

## SWAMP CyanoHABs Program is Blooming!

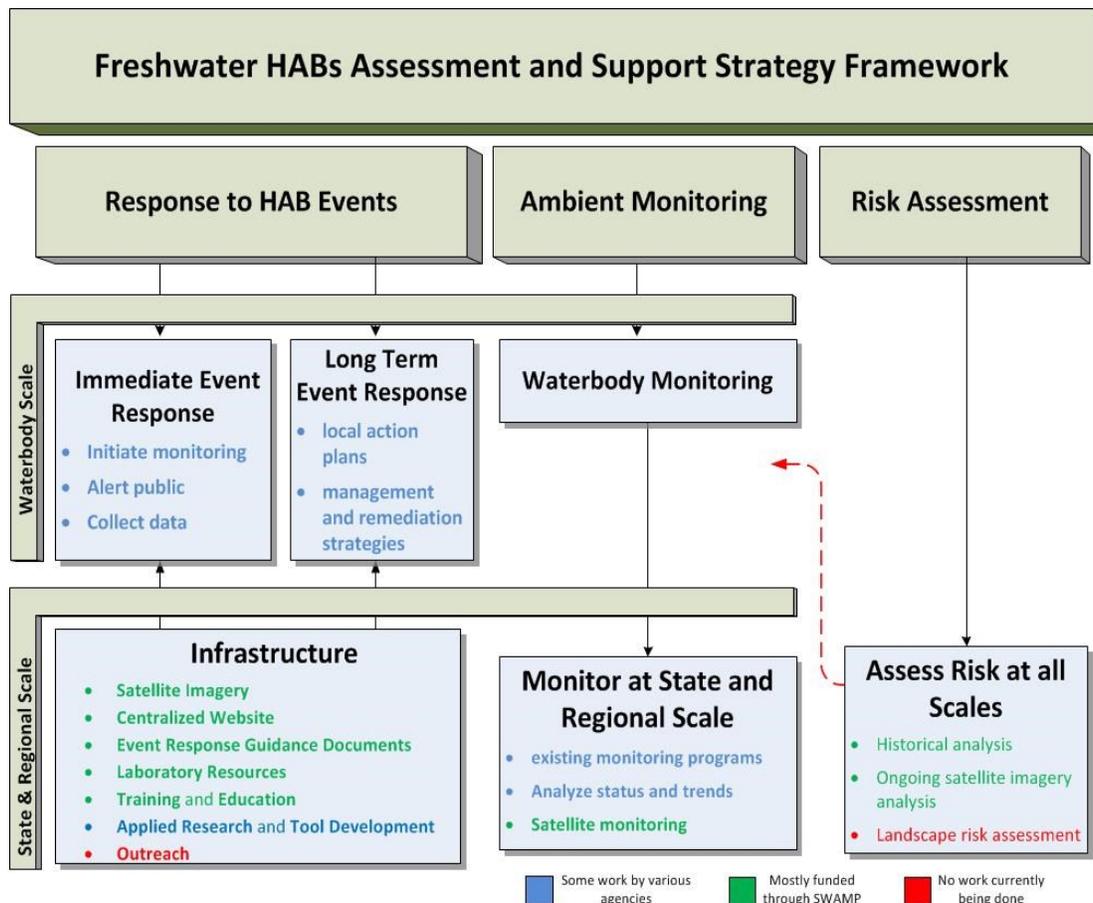
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With heat and lengthening days, the bloom season is almost upon us. The first SWAMP newsletter introduced the serious issue of harmful algal blooms (HABs) originating from cyanobacteria (or “blue green algae”) in freshwater systems throughout California. In this issue, we will provide more information about what the SWAMP program is doing to address this widespread problem.

Our SWAMP CyanoHABs program is developing under the auspices of the [California Cyanobacteria Harmful Algal Bloom Network \(CCHAB\)](#), which is a multi-stakeholder workgroup of the [California Water Quality Monitoring Council](#). With minimal funding, the SWAMP cyanoHABs team has accomplished a great deal in support of CCHAB and the many agencies and organizations struggling with bloom management. We have developed a “[California Freshwater HABS Assessment and Support Strategy](#)” (or “Strategy”) which lays out a program framework (see Figure 1) and key infrastructure needed for health and resource managers at local and state levels to address and track these blooms. The Strategy also identifies potential resources and partners. Many of the program components are already in development.



Figure 1. The Freshwater HAB Assessment and Support Framework



The Strategy identifies three major program areas (Figure 1):

Response to HAB events

- (1) Immediate event response focuses on the immediate monitoring and response actions needed during a HAB event, supported by imagery analysis to detect blooms and notification of local authorities, event response guidance (including field and lab guidance), and supporting lab resources.

Long-term response focuses on action plan development and bloom management, supported by management and remediation guidance, web site, and training.

- (2) Field assessments and ambient monitoring

Leverage existing monitoring program activities and create new ones to assess the extent, status, and trends of HABs and associated toxins at the state, region, watershed and/or waterbody level.

- (3) Risk assessment for potential HAB events

Inform local and state monitoring programs through satellite imagery analysis and land use modeling.

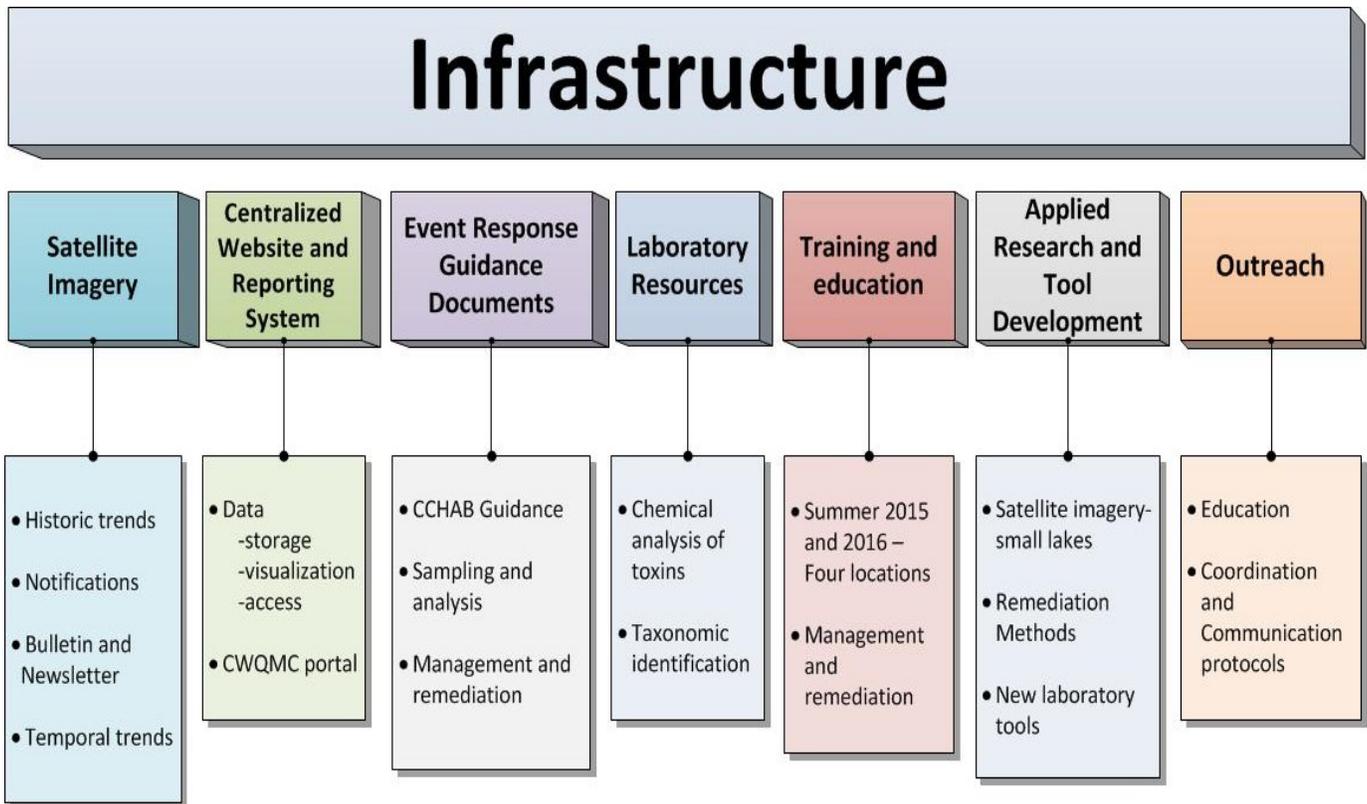
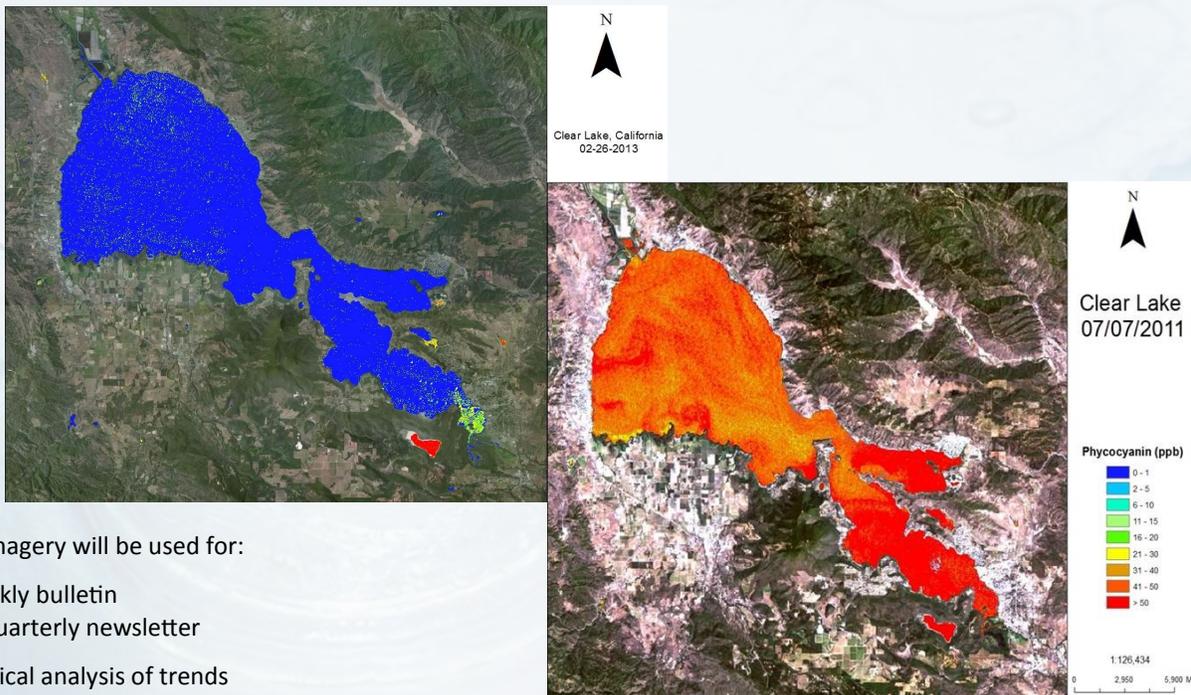


Figure 2. Strategy Infrastructure Requirements

SWAMP is funding much of the first five components of this infrastructure. A publicly available, centralized website is under development that will be part of the California CyanoHAB Portal in [My Water Quality](#) with the capacity for 1) data management and storage, 2) downloadable data access, 3) data visualization, and 4) a centralized information exchange for both reporting a bloom and for notifying a wide audience of a bloom advisory or HAB event.

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Satellite imagery will be used for:

- Biweekly bulletin and quarterly newsletter
- Historical analysis of trends
- Posting status of blooms on the website
- Notifying waterbody manager of blooms
- Informing status and trends monitoring

Guidance documents are an integral component of the infrastructure needed to support assessment and monitoring of HABs and will focus on event response actions, and management and remediation strategies. One of these documents, the CCHAB "Cyanobacteria in Recreational Water Bodies: Providing Voluntary Guidance about Harmful Algal Blooms, Their Monitoring, and Public Notification", is currently being [updated](#) by CCHAB, and will include posting of waterbodies where HABs are occurring and public notification guidance, as well as toxin thresholds to protect against exposure associated with recreational water uses. SWAMP is developing guidance on sampling and laboratory analysis that will include Standard Operating Procedures for field collection and laboratory methods, tiered approach to sampling and analysis, performance based quality assurance, and health and safety guidelines. SWAMP is seeking funding for development of the final guidance document, a Management and Remediation Guide that will summarize available strategies and approaches for addressing blooms.



Trainings on bloom identification and field and laboratory analysis will be offered in June of 2016 at CSU San Marcos (June 8), UC Davis (June 14), Humboldt State University (June 20), and UC Santa Cruz (June 23). Email [academy@waterboards.ca.gov](mailto:academy@waterboards.ca.gov) to request registration in one of these classes. A comprehensive training program is being developed focused on all aspects of the guidance documents and will be aimed at water resource managers, regulators, and agencies that conduct field sample collection and laboratory analysis.

There is need for research and tool development in several areas. We need access to higher resolution satellite imagery so that blooms in lakes smaller than 150 acres can be identified. We need to better understand and make use of new genetic tools and bloom pattern recognition technology for identifying cyanobacteria species and toxins. And we need a compendium of state of the art treatment technologies, to support management efforts at the local level.

Funds will continue to be made available for laboratory analysis, both through SWAMP and USEPA. These funds are to assist local water managers with toxin analysis in an urgent bloom situation.

The Public Outreach component, once funded, will be aimed at citizens, policymakers, doctors and veterinarians, and public agencies (such as municipalities, county health agencies, and park superintendents). There is a critical need to increase public awareness of HABs in order to increase recognition, public safety, and timely reporting of HABs and associated events.

The Strategy can be downloaded from the [Reports section of the SWAMP website](#).

