangers at water

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bodies experiencing blooms. A comprehensive and coordinated monitoring program is needed to bound the scope of the problem, to elucidate the causes of harmful algal blooms throughout California, and to provide the information needed to develop response actions and regulatory programs that will reduce the nature and extent of harmful algal blooms now and into the future.

Today, we ask you to help overcome these challenges by fostering high-level management support, direction and coordination as well as supporting a significant dedication of staff time and resources. Staff within multiple state governmental organizations – at a minimum, State and Regional Water Boards; Departments of Public Health, Fish and Wildlife, and Water Resources; and the Office of Environmental Health Hazard Assessment – will be needed, with actions coordinated through the Monitoring Council's CCHAB Network.

Please let us know if you need additional information, would like further briefing on this issue, or further discussion of the needs outlined above.

Sincerely,



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Enclosure

cc: Dr. Karen Smith, Director and State Public Health Officer,
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Freshwater Harmful Algal Blooms Deserve Greater Governmental Attention & Coordination

In the last few years, drought and climate change have increased the number and severity of harmful algal blooms (HABs) in waterbodies throughout California. HABs and the algal toxins they release have caused lakes, reservoirs, and rivers to be closed to swimming and other water-contact recreation. Dogs that ingested contaminated water and scum have died. Sea otters in Monterey bay succumbed to liver failure after ingesting shellfish contaminated with algal toxins that flowed downstream from an inland lake. Drinking water supplies, fisheries, livestock, and wildlife have been threatened.

Agency Responses

This year, blooms have occurred in over 40 inland water bodies throughout much of California. Federal, state and local environmental and public health agencies, waterbody managers, and tribes have scrambled to address the growing problem. Funding was diverted from other critical programs and staff coordinated to develop a strategy for addressing HABs in inland waters. A new decision tree, along with toxin trigger levels and improved signage, were developed to guide the posting of lakes, reservoirs, and rivers, warning the public and their animals to stay out of the water and to avoid contact with scum. Coordinated through the Governor's Office, high-level agency discussions resulted in draft interagency communication and incident response protocols and media release templates. The State Water Board's Surface Water Ambient Monitoring Program (SWAMP) has worked closely with the Regional Water Quality Control Boards and the U.S. Environmental Protection Agency to assist local health agencies and water body managers in responding to blooms. But all of these efforts have been voluntary. Reaction by local health agencies and waterbody managers has been mixed, resulting in a lack of uniform public notification and waterbody posting regarding the dangers that harmful algal blooms present. Some entities fear the loss of income from businesses dependent on local recreational opportunities. Human illnesses were reported in some locations where posting was delayed.

Greater Action Is Needed

Under the umbrella of the California Water Quality Monitoring Council, a voluntary collaboration called the California Cyanobacteria and Harmful Algal Bloom (CCHAB) Network has brought together state, federal, and local governmental agencies, tribes, science support organizations, and waterbody managers to share experiences and develop plans to address freshwater HABs. This year, a small core group of CCHAB Network members produced updated guidance, including the decision tree, trigger levels and signage, currently used by some local agencies and waterbody managers to notify the public about HAB risks. But use of this guidance is voluntary and implementation at the local level has not been uniform. The CCHAB Network's mission is to work towards the development and maintenance of a comprehensive, coordinated program to identify and address the causes and impacts of cyanobacteria and harmful algal blooms in California. But with no dedicated funding, CCHAB must rely on voluntary contributions of staff time and resources diverted from other important programs. The result has been limited direct involvement by many organizations. Funding limitations and the cost of field sampling and toxin analyses constrained SWAMP's emphasis to incident triage and a limited degree of response, leaving much to the discretion of local health agencies and water body managers. Increased governmental staff participation in the efforts of the CCHAB Network, greater funding for field sampling, analysis, local agency and public outreach and education, and consistent public posting of waterbodies are desperately needed if California is to adequately address the risks of freshwater HABs. In order to

reduce the severity of HABs and prevent future occurrences, California will also need to address the root causes of harmful algal blooms and develop the regulatory and resources management tools to manage the problem. All of this is new territory for governmental agencies and will take a significant dedication of staff time and resources. High level management support, direction, and coordination will be critical.

Background

Higher water temperatures, lower flows, and water stagnation in lakes and reservoirs, rivers, and streams combined with increased nutrient levels (nitrogen and phosphorus) from wastewater discharges and agricultural and urban runoff, can converge to cause cyanobacteria (also known as blue-green algae) that are present in most freshwater ecosystems to quickly multiply into harmful algal blooms. Cyanobacteria can impart an unpleasant taste to drinking water and fish flesh, give off unpleasant odors, and consume dissolved oxygen as they die and decay, impacting drinking water supplies, fisheries, and recreation. Some cyanobacteria and other harmful algae release toxins that can cause skin irritation, liver and kidney damage and, in the case of the neurotoxin Anatoxin-a, rapid onset of vomiting, convulsions and even death in dogs and livestock that ingest it. Algal toxins pose risks to the health and safety of people and pets recreating in water bodies, eating fish, and drinking water. The toxins can accumulate in fish and shellfish to levels posing threats to consumers, including people and wildlife. Some studies have linked algal toxin exposures to chronic liver damage and ALS or Lou Gehrig's Disease in people. Cyanobacteria blooms and their associated toxins have increased globally in geographic distribution, frequency, duration, and severity. Non-cyanobacteria HAB events have also increased in freshwaters, the most common of which is the golden haptophyte alga, which has resulted in fish kills in the East, Mid-west and Southern states, and in a few Southern California water bodies.

California Cyanobacteria and Harmful Algal Bloom (CCHAB) Network

In 2006, an interagency collaborative called the Statewide Blue-Green Algae Working Group was established in response to record-setting toxin-producing blooms in Klamath River reservoirs. In 2007 and 2010, the Working Group developed voluntary guidance to help state and local agencies and tribes respond to the effect of HABs on recreational water uses. The Workgroup held trainings on HAB identification and sampling and funded a number of grant projects. These efforts demonstrated a need for developing a long-term vision and strategic plan for identifying and managing HABs in California.

The Working Group was recently renamed the "California Cyanobacteria and Harmful Algal Bloom Network," under the oversight of the California Water Quality Monitoring Council. A 2012 report from the CalEPA Office of Environmental Health Hazard Assessment (OEHHA) identified suggested action levels for six algal toxins to protect humans, domestic animals, and livestock, spurring revision of the 2010 voluntary guidance. A core group of CCHAB members from the State Water Board, Department of Public Health, and OEHHA met to develop guidance updates, including updated trigger levels of cyanobacteria and cyanotoxins, decision tree, and signage for posting of water bodies to notify the public when HABs are detected in recreational waters. CCHAB is hoping to update the entire voluntary guidance document before the 2017 bloom season. But this work is taking staff from their other important duties and progress remains uncertain.

In partnership with SWAMP, CCHAB recently launched the California Harmful Algal Blooms Portal at www.MyWaterQuality.ca.gov/HABs that highlights the efforts of both organizations to address the problem. The new portal features interactive maps of bloom locations in California, basic information on HABs and HAB identification, an online site and a hotline for reporting a bloom, and resources and guidance to help the public understand, and governmental agencies and water body managers to better respond to, harmful algal blooms.

Considerably more coordinated action is needed if California is to adequately address the risks of HABs.