

Intro to the CA Freshwater and Estuarine Harmful Algal Bloom (FHAB) Program

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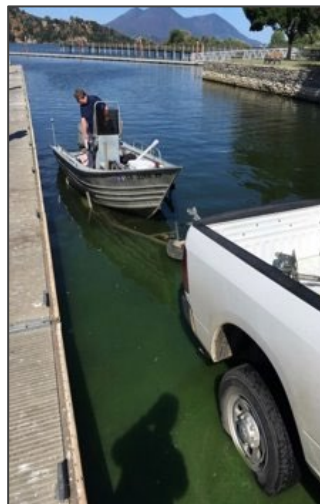
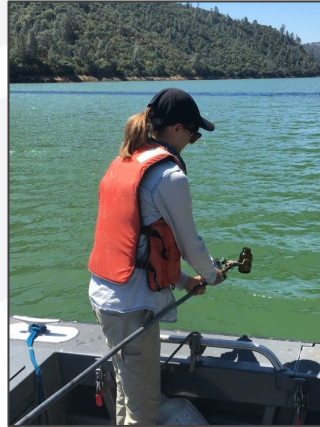
March 23, 2026

SWAMP Freshwater and Estuarine Harmful Algal Bloom (FHAB) Program

Program Objectives Mandated in [AB 834](#) (Quirk, 2019):

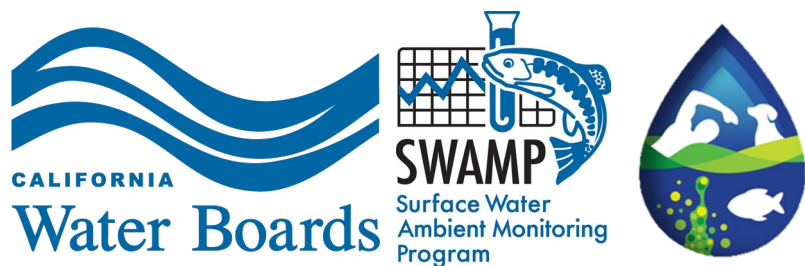
- Coordinate immediate and long-term event response, as well as communicate notifications and risks broadly
- Conduct monitoring and assessment at the state, regional, and water body scales to track status and trends and help identify at-risk waterbodies
- Conduct applied research and tool development
- Provide outreach, education, centralized website, and data management

Program focus is on exposures and source water protections where recreational, Tribal, and drinking water uses overlap



Regional HAB Coordinators

- Funded permanent staff **highlighted**
- About 1 staff per Region, most part-time
- Coordinates HABs event response, monitoring, communication



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See the [CA HABs Portal](#) for more contact information

California Water Boards



State of California

Water Quality Monitoring Council

About Us

Meetings

Workgroups ^

Report a Harmful Algal Bloom

Cyanobacteria Harmful Algal Bloom

Healthy Watersheds

Safe to Swim

Environmental Flows

Molecular Methods

Estuary Monitoring

Safe to Drink

Safe to Eat

Equity

Wetland Monitoring

Trash Monitoring

Post-Fire Water Quality

Water Quality Monitoring Collaboration Network



Monitoring, Analysis, and Communication



Identify Information Gaps and Emerging Methods



Collaboration and Community!



California Cyanobacteria and Harmful Algal Bloom (CCHAB) Network



The CCHAB Network aims to:

- **Create and Promote Statewide Monitoring** - To identify and address the causes and effects of cyanobacteria and HABs throughout California.
- **Collaborate** - Foster relationships and information sharing.
- **Efficiently Utilize Resources** - To address concerns and inform the public about HAB risks.



WATER QUALITY
MONITORING
COUNCIL

CCHAB Network Voluntary HAB Response Guidance

8-Step Process

(1) Surveillance & awareness

(2) Identify & report potential HAB or illness

(3) Interagency response coordination

(4) Field screening

(5) Sampling for lab analysis

(6) Posting advisory sign(s)

(7) Continue monitoring during advisory

(8) De-posting & routine monitoring

Link to [Voluntary HAB Response Guidance Webpage](#)

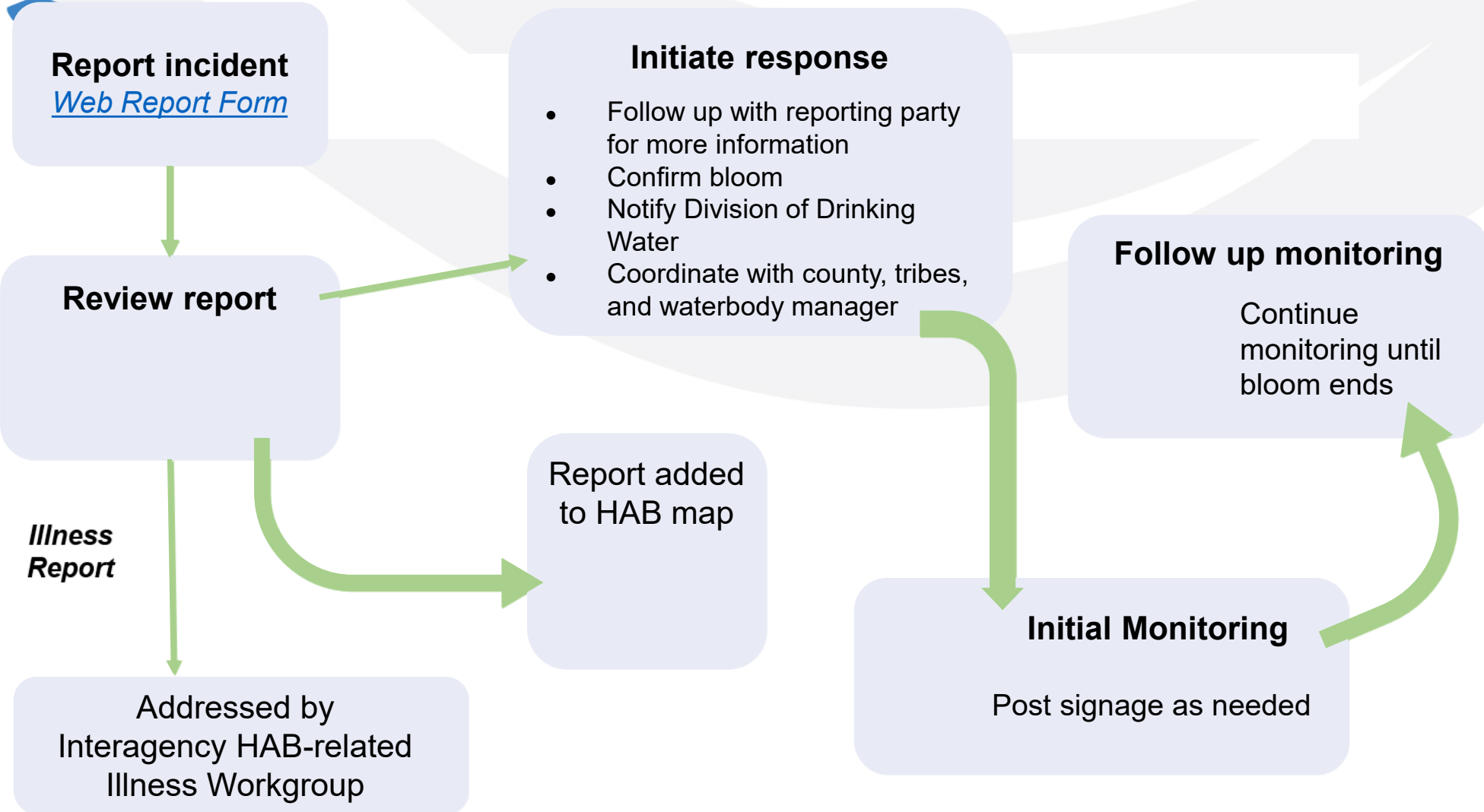
California Water Boards

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During this step:

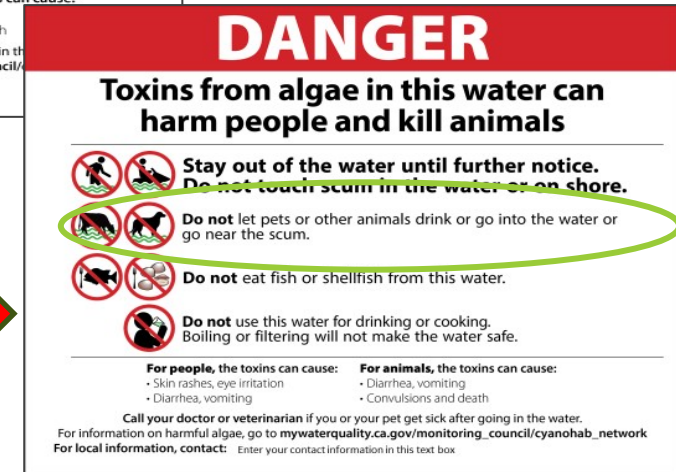
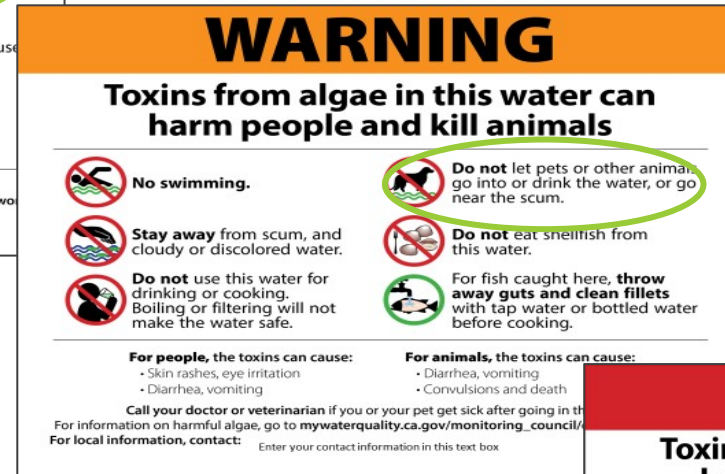
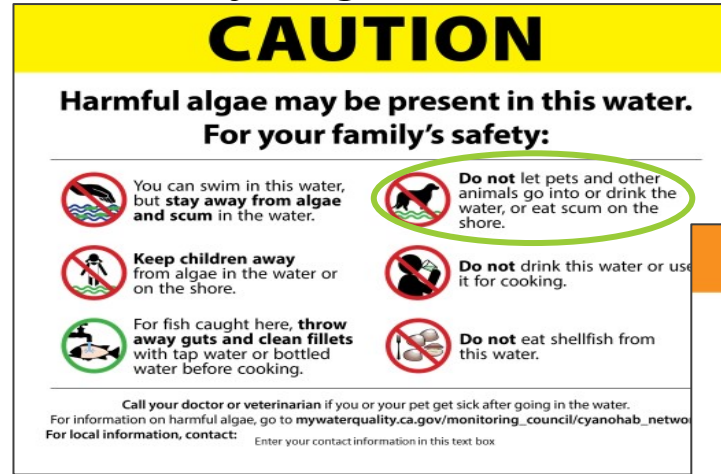
Interagency response begins!

Start here!



Planktonic HAB Signs

Advisory signs for when the HAB is floating in the water column



↑
Do not let pets and other animals go into or drink the water, or eat scum on shoreline

↑
Do not let pets or other animals go into or drink the water or go near scum



See the [California HAB Advisory Signs Webpage](#) for more details

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Planktonic: Domestic Animal Protection Trigger Levels

Lowest Advisory Level "Caution"

Total Microcystins: 0.8 ug/L

Based on 2012 OEHHA action levels for human recreational uses (more conservative than sub-chronic and acute water intake for dogs and cattle)

Anatoxin-a: detection (detection limit must be below 1 ug/L)

Precautionary approach in risk management as dogs and livestock are particularly susceptible to acute lethality

Cylindrospermopsin: 1 ug/L

Precautionary approach in risk management as this toxin has been linked to widespread outbreak of critical illness in humans from oral exposure

Basis of Trigger	Trigger (µg/L)	POD (µg/kg-d)	Total UF	RfD (µg/kg-d)	IR (L/d)	BW (kg)	Study
OEHHA's Action Level	0.8	6.4 ^b	1000	6 x 10 ⁻³	0.25	30.25	Heinze 1999
Modified OEHHA Action Level ^a	6	6.4 ^b	300 ^c	2 x 10 ⁻²	0.1	30.25	Heinze 1999
Risk Management: WHO Warning Level	20	--	--	--	--	--	--

Basis of Trigger	Trigger (µg/L)	POD (µg/kg-d)	Total UF	RfD (µg/kg-d)	IR (L/d)	BW (kg)	Study
Risk Management: Precautionary Approach	Detect	--	--	--	--	--	--
Risk Management: OHA's Guideline	20	100	1000	0.1	0.1	20	Fawell et al., 1999b
OEHHA's Action Level ^a	90	2,500	1000	2.5	0.25	30.25	Fawell et al., 1999b

Basis of Trigger	Trigger (µg/L)	POD (µg/kg-d)	Total UF	RfD (µg/kg-d)	IR (L/d)	BW (kg)	Study
Risk Management: Precautionary Approach	1	--	--	--	--	--	--
OEHHA's Action Level	4	33	1000	3.3E-02	0.25	30.25	Humpage and Falconer (2003)
Modified OEHHA Action Level ^a	17	33	600 ^b	5.5E-02	0.1	30.25	Humpage and Falconer (2003)

Benthic HAB Signs

Advisory signs for HABs that form mats that attach to substrate of the waterbody

- (1) Surveillance & awareness
- (2) Identify & report potential HAB or illness
- (3) Interagency response coordination
- (4) Field screening
- (5) Sampling for lab analysis
- (6) Posting advisory sign(s)
- (7) Continue monitoring during advisory
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CHECK FOR ALGAE	ESTÉ ALERTA DE LAS ALGAS
<p>Toxic algal mats may be present in this water</p> <p>Mats can be attached to the bottom, detached and floating, or washed up on shore</p>	<p>En esta agua puede haber esteras de algas tóxicas</p> <p>Las esteras de algas pueden estar pegadas al fondo del agua, arrancadas y flotando, o arrastradas a la orilla</p>
<p>If you see algal mats:</p> <p> Do NOT let children or adults touch, eat, or swallow any algal mats.</p> <p> Do NOT let dogs eat algal mats or drink from the water.</p>	<p>Si ve esteras de algas:</p> <p> NO permita que niños o adultos toquen, coman, o ingieran esteras de algas.</p> <p> NO permita que los perros coman esteras de algas o beban del agua</p>
<p>Call your doctor or veterinarian if you or your pet get sick after contacting or ingesting algae.</p> <p>For local information, contact: Date posted:</p> <p>For more information, visit/Para más información, visite:  https://tinyurl.com/FAQMats</p>	<p>Llame a su doctor o veterinario si usted o su mascota se enferman después de ingerir algas o de tener contacto con algas.</p> <p>Para información local, contacte a: Fecha del anuncio:</p> <p> Common examples/Ejemplos comunes</p>

TOXIC ALGAE ALERT	ALERTA DE ALGAS TÓXICAS
<p>Toxic algal mats ARE present in this water</p> <p>Mats can be attached to the bottom, detached and floating, or washed up on shore</p>	<p>En esta agua HAY esteras de algas tóxicas</p> <p>Las esteras de algas pueden estar pegadas al fondo del agua, arrancadas y flotando, o arrastradas a la orilla</p>
<p> Do NOT let children or adults touch, eat, or swallow any algal mats.</p> <p> Do NOT let dogs eat algal mats or drink from the water.</p>	<p> NO permita que niños o adultos toquen, coman, o ingieran esteras de algas.</p> <p> NO permita que los perros coman esteras de algas o beban del agua</p>
<p>Call your doctor or veterinarian immediately if you or your pet get sick after contacting or ingesting algae.</p> <p>For local information, contact: Date posted:</p> <p>For more information, visit/Para más información, visite:  https://tinyurl.com/FAQMats</p>	<p>Llame a su doctor o veterinario de inmediato si usted o su mascota se enferman después de ingerir algas o de tener contacto con algas.</p> <p>Para información local, contacte a: Fecha del anuncio:</p> <p> Common examples/Ejemplos comunes</p>



Do not let dogs eat algal mats or drink the water



See the [California HAB Advisory Signs Webpage](#) for more details

Benthic: Dog Protection Trigger Levels

Criteria	Check for Algae	Toxic Algae Alert
SPATTs	↓ SPATT concentrations	↑ SPATT concentrations
Spatial Mat Cover	Percent cover ≤ 15%	Percent Cover ≥ 15%
Cyanotoxins	Cyanotoxins <u>not</u> detected in benthic mat sample	Cyanotoxins detected in benthic mat sample

- Benthic signage applies to **ALL** cyanotoxin classes and/or spatial cover
- Check for algae signage – recommended for precautionary messaging and posted at sites not regularly monitored
- Toxic algae alert signage – triggered by detection of any cyanotoxin and/or ≥ 15% spatial cover (precautionary of potential toxins in mats)

Constraints with Advancing Domestic Animal Thresholds

- No beneficial water use in California that is specific to protection of dogs or other domestic animals
- No regulatory thresholds for cyanobacteria or their associated cyanotoxins in California specific to domestic animals
 - Current thresholds developed through CCHAB Network are non-regulatory and voluntary to implement
 - CCHAB Network thresholds grouped dogs with protection of public health



Progress Underway

Projects in Development

- Office of Environmental Health and Hazard Assessment (toxicologists) developing updated recommendations for planktonic HAB cyanotoxin action levels for water recreation and **dog oral exposure** (4 cyanotoxin classes)
- Development of regulatory cyanotoxin thresholds for California
- Updated action levels integrated into CCHAB Network voluntary guidance –or– current processes may become regulatory as part of the program of implementation



Reach out with Questions

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