

California Cyanobacteria Harmful Algal Bloom Network

November 20, 2024, 9:00 am to 12:00 pm

Virtual Meeting

Agenda (with minutes)

Join Zoom Meeting

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Meeting ID: 886 7984 1254 / Passcode: 402122

Dial by your location: +1 669 900 6833 US (San Jose)

9:00 am Welcome, Introductions, Announcements, etc. (5)

Presentation begins at 0:00 of meeting [RECORDING](#)

9:05 am West Coast Region Marine Mammal and Sea Turtle Stranding Network: Response, Rescue, Rehab, and Research, Justin Greenman, National Oceanic and Atmospheric Administration (30)

Presentation begins at 1:18 of meeting [RECORDING](#)

- What is a stranding:
 - o A live marine mammal or sea turtle that is incapable of returning to the water, natural habitat, or in need of medical attention. It is also any dead marine mammal or sea turtle in the water or onshore.
 - o There are 30+ network Organizations throughout the three States.
 - o Rehab facilities: disease detection and treatment, species-wide health monitoring, and human interactions
 - o Members include non-profits, universities, museums, aquariums commercial, state and federal partners.
- What does stranding do:
 - o Dead stranding response: documentation, external exams, internal exams (full necropsy)
 - o Dead response (human interaction): vessel collisions, entanglements, ingestion
 - o Live response (rescue): assessment, response, transport
 - o Live response (rehab and release): stabilization, rehabilitation, release to the wild
- Domoic Acid Outbreaks in SoCal:
 - o HAB driven offshore upwelling of nutrients
 - o There were many (1000+ live and dead) strandings of dolphins and sea lions during the month of June.
 - o This is now considered an expected event instead of an “unusual event”
- Insights from the Network:
 - o Each year there were early indicators
 - o May/June, started seeing some suspect DA cases

- First few cases are mild and no seizures or head weaving.
- Eating issues in rehab is an early indicator. Fecal and urine testing help to determine DA.
- After the first few cases, more animals start to come in. This increases over the next two weeks in July. During the height of the event all probable DA cases are tested to compare levels.
- DA response and Rehab
 - Hotline response to calls, responded assess whether rescue is warranted, rehab animals are given fluids, some new drug combos are being investigated.
 - Main tactic is flushing the animal's system with fluids
 - Limitations: time of day, driving distances, beach accessibility, size/sex of an animal, rehab patient space, personnel concerns (hotline, response, rehab), compassion fatigue, limited funds.
- Data collection:
 - Marine Mammal Health and Stranding Response Program (MMHSRP) Database
 - Standing data submitted after 30 days (all cetaceans and ESA species reported within 24 hours)
 - Rehab data submitted 30 days after the release (or death)
 - Future: Health map database will store more information on samples and results, include fields related to disease, incorporate environmental and health assessment data, and will allow for easy data visualization.
 - DA does not have its own field in MMHSRP database, those symptoms and test results are recorded in the comments.
 - Future: MMHSRP "group event" will be established to better identify historic cases and track future cases. It will also transfer over to the new HealthMap.
- Questions:
 - Christine: "Considering these events are becoming more common and how federal funding will be reduced in the future, what actions are being taken?"
 - Answer: Leads of some of the larger organizations are turning back to the city/county health for support. This has had some success. There are also some organizations that are not able to do this, so it is important to set expectations with the public/local authorities that these stranding network partners are not mandated/required to do this work. It's about finding new resources and setting expectations to the public.

9:35 am Freshwater Harmful Algal Bloom (FHAB) Program Updates/Regional Updates

- **Fall Regional Updates, Regional HAB Coordinators/Monitoring Entities, Regional Water Boards (50)**

Presentation begins at 35:00 of meeting [RECORDING](#)

- California has regional boards that each have a HAB Coordinator. They coordinate HAB event responses, monitoring, and communication.
- There is a HABs report map populated from any online report submitted to the waterboards. This form can take in suspected blooms from the public, confirmed blooms from monitoring agencies, and any concerns about illnesses. After validation, they are published.

- Statewide product being looked forward to includes the assessment approaches for freshwater HABs in inland waters using satellite remote sensing.
- Region 1:
 - o Routine monitoring
 - Klamath Basin: biweekly microcystin monitoring by the tribal consortium. There were less microcystin hits this year.
 - Big Lagoon: biweekly microcystin monitoring at the Big Lagoon Rancheria
 - Russian River: Biweekly cyanobacteria ID in Sanoma Water
 - o Pre-Holiday Assessments:
 - Only one advisory occurrence for Lake Pillsbury on Labor Day as well as one danger occurrence on post-holiday.
 - o On-Goings:
 - CCHAB Benthic Subcommittee: drafted tech memo on pilot studies evaluating tiered monitoring approach and another drafted memo describing derivation and use of SPATT and percent cover thresholds.
 - USEPA ROAR Project (2nd year): deployed SPATTs every 2 miles in the SF Eel River to determine spatial need for samplers.
 - University of Nevada Reno: spatial variation in anatoxin production within and across river networks in California.
- Region 2: Advisories in San Jose and San Mateo
- Region 3: No Updates
- Region 4: Advisories in some parks
- Region 5:
 - o Restore the Delta Partner Monitoring: sampling along the Stockton Waterfront and San Joaquin River.
 - o Pre-Holiday 2024: advisories for Eastman Lake, Clear Lake, Pine Mountain Lake and nearby Bass Pond.
- Region 6:
 - o 12 cautionary advisories, 1 warning, and 4 dangers.
- Region 7:
 - o Weist Lake: fish kill due to HABs
- Region 8:
 - o HAB assessments:
 - Big Bear Lake: 2 cautions and a danger
 - Lake Hemet: 1 caution
 - Lake Elsinore: 1 warning
- Region 9:
 - o Libby Lake, Heritage Park Pond, and Santee Lakes had cyanotoxins about trigger levels.
- DWR:
 - o Routine monitoring in the State Water Project is mostly done for the season, aside from a few reservoirs that have some toxin detection and are being sampled weekly.

10:25 am CCHAB Updates

- **Benthic Workgroup Update (5)**
- **Illness Workgroup Update (5)**

- **New CCHAB Sub-Committee Pitches (15)**

Presentation begins at 1:24:02 of meeting [RECORDING](#)

- Benthic Subcommittee update:
 - expanded goals of the benthic guidance to provide processes for immediate event response, follow up monitoring, and routine monitoring. Developed a “grab bag” approach to the guidance.
 - Indicators being considered: coverage, cyanobacteria, and toxins
 - Sending out documents for community review on Dec 6th and the response deadline is January 8th.
- Illness workgroup update: Had the opportunity to provide input to the CDC for modifying the report forms to make them more user friendly and improve the capture of details/impacts of HAB events.
- Sub-Committee pitches update:
 - Fish and wildlife workgroup: to assess and addressing the impacts of HABs on fish and wildlife. Would work to identify informational gaps to establish HAB trigger levels as a first step towards creating guidelines that regulatory agencies could use in project permitting.
 - Field instrument user group: where user experience of field instruments for HAB monitoring can be shared. Members could request demos of an instrument from the manufacturer and discuss applications among the other members.
 - Drones and aerial monitoring group: sub-committee would investigate drones and other forms of aerial technologies for monitoring FHABs in lakes and rivers. Group would review existing research for planktonics in lakes and reservoirs, emerging research for benthics in rivers (New Zealand), determine feasibility of using drones to estimate metrics, and evaluate if these would increase CA's ability to identify, monitor, and communicate public health risks.
- Mitigation sub-committee update: mitigation topics this year included lakes with frequent danger statuses on the half of cyanobacteria and aquatic weed control updates, water quality monitoring and results, and old/new mitigation.

10:50 am Break (10)

11:00 am CA Department of Fish and Wildlife FHAB Program Update: Recent Cases and Programmatic Highlights, Karen Odkins, CA Department of Fish and Wildlife (30)

Presentation begins at 1:52:25 of meeting [RECORDING](#)

- FHAB program coordinates event responses, monitoring and assessment, research, and outreach/education/data management.
- CDC's One Health Harmful Algal Bloom System (OHHABS): a voluntary reporting system that tracks individual illnesses likely caused by exposure to HAB. It collects data on humans, domestic animals, wild animals, and environmental data.
- Fish and wildlife cases can be uniquely difficult due to limited information, fish and wildlife are often chronically exposed to HABs, there are often contributing stressors, and case definitions are important.
- Notable 2024 HAB related fish kills:

- Lake San Antonio: Used for water storage, groundwater recharge, recreational opportunities. Reoccurring algal blooms present. During July, microcystins were found in low amounts, fish kill began as algal population began to grow. A large assessment was held where 4,511 individuals were counted and recorded. There was 235,088 estimated dead individual's total.
- East Walker River: Anoxic water release from Bridgeport Reservoir to East Walker River. Bridgeport Reservoir had active HABs present. Locals observed electric green water in river around the time of fish kills. CDFW staff surveyed the river from Bridgeport to NV boarder where they estimated 48,100 fish killed. This has been a repeating issue and CDFW staff is working to improve water quality of future releases.
- Lake Gregory: Dolichospermum and Planktonium bloom where 1,400 fish killed.
- Discovery Bay: 5 small fish kills reported this summer
- 8 cases still under investigation: mostly from Clear Lake (1 mammal case and 7 fish cases)
- Being Prepared: Bay Area Algal Blooms
 - Coordinating with an interagency Bay Area HAB response group, lead fish kill response efforts, lead community science response, lead CDFW response, provide communication/PR resources, and manage lab contract for HAB ID in water and toxin analysis in water and tissue.
- Monitoring on CDFW lands: worked with multiple CDFW Lands Teams on starting or continuing monitoring this year.
- Fishing in the City Sacramento Pilot Partnership: CDFW stocks fish in urban/suburban ponds around California, teaches in person "learn to fish" clinics, and stocks 7 Sac area ponds with trout, 3 of which have had recent fish kills.
 - New monitoring partnership will: prevent CDFW from stocking ponds with poor water quality, prevent human exposure to HABs at fishing clinics, and teach urban kids about water quality.

11:30 am Microcystin Exposure and Liver Lesions in Estuarine Sentinels in the Indian River Lagoon, Florida, Ami Krasner, Florida Institute of Technology (20)

Presentation begins at 2:23:24 of meeting [RECORDING](#)

- Microcystin (MC) is a biotoxin produced by blue-green algae found in primarily freshwater (but also brackish and saltwater) that can cause liver damage and tumor promotion in human and animals.
- Methods used to address data gaps: bottlenose dolphins and north American river otters samples are collected.
- MC exposure detections: post-mortem liver, feces, and respiratory swabs are extracted and the screened.
- Disease linked to MC exposure: liver histopathology reports were reviewed for lesions with necrosis, hepatocellular carcinoma, fatty liver, fibrosis, hemorrhage, and/or inflammation.
- Spike/recoveries performed on respiratory swabs and blow plates.
- Results for MC detection:
 - 193 animals were screened for MC

- 92% were recovered from the Northern Indian River and Lagoon
- 156 were dolphins where 6% of those were ELISA positive
- 37 otters had no detections
- Results for liver lesions:
 - 50% of dolphins were positive potentially consistent with MC exposure
 - 18% of otters were positive potentially consistent with MC exposure
 - Inflammation was the most common lesion between species.
- Conclusions:
 - ELISA+ may need another confirmation method or represent false+
 - Respiratory swabs could be a suitable MC screening tool in free-ranging dolphins, but further validation is required.
 - Liver lesions not linked to MC exposure
 - Other causes should be considered.
 - Continue MC screening is recommended
- Future HAB toxin goals:
 - Validate blow and blubber for analysis for 14 HAB toxins
 - Health assessments of Lake Okeechobee and IRL river otters, including HAB toxin analysis

11:50 am Wrap up and adjourn

Presentation ends at 2:40:24 of meeting [RECORDING](#)