Peer-to-Peer Network
Recording and Presentation Sides

Available after the webinar on the IoW website and will be distributed via email to those registered for the webinar.
Q & A

Please submit your *content-related questions* in the webinar’s **Q&A box**. The moderator will read your question aloud.

*Administrative* questions can be placed in the **“Chat” box**.
Harmful Algal Blooms (HABs)

Michalak et al. 2013, *PNAS*


Photo: Ohio EPA

Photo: Richard Graulich/The Palm Beach Post via AP
Freshwater HAB Impacts

- Freshwater harmful algal blooms (FHABs) are on the rise in California and occurring year round
- Toxins from HABs can cause dermal, liver, kidney, and neurological illnesses
- Multiple beneficial uses are at risk
  - Difficult to quantify impacts to all uses
  - In many places, lack of monitoring data prevents management and mitigation actions
- High number of priority lakes and streams impacted
History of FHABs in California

1970s: Clear Lake blooms; Horne and Goldman
2000s: Klamath River reservoirs blooms reach record levels
2006: California Cyanobacteria and Harmful Algal Bloom (CCHAB) Network formed
2014: Toledo, OH water crisis
2016: CA FHAB Program begins, and formal tracking of FHABs
2019: Initiate FHAB Database Modernization Project
2020: Partner with IoW and The Commons
2021: Fulltime FHAB Program staff and resources in place
2022: Launch data framework for Tribes and community orgs
CA FHAB Program

- Since 2016, the FHAB Program’s purpose is to lead:
  - FHAB event response,
  - coordinate assessment, and
  - communication
- Focus on recreational exposures, and source water protections where recreational and drinking water uses overlap

- Assembly Bill 834 (2019) requires the program to significantly expand to conduct statewide monitoring, risk assessment, interagency consultation, and develop comprehensive data infrastructure and decision support tools
## FHAB Events in California

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<tbody>
<tr>
<td>Total reports</td>
<td>91</td>
<td>181</td>
<td>190</td>
<td>241</td>
<td>370</td>
<td>580+</td>
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### Maps for 2016 to 2021

- **2016**
- **2017**
- **2018**
- **2019**
- **2020**
- **2021**
### California HAB Tracking

<table>
<thead>
<tr>
<th>YEAR</th>
<th>HAB INCIDENT REPORTS RECEIVED</th>
<th>HAB-RELATED ILLNESS REPORTS RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>241</td>
<td>24</td>
</tr>
<tr>
<td>2020</td>
<td>370</td>
<td>29</td>
</tr>
<tr>
<td>2021</td>
<td>580+</td>
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</tbody>
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Pre-Labor Day Advisory Levels

Data published on Sept. 1, 2021

Advisory recommends children avoid contact with impacted, dogs do not contact water

Advisory recommends no swimming
-OR-
No swimming, no watercraft, and no fishing (i.e., closure)
CA FHAB Program Data System

Old Data Infrastructure
- Built in 2016 in response to the need to track reports of HABs
- Contains data from Bloom Reports
- Didn’t support addition of monitoring data
- Didn’t support addition of response activity data
- Didn’t allow for data submitted by external sources
- Inefficient and unable to fully support program response and communication needs
CA FHAB Program Data System

New Data Infrastructure

• Modernized in 2019 – 2021 to increase functionality and efficiency
• Developed using user-centered design
  • Users include FHAB Program Staff, response partners, Tribes and community organizations conducting monitoring
• Contains data from Bloom Reports, monitoring and response activities
• Enables external partners to easily submit monitoring information
CA FHAB Program Data System

Core Data Workflow

Phone Call → Staff Entry → Bloom Reporting Form → Bloom Report (BloomReportID) Cannot be Edited → Close Case

Email → Staff Entry → Bloom Reporting Form → Bloom Info (BloomReportID) Can be Edited → Staff/Partner Investigation

Regular State Field Sampling → Monitoring (monitoring_id) → Mitigation (mitigation_id)

Satellite Data → Monitoring (monitoring_id)

Non-State Data → Monitoring (monitoring_id)

Tribal Data → Monitoring (monitoring_id)

Volunteer/Community Group Data → Monitoring (monitoring_id)

Other Data TBD → Monitoring (monitoring_id)

Response (response_id) Dynamic Case Info/Action Log → Staff/Partner Follow Up → Response Needed?

Case Management (case_id) Static Case Info → Staff/Partner Follow Up

Field Results (sample_id) → Close Case

Lab Results (labsample_id)
Why invest in the collaborative process?

• Begin to operationalize equity into the FHAB Program and process
• Increase access to data from external partners
• Better understanding of
  • Perspectives of data contributors and users
  • Barriers to accessibility and use of data
  • Additional needs and potential uses for FHAB data
• Inclusion of Tribal and community partners → massive returns on investment regarding:
  • Improving data infrastructure, systems, and workflows
  • Growing the FHAB community of practice and partner network
Process Reflections

Challenges

• Confines and limitations of large and complex agency
• Limited internal technological resources and support
• Limited resources (budget, staff time)
• Getting one system to meet needs of diversity of users
• Figuring out how to automate inclusion of external data into internal data systems

Lessons Learned

• Set intention of the project early – and stick to it!
• Begin internal and external engagement & partnerships early
• Communicate often
• Take the time to do the dirty work
• Include time for engagement and iteration into planning and process – it will take more time than you think!
Next Steps

• Launch Modernized FHAB Database!
• Integrate data from The Commons Water Reporter App into internal data systems
• Develop communication resources and visualizations with new data
• Continue fostering existing partnerships
• Continue to grow network of partners and community of practice
• Continue listening and iterating as FHABs, communities, and the Program continue to evolve
Thank you!

Ashley Ward – Internet of Water
John Dawes – The Commons | Water Reporter

California Water Boards Team
Greg Gearheart – OIMA Deputy Director
Marisa Van Dyke – FHAB Program Manager
Carly Nielson – FHAB Program Manager
Anna Holder – Technical Lead

CyanoHAB.reports@waterboards.ca.gov