12th U.S. Symposium on Harmful Algae

Welcome Reception
Sunday, October 27 | 7:00-9:00pm
Welcome to the 12th U.S. Symposium on Harmful Algae! Appetizers and cash bar will be available in the Casco Bay Exhibit Hall to kick off the event.

Social Event: Bowling @ Bayside Bowl: $35
Monday, October 28 | 6:00-9:00pm
Enjoy a fun night of bowling offsite with your fellow attendees. Admission includes light appetizers, shoe rentals, lounge access, and a cash bar.

Directions

Banquet, Awards Ceremony, & Halloween Party: $55
Thursday, October 31 | 6:30-10:30pm
Join us in the Casco Bay Exhibit Hall for a fun-filled night of tricks and treats at the Holiday Inn by the Bay. Eat, Drink, and Be Scary: buffet dinner, cash bar, and dancing will be available. Halloween costumes are strongly encouraged!

Special Session | Meet the Funders: A Quick Tour of Federal Funding Programs for HAB Science and Management
Tuesday, October 29 | 7:00-9:00pm
Sarah Pease, NOAA / HAB-ER; Anika Dzierlenga, NIH/NIEHS; Mandy Michalsen, USACE; Whitney King, EPA; Jennifer Graham, USGS; Taylor Armstrong, Ushcti; Maggie Broadwater, ECOHAB; Marc Suddleson, MERHAB; Felix Martinez, PCMHAB; Brittany King, SEAHAB; Tiffany Vance, IOOS; Betty Staugler, Sea Grant

Special Session | National HAB Observing Network (NHABON) - Sharing Progress and Seeking Community Input
Wednesday, October 29 | 7:00-9:00pm
Learn about NHABON’s efforts over the past five years and provide input on expanding the system to meet growing community needs.

Continental Breakfast (Monday - Friday) will be served from 7:30am-9:00am in the Casco Bay Exhibit Hall.
Lunch will be served to all attendees in the Casco Bay Exhibit Hall from 12:00 PM to 1:30 PM on Tuesday & Wednesday. For restaurant recommendations and local attractions in Portland, please visit the NEIW PCCC Registration Desk.
THANK YOU TO OUR EXHIBITORS
Welcome Reception
Casco Bay Exhibit Hall | Downstairs

Session Room: Lincoln

Workshop A: 10:30am - 11:30am
Development of a Regional Poison Control Center and Medical Toxicology Guideline for Harmful Algal Bloom Sample Collection and Testing Pathways: A Pilot Study
Brett Johnson, UMass Chan School of Medicine, UMass Medical Center
Pre-Registration Required

Session Room: Kennebec

Workshop B: 10:30am - 11:30am
Data to Information: A Look at the HABs Data Housed in the Water Quality Portal and Served through How’s My Waterway
Adam Griggs, US EPA
Pre-Registration Required

11:30
Break / Lunch
On Your Own

Session Room: York

Workshop C: 1:00pm - 3:00pm
Demonstrating a Novel Molecular Toolbox for Rapid, Sensitive Detection of Toxic Pseudo-nitzschia Species
Matthew Harke, GMGI; Kate Hubbard, FWC-FWRI; Pete Countway, Bigelow; Shelly Wanamaker, GMGI; Taylor Gibson, GMGI; Sydney Greenlee, Bigelow; Yida Gao, FWC-FWRI; Robin Sleith, Bigelow
Pre-Registration Required

Session Room: Kennebec

Workshop D: 1:00pm - 4:00pm
Track, Identify, Predict: An Introduction to 3 Complementary HAB Monitoring Systems
Savannah Judge, Yokogawa Fluid Imaging Technologies, Inc.; Chris Lee, AquaRealTime; Greg Ford, Phytoxigene
Pre-Registration Required

4:00pm - 6:15pm
NHC - IWG Meeting

6:15pm - 7:00pm
HARRNESS Meeting
| Time  | Session                                                                                           | Location          | Room          | Chairs                          | Presenters                                                                                      |
|-------|--------------------------------------------------------------------------------------------------|-------------------|--------------|--------------------------------|-----------------------------------------------------------------------------------------------|
| 7:30  | **Break**                                                                                        | Casco Bay Exhibit Hall | Downstairs   |                                |                                                                                               |
| 9:00  | Welcome Words with Susan Sullivan, NEIWPCC, & Debbie Bronk, Bigelow Laboratory for Ocean Sciences |                                  |              |                                |                                                                                               |
| 9:15  | **Blossoming Paradigms for Karenia brevis Bloom Initiation**                                     | One Bloom         |              |                                | Katherine Hubbard, Fish & Wildlife Research Institute / Florida FWCC                           |
|       | **Progression and Impacts of a 2022 HAB Event in San Francisco Bay**                              |                   |              |                                | David Senn, San Francisco Estuary Institute                                                     |
| 10:00 | **Break**                                                                                        |                   |              |                                |                                                                                               |
| 10:30 | **Engaging Communities & Stakeholders**                                                           | One Bloom         |              |                                |                                                                                               |
|       | **Session Room: One Bloom**                                                                     |                   |              |                                |                                                                                               |
|       | **Session Chairs: Holly Bowers & Stephanie Moore**                                              |                   |              |                                |                                                                                               |
|       | **Harmful Algal Bloom Events: Transitioning the Bering Strait Region with Teamwork**             |                   |              |                                | Gay Sheffield, UAF Marine Advisory Program / Alaska Sea Grant                                  |
| 10:45 | **Interannual Variability in Alexandrium catenella Bloom Dynamics in Pacific Arctic Waters**      |                   |              |                                | Evangeline Fachon, Woods Hole Oceanographic Institution                                        |
|       | **Speed Talks**                                                                                  |                   |              |                                |                                                                                               |
| 11:00 | **All Hands on Deck: Collaborative Solutions to Recurring Cyanobacteria Blooms on Damariscotta Lake** |                   |              |                                | Robin Sleith, Bigelow Laboratory for Ocean Sciences                                            |
| 11:15 | **A Stakeholder-Driven Communication and Engagement Strategy to Facilitate the Future Transition of a Biological HAB Control Technology to End-Users** |                   |              |                                | Alexandria Hounshell, NOAA NCCOS                                                                |
| 11:30 | **Harnessing Nanobubble Technology for Efficient Ozone Treatment of Harmful Algal Blooms in Aquatic Environments** |                   |              |                                | Jesús Morón-López, NEWT Center / Arizona State University                                       |
|       | **Unlocking the Potential for Ozone Nanobubble Technology to Control Harmful Algal Blooms**       |                   |              |                                | Heather Raymond, The Ohio State University                                                     |
|       | **Speed Talks**                                                                                  |                   |              |                                |                                                                                               |
| 9:15  | **In Situ Impacts of Modified Clay on Karenia brevis Cell Concentrations, Water Quality, and Microbial Communities** |                   |              |                                | John Kristoffer Andres, University of Central Florida                                         |
| 10:45 | **Flocculation and Sedimentation for Control of HABs using Modified Biochar**                     |                   |              |                                | Vincent Lovko, Mote Marine Laboratory                                                          |
| 11:00 | **Unlocking the Potential for Ozone Nanobubble Technology to Control Harmful Algal Blooms**       |                   |              |                                |                                                                                               |
| 11:15 | **A Stakeholder-Driven Communication and Engagement Strategy to Facilitate the Future Transition of a Biological HAB Control Technology to End-Users** |                   |              |                                |                                                                                               |
| 11:30 | **Harnessing Nanobubble Technology for Efficient Ozone Treatment of Harmful Algal Blooms in Aquatic Environments** |                   |              |                                |                                                                                               |
|       | **Unlocking the Potential for Ozone Nanobubble Technology to Control Harmful Algal Blooms**       |                   |              |                                |                                                                                               |
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| 11:30 | **Harnessing Nanobubble Technology for Efficient Ozone Treatment of Harmful Algal Blooms in Aquatic Environments** |                   |              |                                |                                                                                               |

Updated 10.27.2024
### Engaging Communities & Stakeholders (continued)
**Session Room: One Bloom**  
Session Chairs: Holly Bowers & Stephanie Moore

| Time  | Activities                                                                 |
|-------|---------------------------------------------------------------------------|
| 11:45 | **Speed Talks**                                                            |
|       | Margaret Mulholland, Old Dominion University                               |
|       | Barbara Kirkpatrick, NOAA GCOOS / TAMU                                    |
|       | Mei Yin Wu, Montclair State University                                     |
| 12:00 | Lunch On Your Own                                                          |
| 1:30  | **Emerging Toxins & Species**                                              |
|       | **Session Room: One Bloom**                                                |
|       | **Session Chairs: Jonathan Deeds & Pearse McCarron**                       |
|       | **Saxitoxins in Lake Erie**                                               |
|       | Justin Chaffin, The Ohio State University                                  |
| 1:45  | **The Chemical Biology and Biosynthesis of Highly Potent**                 |
|       | **Microcystins Containing Homologated Amino Acid Residues**                |
|       | Matthew Bertin, Case Western Reserve University                            |
| 2:00  | **Degradation of Emerging Phycotoxins in Response to Environmental Variables**|
|       | **and Implications for Management**                                       |
|       | Joshua Garber, Virginia Institute of Marine Science                        |
| 2:15  | **Speed Talks**                                                            |
|       | Leah Anne Gibala-Smith, Old Dominion University                           |
|       | Jingrang Lu, US EPA                                                        |
|       | Abby Webster, SUNY ESF                                                     |
| 2:30  | Break                                                                     |

### HAB Management, Mitigation, & Control I (continued)
**Session Room: HAB**  
Session Chairs: Ellen Preece & Megan Skinner

| Time  | Activities                                                                 |
|-------|---------------------------------------------------------------------------|
| 11:45 | **Speed Talks**                                                            |
|       | Kelley Breeden, Mote Marine Laboratory                                     |
|       | Victoria Devillier, Mote Marine Laboratory                               |
|       | Ernest Neafsey, LG Sonic US                                               |
| 12:00 | Lunch On Your Own                                                          |
| 1:30  | **Environmental Drivers of Cyanotoxin Accumulation in Louisiana Estuaries and Oysters**|
|       | Jennifer Raabe, University of Louisiana                                   |
| 1:45  | **Shellfish as Sentinel Organisms for Monitoring Microcystins across the Freshwater to Marine Continuum**|
|       | Ellen Preece, California Department of Water Resources                     |
| 2:00  | **Microcystin and Domoic Acid Presence in Crassostrea virginica in North Carolina Coastal Waters**|
|       | Astrid Schnetzer, North Carolina State University                         |
| 2:15  | **Speed Talks**                                                            |
|       | Marcella Kretz Wallace, Stony Brook University                           |
|       | Julia Sweet, University of Louisiana                                     |
| 2:30  | Break                                                                     |
| Time    | Bloom Dynamics & Drivers I |
|---------|-----------------------------|
| 3:00    | Alleviation of Phytoplankton Light Limitation by Salinity Intrusion in a CDOM Rich, Oligohaline Estuary  
Mingying Chuo, University of North Carolina |
| 3:15    | Intensification and Spread of Inshore Alexandrium catenella Blooms in Cape Cod, Massachusetts  
Michael Brosnahan, Woods Hole Oceanographic Institution |
| 3:30    | New Insights into the Nature of Karenia brevis Blooms: Periodicity in Cell Concentration and How Red Tides are Different from Ordinary Blooms  
James Culter, Mote Marine Laboratory |
| 3:45    | Phased Mating and Division Dynamics of Dinophysis acuminata in Culture and in Salt Pond, MA  
Serena Sung-Clarke, Massachusetts Institute of Technology, Woods Hole Oceanographic Institution |

| Time    | Applications of Emerging Technologies I |
|---------|-----------------------------------------|
| 3:00    | Advancement of Un-Crewed Systems to Improve our Understanding of Cyanobacteria HABs: Development of the Surface Harmful Algae Research Craft (SHARC)  
Benjamin Downing, NOAA |
| 3:15    | Underway Detection of Particulate Microcystins in Lake Erie by Surface Plasmon Resonance Sensor Onboard an Uncrewed Surface Vehicle  
Greg Doucette, NOAA NOS / NCCOS |
| 3:30    | Retrievable 3D Printed Structures for Advanced Photocatalysis to Degrade Microcystins  
Alan Kennedy, US ACE |
| 3:45    | Application of Solid Phase Adsorption Toxin Tracking (SPATT) for Tracking Karenia brevis-Derived Brevetoxins in Southwest Florida  
Kelsey Marvin, Fish & Wildlife Research Institute / Florida FWCC |

| Time    | Speed Talks |
|---------|-------------|
| 3:45    | Madison Bennett, Florida Atlantic University  
Gregory Boyer, SUNY ESF  
Peter Countway, Bigelow Laboratory for Ocean Sciences |
| 3:30    | William Sanderson, Los Alamos National Laboratory  
Aimée Henderson, US EPA  
Rebecca Gorney, USGS |

| Time    | Social Event: Bowling @ Bayside Bowl |
|---------|-------------------------------------|
| 6:00    | Pre-Registration Required |
| 9:00    | |

**Update:** 10.27.2024
| Time  | Session                                                        |
|-------|---------------------------------------------------------------|
| 7:30  | Breakfast                                                     |
| 9:00  | HAB Town Hall                                                 |
| 10:30 | Break                                                        |
| 11:00 | Predictive Modeling - Freshwater                             |
|       | Session Chairs: Keith Bouma-Gregson & Andrea Jaegge          |
| 11:00 | **Applying Paradigms to Paradoxes: Phytoplankton Community** |
|       | **Analysis to Improve Prediction of Cyanobacterial Dynamics** |
|       | Michael J. Paul, US EPA                                       |
| 11:15 | National Forecasting of Cyanobacterial Harmful Algal Bloom    |
|       | **Events: a Bayesian Spatiotemporal Model Evaluation**        |
|       | Kate Meyers, US EPA ORISE Fellow                              |
| 11:30 | Speed Talks                                                  |
|       | Ronaldo Lopez, Virginia Commonwealth University               |
|       | Jennifer Murphy, USGS                                        |
|       | Caroline Owens, CSS Inc.                                     |
| 11:45 | Speed Talks                                                  |
|       | Joel Allen, US EPA                                            |
|       | Keith Loftin, USGS                                            |
|       | Emily Summers, US ACE                                         |
| 12:00 | Lunch                                                        |

**Updated 10.27.2024**
| Time  | Session Room: One Bloom | Session Room: HAB |
|-------|-------------------------|-------------------|
| 1:30  | The Effects of Long-Term Laboratory Cultivation on Cyanobacteria and their Associated Phycosphere | Investigating Solar-Powered Humic Acid Dispersion Equipment (SHADE) for Prevention and Mitigation of Harmful Algal Blooms |
|       | Katelyn McKindles, Baylor University | Andy Krieter, US ACE CERL |
| 1:45  | Karenia brevis and its Interaction with Viruses, Bacteria and Other Phytoplankton at Different Temperatures: Finding the Sweet Spot for Growth in Challenging Environments | Algal Separation using Recoverable Magnetic Particles under a Tunable Magnetic Field |
|       | Pat Glibert, University of Maryland | Lili Li, New Jersey Institute of Technology |
| 2:00  | A Metagenomic Search for Marine Viruses that Influence the Harmful Bloom Former Karenia brevis | Speed Talks |
|       | Anne Booker, Bigelow Laboratory | Mary Kate Rinderle, University of North Carolina Yihan Zhang, New Jersey Institute of Technology Victoria Vossler, Mote Marine Laboratory |
| 2:15  | Speed Talks |  |
|       | Kasey Benesh, US EPA ORISE Fellow |  |
|       | Forrest Lefler, University of Florida |  |
|       | Lilly Blume, Virginia Institute of Marine Science |  |
| 2:30  | Break |  |
| 3:00  | Predictive Modeling - Marine | Bloom Dynamics & Drivers II |
|       | Session Room: One Bloom | Session Room: HAB |
|       | Session Chairs: Michael Brosnahan & TBD | Session Chairs: Dail Laughinghouse & David Berthold |
| 3:00  | Controls on Alexandrium catenella variability in the Gulf of Maine from a 25-year hindcast | Making the Watershed Connection: the Influence of Cyanobacteria, Sediment, and Nutrient Loading and Hydrology on Cyanobacterial Bloom Initiation in the Nearshore Environment |
|       | David Ralston, Woods Hole Oceanographic Institute | Carrie Givens, USGS |
| 3:15  | The Value of Harmful Algal Bloom Forecasts in the Pacific Northwest | Dynamics and Drivers of Two Cyanotoxin-Producing Blooms in the Largest Drinking Water Reservoir in Southern California |
|       | Di Jin, Woods Hole Oceanographic Institute | Margaret Spoo-Chupka, Metropolitan Water District of Southern California |
| Time  | Session                                                   | Location                          | Chair(s)                                                                 |
|-------|-----------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------|
| 3:30  | Short-Term Forecast of *Karenia brevis* Trajectory on the West Florida Shelf |                                    | Yonggang Liu, University of South Florida                                  |
| 3:45  | Spatial and Temporal Analysis of Algal Bloom Occurrence in the Chesapeake and Delaware Bays using Historical Remote Sensing Data |                                    | Natalie Hall, USGS                                                         |
| 4:00  | Evolution of Sargassum Forecasting Products for Puerto Rico and the Virgin Islands: From Regional Tracking to High-Resolution Modeling |                                    | Haibo Xu, University of South Florida                                      |
| 4:15  | Speed Talks                                              |                                    | Kari St. Laurent, NOAA / NOS / NCCOS Marco Sandoval Belmar, UCLA           |
| 4:30  | Poster Session                                            |                                    | Casco Bay Exhibit Hall | Downstairs                                                                 |
| 7:00  | Special Session: Meet the Funders: A Quick Tour of Federal Funding Programs for HAB Science and Management |                                    | Session Room: HAB                                                          |
| 7:00 - 9:00 | Bloom Dynamics & Drivers II (continued)                  |                                    |                                            | Session Room: HAB                                                          |
|       | Effects of Nutrient Manipulations on Lake Erie Microbial Community Composition and Cyanobacterial Toxigenicity |                                    | Riley Ralph, Bowling Green State University                                |
|       | Nitrogen Fixation within Microcystis Colonies Supports Harmful Cyanobacterial Blooms in North American Lakes |                                    | Christopher Gobler, Stony Brook University                                 |
|       | Exploration of Short-Term, High-Intensity Disturbances on Cyanobacteria HABs in Lake Erie |                                    | Reagan Errera, NOAA GLERL                                                  |
|       | Uncovering Environmental Drivers that Influence the Colony Size of the Cyanobacteria, *Microcystis* |                                    | Ronojoy Hem, Stony Brook University                                        |
| Time   | Session Room: One Bloom | Session Chairs: Maryann Dugan & Richard Friesner |
|--------|-------------------------|--------------------------------------------------|
| 9:00   | Tracking of Heterotrophic Feeding by the Dinoflagellate, Dinophysis, Reveals the Role of Differing Mesodinium Populations in Shaping Harmful Algal Bloom Dynamics. & Increasing Harmful Algal Bloom Toxin Presence in a Warming Arctic: A Synthesis of Five Years (2019-2023) of Sampling.  
Megan Ladds, Stony Brook University  
Kathi Lefebvre, NOAA / Northwest Fisheries Science Center |
| 10:00  | Break                   |
| 10:30  | Public Health           |
|        | Session Room: One Bloom | Session Chairs: Matt Gribble & Taylor Armstrong |
| 10:45  | Exploring Connections Between Social Context and Ciguatera Fish Poisoning in Kiribati  
Christopher Knight, Stanford University |
| 11:00  | Speed Talks            |
|        | Christopher Loeffler, German Federal Institute for Risk Assessment  
Lauren Cortez French, University of Washington  
Megan Fleming, Mississippi Department of Marine Resources |
| 11:15  | Cyanotoxins in Upper Klamath Lake, OR  
Megan Skinner, US FWS |
| 11:30  | The Measurement and Quantification of CHAB Toxins in Lake Spray Aerosols  
Jacob Flanzenbaum, Stony Brook University |
| 11:15  | Investigation of Benthic Cyanobacterial Accumulations In a Stormwater Pond Network  
Courtney Kapczynski, University of North Carolina Wilmington |
| 11:30  | Microcoleus as Toxic Benthic Mats on Different Bottom Substrates: Ecophysiology and Distribution  
Abeer Sohrab, The University of Utah |
| 11:15  | An Intensive Monitoring Program to Understand and Forecast Toxigenic Cyanobacterial Blooms and Non-Toxigenic, Nuisance Algal Blooms in the Upper Shenandoah River Basin, Virginia...  
Gordon Selckmann, River Basin Commission |
| 11:30  | Identification of Toxigenic Benthic Cyanobacteria in the California Sierra Nevada Mountains  
Keith Bouma-Gregson, USGS |
| 11:30  | The Effect of Hurricane Disturbance on Benthic Microalgal Communities in the Northern Gulf of Mexico  
Sabrina Heiser, University of Texas |
# Implementing Imaging FlowCytobots Within Florida's Harmful Algal Bloom Observation Network to Evaluate Karenia brevis Bloom Dynamics and Estimate In Situ Growth Rates in Highly Dynamic Nearshore Environments

**Eric Muhlbach, Florida FWCC**

1:30

## Break

1:45

## Dissolved Metabolite Biomarkers as Predictors of Harmful Algal Bloom Initiation

**Gabriella Chebli, Georgia Institute of Technology**

2:00

## Investigating Phytoplankton Community Dynamics During the August 2022 Heterosigma akashiwo Bloom in San Francisco Bay, California

**Schuyler Nardelli, USGS**

2:15

## Speed Talks

**Tessa Rock, University of Louisiana**

**Stephanie Anderson, US EPA**

**Kasia Kenitz, Scripps Institution of Oceanography / University of California**

2:30

## Break

2:30

## Lunch

_Casco Bay Exhibit Hall | Downstairs_

12:00

## Biotoxins & Impacts on Organisms I

**Session Room: HAB**

**Session Chairs: Maggie Broadwater & Erica Ombres**

3:00

## Comparison of Two Invertebrates Sensitivity to Algaecide and Cyanotoxin at Elevated Surface Water Temperatures

**Sarah Goodrich, University of Cincinnati**

3:15

## The Effects of Harmful Algae and Ocean Acidification on Larval Bivalve Survival

**Adrienne Tracy, Stony Brook University**

3:30

## Uncovering Patterns and Mechanisms of Paralytic Shellfish Toxicity in Alaska’s Geoduck Clam Fishery

**Courtney Hart, Port Gamble S’Klallam Tribe**

3:45

## Speed Talks

**Chelsea Kovalcsik, University of Alaska**

**Patrick Charapata, NOAA Northwest Fisheries Science Center**

4:00

## Speed Talks

**David Beaudoin, Woods Hole Oceanographic Institute**

**Clayton Bennett, University of South Alabama**

**Lydia Davis, University of North Carolina**

4:15

## Speed Talks

**Daniela Maizel, University of Miami**

**Laila Abdullah, Roskamp Institute**

**Robyn Espinosa, CDC**

4:30

## Speed Talks

**David Beaudoin, Woods Hole Oceanographic Institute**

**Clayton Bennett, University of South Alabama**

**Lydia Davis, University of North Carolina**
| Time  | Session Room: One Bloom | Session Room: HAB |
|-------|-------------------------|-------------------|
| 3:00  | Combining Nanopore Sequencing with qPCR for Accurate and Site-Specific Monitoring of Harmful Cyanobacterial Genera in Freshwater Field Samples  
Wendy Strangman, University of North Carolina | Targeted Toxin Analysis in Recreational Water Sources... The More you Look, the More you May Find  
Stuart Oehrle, Northern Kentucky University |
| 3:15  | Beyond Microcystins: Development of Analytical Standards for Major Classes of Bioactive Cyanobacterial Peptides using Quantitative NMR, 15N Labeling, and LC-UV-MS/MS  
Anna Antrim, US ACE ERDC | Speed Talks  
Juliette Smith, Virginia Institute of Marine Science  
Nour Ayache, Virginia Institute of Marine Science  
Ami Krasner, Florida Institute of Technology |
| 3:30  | What Nucleic Acid Molecules Does a Sandwich Hybridization Assay Measure in Cyanobacterial Cell Homogenates?  
Anna Antrim, US ACE ERDC | Biomarker Discovery in Red Tide (Karenia brevis) exposed Florida Manatees (Trichechus manatus latirostris) for definitive diagnoses by Bottom Up, Quantitative, MS Based Proteomics  
Kelly Rein, Florida Gulf Coast University |
| 3:45  | Regional and Seasonal Analysis of Alexandrium catenella rDNA Copy Number Content for qPCR Assay Quantification of Cysts  
Steve Kibler, NOAA | The Potential Role of Dissolved Domoic Acid in Chronic Toxicity of Bivalves: Implications for Human and Wildlife Health  
Raphael Kudela, University of California |
| 4:00  | Anti-Biofouling Strategies for Solid Phase Adsorption Toxin Tracking (SPATT)  
Andrea Jaegge, USGS | Drivers of Small Scale Variability in Paralytic Shellfish Toxin Concentrations in Butter Clams (Saxidomus gigantea) in Southeast Alaska  
John Harley, University of Alaska |
| 4:15  | Speed Talks  
Christina Mikulski, NOAA / NOS / NCCOS  
Jingping Xie, Beacon Analytical Systems Inc. | HABs and Ocean Acidification in Long Island Waters: Determining the Relationship and Impact  
Mairead Farrell, Stony Brook University |
| 4:30  | Poster Session  
Casco Bay Exhibit Hall | |
| 7:00  | Special Session: National HAB Observing Network (NHABON) - Sharing Progress and Seeking Community Input  
Session Room: HAB |
| Time  | Session Room: One Bloom | Session Room: One Bloom | Session Room: One Bloom | Session Room: One Bloom |
|-------|-------------------------|-------------------------|-------------------------|-------------------------|
| 7:30  | Breakfast               | Breakfast               | Breakfast               | Breakfast               |
| 9:00  | U.S. EPA Applied Research on Methods for Harmful Benthic Cyanobacteria Risk Assessment & Benthic Macroinvertebrate Community Composition Within and Surrounding Benthic Anatoxin-Producing Cyanobacterial (Microcoelus) Mats in a Northern California River, USA  
Syed Lal Badshah, Indiana University & Joanna Blaszczak, University of Nevada | Ecophysiology & Biogeochemistry  
Session Chairs: Richard Friesner & Devon Case | HAB Management, Mitigation, & Control III  
Session Chairs: Marc Suddleson & Mindy Richlen | HAB Management, Mitigation, & Control III  
Session Chairs: Marc Suddleson & Mindy Richlen |
| 10:00 | Break                   | Break                   | Break                   | Break                   |
| 10:30 | CO2 Deprivation Delayed the Production of Cyanophages and Lysis of Infected Cyanobacteria  
Syed Lal Badshah, Indiana University | A Synthetic and Transparent Clay Removes Microcystis aeruginosa Efficiently  
Yuan Li, University of Minnesota | Are we Missing the Airborne Toxic Fraction of Coastal Dinoflagellate Blooms in California?  
Clarissa Anderson, Scripps Institution of Oceanography | Targeted and Controlled Release of Algaecide to Harmful Algal Blooms  
Vijay John, Tulane University |
| 10:45 | Are we Missing the Airborne Toxic Fraction of Coastal Dinoflagellate Blooms in California?  
Clarissa Anderson, Scripps Institution of Oceanography | A Synthetic and Transparent Clay Removes Microcystis aeruginosa Efficiently  
Yuan Li, University of Minnesota | Targeted and Controlled Release of Algaecide to Harmful Algal Blooms  
Vijay John, Tulane University | Targeted and Controlled Release of Algaecide to Harmful Algal Blooms  
Vijay John, Tulane University |
| 11:00 | A Dinoflagellate Exploits Toxins to Accumulate Guanine  
Allen Place, UMCES @ IMET | CyanoHAB Remediation of Two New Hampshire Lakes using Aluminum Compounds  
David Neils, New Hampshire Department of Environmental Services | The Monitoring and Management of Cyanobacteria Over the Winter and Early Spring Seasons  
Fred Lubnow, Princeton Hydro LLC | The Monitoring and Management of Cyanobacteria Over the Winter and Early Spring Seasons  
Fred Lubnow, Princeton Hydro LLC |
| 11:15 | Karenia brevis and Pyrodinium bahamense Utilization of Dissolved Organic Matter in Urban Stormwater Runoff and Rainfall Entering Tampa Bay, Florida  
Amanda Muni-Morgan, University of South Florida | CyanoHAB Remediation of Two New Hampshire Lakes using Aluminum Compounds  
David Neils, New Hampshire Department of Environmental Services | The Monitoring and Management of Cyanobacteria Over the Winter and Early Spring Seasons  
Fred Lubnow, Princeton Hydro LLC | The Monitoring and Management of Cyanobacteria Over the Winter and Early Spring Seasons  
Fred Lubnow, Princeton Hydro LLC |
| 11:30 | Nutrient and Carbonate Chemistry Patterns Associated with Karenia brevis Blooms in Three West Florida Estuaries 2020-2023  
Jessica Frankle, Mote Marine Laboratory | CyanoHAB Remediation of Two New Hampshire Lakes using Aluminum Compounds  
David Neils, New Hampshire Department of Environmental Services | HAB Management and Control in Dredged Material Containment Facilities and Beneficial Use ecosystem restoration sites in the Chesapeake Bay Region  
Colleen McMullen & Lisa Barry, Maryland Environmental Service | HAB Management and Control in Dredged Material Containment Facilities and Beneficial Use ecosystem restoration sites in the Chesapeake Bay Region  
Colleen McMullen & Lisa Barry, Maryland Environmental Service |
| Time  | Session Room | Session Chairs                  | Topic                                                                 | Presenter                                    |
|-------|--------------|---------------------------------|----------------------------------------------------------------------|----------------------------------------------|
| 11:45 | One Bloom    | Sabina Gifford & Rebecca Gorney | Growth-Limiting Ammonium Concentrations in Productive North Carolina  | Wayne Litaker, CSS Inc.                      |
|       |              |                                 | USA Estuaries: Implications for HAB Ecology                           |                                              |
| 12:00 |              |                                 | Lunch On Your Own                                                      |                                              |
| 1:30  | One Bloom    | Richard Friesner & Devon Case   | Genetic Community Composition and Cyanotoxin Analysis in Coastal      | Diederik Boonman Morales, Monmouth University|
|       |              |                                 | Lakes of New Jersey                                                  |                                              |
| 1:45  | One Bloom    | Sabina Gifford & Rebecca Gorney | Single Nuclei RNA-Seqencing Reveals Microcystin-LR Induces Liver Cell| John Clarke, Washington State University     |
|       |              |                                 | Type-Specific Effects in Healthy Versus Metabolic Dysfunction-        |                                              |
|       |              |                                 | Associated Steatotic Liver Disease Mice                               |                                              |
| 2:00  | One Bloom    | Sabina Gifford & Rebecca Gorney | Genetic Diagnostics for Rapid Detection of Domoic Acid-Producing     | Taylor Gibson, Gloucester Marine Genomics    |
|       |              |                                 | Pseudo-nitzschia Species                                             | Institute                                    |
| 2:15  | One Bloom    | Sabina Gifford & Rebecca Gorney | The Development and Challenges of Developing a qPCR Assay for the    | Mark Van Asten, Phytoxigene, Inc.           |
|       |              |                                 | Detection of Anatoxin and Guanitoxin Producing Cyanobacteria in      |                                              |
|       |              |                                 | Environmental Samples                                                |                                              |
| 2:30  |              |                                 | Break                                                               |                                              |

| Time  | Session Room | Session Chairs                  | Topic                                                                 | Presenter                                    |
|-------|--------------|---------------------------------|----------------------------------------------------------------------|----------------------------------------------|
| 1:30  | HAB          | Mindy Richlen & Marc Suddleson   | A Novel Immobilized Algicide for Controlling Red Tide: Transitioning | Lynn Wilking, CSS Inc.                      |
|       |              |                                 | Research to the Field                                               |                                              |
| 1:45  | HAB          | Mindy Richlen & Marc Suddleson   | Composite Red Tide Vulnerability Index (CRTVI): Assessing and        | Roberto Koeneke, University of Florida       |
|       |              |                                 | Communicating Vulnerability of Coastal Communities to Red            |                                              |
|       |              |                                 | Tide in Florida                                                    |                                              |
| 2:00  | HAB          | Mindy Richlen & Marc Suddleson   | Estimating Economic Damages of Water Quality Warnings in the Great   | Frank Lupi, Michigan State University       |
|       |              |                                 | Lakes                                                                |                                              |
| 2:15  | HAB          | Mindy Richlen & Marc Suddleson   | Economics of Mitigation Strategies for Harmful Algal Blooms in the   | David Kling, Oregon State University        |
|       |              |                                 | U.S. West Coast Dungeness Crab Fishery                              |                                              |
| Time  | Session Room: One Bloom | Session Chairs: Nour Ayache | Session Room: HAB | Session Chairs: Jayme Smith |
|-------|------------------------|-------------------------------|-------------------|-------------------------------|
| 3:00  | Winter Inflow of Toxigenic Pseudo-nitzschia Species from Continental Shelf Waters to an Estuary in the Northeast U.S. | Bethany Jenkins, University of Rhode Island | National Assessment of Freshwater Harmful Algal Blooms | Brenna Friday, US EPA |
| 3:15  | The Complex Ecology and Omnipresence of Dinophysis spp. in Puget Sound, WA | Alexis Fischer, University Corporation for Atmospheric Research | Incorporating Harmful Cyanobacteria Blooms (HCBs) and Cyanotoxins into Clean Water Act Programs: a National Review of Criteria and Assessment Methods | Micah Bennett, US EPA |
| 3:30  | ENDS—Multiple Perspectives in One Shot to Understand HAB Drivers | Senjie Lin, University of Connecticut | Cyanobacteria Nutrient Stressor–Response Relationships in Agricultural Watersheds of the U.S. | Richard Lizotte, USDA-ARS |
| 3:45  | Toxicity and Underlying Transcriptional Dynamics Among Populations of the Bioluminescent HAB species Pyrodinium bahamense from the Indian River Lagoon, FL | Kathleen Cusick, University of Maryland | Interagency Working Group on HABs and Hypoxia: Addressing Regional Blooms with a National HAB and Hypoxia Strategy | Josie Galloway, NOAA / NCCOS |

**Break**

| Time  | Event                  | Description                                      |
|-------|------------------------|--------------------------------------------------|
| 6:30  | Banquet, Awards Ceremony, & Halloween Party | Pre-Registration Required  
Casco Bay Exhibit Hall | Downstairs |

Updated 10.27.2024
## FRIDAY, NOVEMBER 1, 2024

### 7:30
**Breakfast**  
Casco Bay Exhibit Hall | Downstairs

### 9:00
**Applications of Emerging Technologies II**  
**Session Room: One Bloom**  
Session Chairs: Rebecca Gorney & Sabina Gifford

- **The Harmful Algal Bloom Data Assembly Center: A National Cyberinfrastructure Framework for Plankton Imagery**  
  Clarissa Anderson, Scripps Institution of Oceanography

- **Validating the Aqusens Imaging Platform to Expand Networked Cell Detection Capabilities**  
  Holly Bowers, Moss Landing Marine Labs

- **Enhancing HABscope’s AI Capabilities through Interdisciplinary Collaboration**  
  Robert Currier, GCOOS / TAMU

- **CyanoSCOPE: An Open-Source, Deep-Learning Approach to Automate Cyanobacteria Identification and Enumeration from Microscopy Imaging**  
  Tyler Harman, CSS Inc.

### 9:15
**Impacts of a Warming Gulf of Mexico on Karenia brevis Blooms**  
Cynthia Heil, Mote Marine Laboratory

**Marine Mammal Stranding Events Caused by Domoic Acid: the Role of Bloom Timing, Longevity, and Geographic Extent on Ecosystem Impacts in Southern California**  
Jayme Smith, Southern California Coastal Water Research Project

### 9:45
**Changes in Western Lake Erie Cyanobacterial Bloom Phenology Over the Past Two Decades**  
Richard Stumpf, NOAA

### 10:00
**Break**

### 10:30
**Mystery in the Florida Keys – the 2023/2024 Abnormal Fish Behavior Event**  
Jan Landsberg, Florida Fish & Wildlife Conservation Commission

**Detection of Benthic Algal Toxins in Water, Algae, and Fish Associated with Unusual Fish Behavioral Anomalies in the Florida Keys**  
Alison Robertson, University of South Alabama / Dauphin Island Sea Lab

**A “Benthic Bloom” of Gambierdiscus: Potential Causes and Possible Consequences**  
Michael Parsons, Florida Gulf Coast University

### 11:30
**Closing Remarks**
| A1: Meghan Abbott (FWC, Fish and Wildlife Research Institute)  
| Florida’s Harmful Algal Bloom Task Force: Part of a Framework to Address Algal Blooms |
| A2: Anjana Adhikari (University of Wisconsin-Milwaukee)  
| Nutrient Disturbances and Harmful Algal Blooms in the North American Great Lakes – Lake Superior, Lake Michigan, and Lake Erie |
| A3: Taylor Armstrong (University of Maryland Center for Environmental Science – Institute of Marine and Environmental Technology)  
| US HAB-CTI - A National Program to Accelerate the Development and Application of HAB Control Technologies |
| A4: Elizabeth Bolton (Argonne National Laboratory)  
| A Comparison of Riverine Harmful Cyanobacterial Algal Bloom Drivers |
| A5: Emily Bores (University of South Carolina)  
| Cyanobacteria Bloom Dynamics in a South Carolina Reservoir |
| A6: Holly Bowers (Moss Landing Marine Labs)  
| International Guidance on the Integration of qPCR into HAB Monitoring |
| A7: Kate Brown (BGSU)  
| Metagenomics of Saxitoxin-Producing Phytoplankton Communities |
| A8: Devin Burris (FGCU; Mote Marine Laboratory)  
| Determining the Viability and Recovery of Rounded Karenia brevis Cells After Exposure to Natural and Artificial Stressors |
| A9: Ibrahim Busari (Clemson University)  
| Improving Harmful Algal Blooms Monitoring through Enhanced Chlorophyll-a Predictions with Data Assimilation Technique |
| A10: Celina Ceballos (FGCU)  
| Plasma Proteomics of Loggerhead Sea Turtles (Caretta caretta) and Kemp’s Ridley Sea Turtles (Lepidochelys kempii) Stranded During Red Tide Events for Identification of Diagnostic Biomarkers |
| A11: Victoria Christensen (USGS)  
| A Common Toolkit for Harmful Algal Bloom Monitoring and Management in National Parks |
| A12: Seung Ho Chung (USACE ERDC)  
| Species-Specific & Eco-Friendly Gene Silencing for Mitigation of Harmful Cyanobacterial Blooms |
| A13: Kathrine Collins (CSS-Inc., under contract to NOAA National Centers for Coastal Ocean Science)  
| Model Logic Validation of Respiratory Irritation Forecast (RIF) in Southwest Florida from 2006-2023 |
| A14: Erin Conlon (Monmouth University)  
| Using Community Science to Monitor Harmful Algal Blooms in Monmouth County, NJ |
| A15: Corey Conville (USEPA Region 1) |
|-------------------------------------|
| USEPA Region 1 Cyanobacteria Monitoring and Analysis in New England and Beyond |

| A16: Denise Devotta (Moleaer) |
|--------------------------------|
| Managing Water Quality in an Urban Lake: Evaluation of the Largest Nanobubble Technology Deployment in the U.S. at Lake Elsinore, CA |

| A17: Chelsea Donovan (James Madison University) |
|-----------------------------------------------|
| Determining the Impact of Bloom Stages on the Circadian Rhythm of Natural Populations of Microcystis aeruginosa in Lake Erie |

| A18: Aliyah Downing (Old Dominion University) |
|---------------------------------------------|
| Nutrient and Environmental Controls on Cyanobacteria Community Composition and Toxin Production in Lake Anna, Virginia |

| A19: Molly Finster (Argonne National Laboratory) |
|-----------------------------------------------|
| Examining Harmful Cyanobacterial Algal Blooms in Des Moines, Iowa: Regional Resiliency Assessment Program (RRAP) Project |

| A20: Synne Thorbjørnsen Frøstrup (The German Federal Institute for Risk Assessment (BfR)) |
|-------------------------------------------------------------------------------------|
| Simplifying Data Analysis for Marine Biotoxins using R: Advancing the Neuro-2a Cell-Based Assay |

| A21: Leslie Gains-Germain (Neptune and Company, Inc.) |
|-------------------------------------------------------|
| A Growth Limiting Approach for Predicting Cyanobacteria Growth on William H. Harsha Lake |

| A22: Andrea Garcia Jimenez (University of Nevada-Reno) |
|-------------------------------------------------------|
| Spatial and Temporal Variation in Benthic Cyanobacterial Anatoxin Production within the Scott River Network, CA, USA |

| A23: Susana Gonzalez (Harte Research Institute, TAMUCC) |
|--------------------------------------------------------|
| Defining the Likely Location and Seasonal Timing of Select Harmful Algal Bloom-Forming Species in Coastal Texas using Habitat Suitability Modeling |

| A24: Sarah Goodrich (University of Cincinnati) |
|-----------------------------------------------|
| Recreator Perspectives on Harmful Algal Blooms in Ohio |

| A25: Dianne Greenfield (City University of New York) |
|-----------------------------------------------------|
| Characterizing HAB Species within New York City’s Superfund-Designated Waterways |

| A26: Cheryl Greengrove (University of Washington Tacoma) |
|--------------------------------------------------------|
| Application of a Quantitative Molecular Method to Characterize Abundance and Distribution of Alexandrium Cysts in Three Regions: Gulf of Maine, Puget Sound and Kodiak, Alaska |

| A27: Olivia Hernandez (VIMS) |
|-------------------------------|
| Development of Analytical Methods for Co-Occuring Phycotoxins in Fish Matrices |

| A28: Jonathan Higgins (Higgins Environmental Associates, Inc.) |
|-------------------------------------------------------------|
| Passive Harvesting BMP and Targeted Removal of Microcystis, Dolichospermum and External Nutrient Loading by Tree Pollen from an Impaired Water Body |
| Poster ID | Poster Title                                                                 | Author(s)                                                                                           |
|-----------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| A29       | Unraveling Environmental Factors Controlling Harmful Algal Blooms in the Chesapeake Bay using Generalized Linear Models | Dante Horemans (VIMS)                                                                             |
| A30       | Assessing Cyanobacterial Community Dynamics in New Jersey Waterbodies of Drinking Water Significance using Environmental DNA Approaches | David Hsu (New Jersey Center for Water Science and Technology at Montclair State University)          |
| A31       | Evaluation of Sensors for Continuous Monitoring of Harmful Algal Blooms in the Finger Lakes Region, New York, 2019 and 2020 | Brett Johnston (USGS)                                                                               |
| A32       | Investigating the Complex Microbial Communities Associated with Nitrogen Fixing Cyanobacterial Mats on the Susquehanna Flats of the Chesapeake Bay | Shayna Keller (University of Maryland Center for Environmental Science)                             |
| A33       | Integrated Modeling and Monitoring to Understand Cyanobacterial Harmful Algal Blooms (HABs) in a Eutrophic Reservoir System | Laura Krueger (Kansas State University)                                                             |
| A34       | Using Planet Satellite Imagery to Map and Quantify HABs in Lower Chesapeake Bay Tributaries | Mary LePere (Old Dominion University)                                                                |
| A35       | Biodegradation of Microcystin by Isolated Bacterial Strains                    | Meng Lin (University of Florida)                                                                     |
| A36       | Building a Better HAB Model Performance Metric                                 | Travis Linscome-Hatfield (Neptune and Company Inc)                                                   |
| A37       | Advancements in the Programmable Hyperspectral Seawater Scanner Measurement Technology for Enhanced Detection of Harmful Algal Blooms | Reilly Maguire (Mote Marine Laboratory and Aquarium)                                                 |
| A38       | Thermal Niche Dynamics of Pseudo-nitzschia Species in Monterey Bay: Implications for Harmful Algal Bloom Management in a Warming Ocean | Hannah McGrath (San Jose State University)                                                          |
| A39       | Design and Validation of Marker Genes for a Robust Genome-based Microcystis Taxonomy | Christopher McLimans (University of Oklahoma)                                                        |
| A40       | US Army Corps of Engineers Freshwater HAB Research & Development Initiative    | Mandy Michalsen (US ACE ERDC)                                                                       |
| A41       | Comparison of AI-Powered Digital Microscopy and Lab Techniques in HAB Monitoring - Lessons Learned in Citizen Science and Screening | Igor Mrdjen (BloomOptix, LLC)                                                                      |
| Poster Number | Author(s) | Title |
|--------------|-----------|-------|
| A42          | Eduardo Perez Vega (Old Dominion University Ocean and Earth Sciences Department) | The Effect of Temperature and Salinity on Margalefidium polykrikoides Group III VA, USA Strain Growth |
| A43          | Kimberly Popendorf (University of Miami Rosenstiel School of Marine, Atmospheric & Earth Science) | Participant Recruitment and Engagement in the DISPEL to HABs Study: a Florida Cyanobacterial HAB Health Impacts Study |
| A44          | Joshua Rosen (USGS) | Opportunities and Challenges in using Solid Phase Adsorption Toxin Tracking (SPATT) Samplers for Monitoring Cyanotoxins in Freshwater and Estuarine Environments |
| A45          | Barry Rosen (Florida Gulf Coast University) | Extracellular Polymeric Substances: A Physiological Response to a Variety of Stress |
| A46          | Ben Schelling (Old Dominion University) | The Effects of Tidal Flooding on HABs in the Lafayette River |
| A47          | Bridget Seegers (NASA GSFC Ocean Ecology Lab) | PACE Satellite Products for HAB and Water Quality Monitoring |
| A48          | Jaclyn Smith (USDA-ARS Environmental Microbial Food Safety Laboratory) | The Spatiotemporal Variability of Microcystin Concentrations and Cyanobacteria Community Composition in Two Agricultural Ponds in Georgia, USA |
| A49          | Michael Staiger (Woods Hole Oceanographic) | New Applications for Phyto-Arm, a ROS-Based Toolkit for Integration of IFCB with Other Oceanographic Sensors and Observing Platforms |
| A50          | Luanne Steffy (Susquehanna River Basin Commission) | Using Multiple Monitoring Techniques to Understand Harmful Algal Bloom Potential in a Small Public Water Supply Reservoir in Southeast Pennsylvania, USA |
| A51          | Jiyeon Sung (Stony Brook University) | Intragenetic Diversity in the Core Gene of Saxitoxin Synthesis from the Toxic Dinoflagellate Alexandrium pacificum and a Potential Impact on Toxin Production |
| A52          | Mayra Tabares (Florida International University) | Synthesis of Mercaptan-Based Brevetoxin Scavengers and Evaluation of their Ability to Interfere with Binding to Voltage-Gated Sodium Channel and Reduce Cytotoxicity |
| A53          | Autumn Taylor (University of Florida) | Laboratory-Scale Evaluation of Algal Biomass Persistence and Microcystin Dynamics Following Treatment with Six USEPA-Registered Algaecides at Different Temperatures and Application Rates |
| Poster Number | Title                                                                                   |
|--------------|-----------------------------------------------------------------------------------------|
| A54          | John Thraen (Stony Brook University)                                                     |
|              | Macronutrient Control of Saxitoxin Production in the HAB-Forming Cyanobacterium, Dolichospermum circinale |
| A55          | Lake Willett (Middlebury College)                                                        |
|              | Genomic Coding of Potential Anabaenopeptin-Producing Dolichospermum Blooms               |
| A56          | Tori Wolters (ORISE fellow working at US EPA)                                            |
|              | Processing of Sentinel 2 Remote Sensing Imagery for Detecting HABs in Coastal Systems     |
| A57          | Elliott Wright (National Research Council of Canada)                                     |
|              | Non-Target Analysis of Marine Algal Toxins in Puget Sound using Passive Samplers with Liquid Chromatography–High-Resolution Mass Spectrometry |
| A58          | Timothy Wynne (NOAA)                                                                     |
|              | Incorporating PACE Hyperspectral Satellite Data into an Existing Multiple Satellite-Based Time Series |
| A59          | Evan Yeargan (Virginia Department of Health: Division of Shellfish Safety and Waterborne Hazards) |
|              | Collaborative Efforts to Monitor Marine Biotoxins in Virginia’s Shellfish Growing Areas  |
| A60          | Jordan Zabrecky (University of Nevada, Reno)                                             |
|              | Assessing the Synchronicity of Anatoxin-Producing Benthic Cyanobacteria and River Ecosystem Productivity |
| A61          | Wenguang Zhang (Woods Hole Oceanographic Institution)                                   |
|              | Gambierdiscus sanyainus sp. nov. (Dinophyceae) in Coastal Sanya, South China Sea: Morphology, Taxonomy, and Toxicity |
| Poster Number | Author(s)                                      | Title                                                                 |
|--------------|-----------------------------------------------|----------------------------------------------------------------------|
| A62          | Joel Allen (US EPA)                           | Use of Bayesian Networks for Short-term cHABs Prediction              |
| A63          | Kasey Benesh (US EPA ORISE Fellow)            | Secrets Hidden in Fish Slime: Evidence of Microbial Response to Algal Blooms in Fish Mucus |
| A64          | Madison Bennett (Florida Atlantic University) | Rapid Detection and Enumeration of Cyanobacterial Blooms in Diverse Freshwater Systems using Digital Holography |
| A65          | Lilly Blume (Virginia Institute of Marine Science) | Impacts of Harmful Algal Blooms on Microbial Stratification in a Micro-Tidal Estuary |
| A66          | Gregory Boyer (SUNY ESF)                     | An Evaluation of Planar Waveguide Biosensor for Detection of Cyanotoxins in Three Difference Freshwater Systems |
| A67          | Shannon Cellan (Sitka Tribe of Alaska)        | Toxins of Concern in Southeast Alaska: A Sovereign Approach to Safety and Data Collection |
| A68          | Peter Countway (Bigelow Laboratory for Ocean Sciences) | Expanded Genetic Resources for Harmful Algal Bloom Research |
| A69          | Leah Anne Gibala-Smith (Old Dominion University) | Karenia in Virginia Waters: An Emerging Issue |
| A70          | Rebecca Gorney (USGS)                         | Central Park Takes Center Stage                                       |
| A71          | Aim’ee Henderson (US EPA)                     | Method Development of Onsite Harmful Cyanobacterial Detection using Portable qPCR Device |
| A72          | Barbara Kirkpatrick (NOAA GCOOS / TAMU)      | HABscope 2.0- Improving the Ease of Use, Accuracy, and Processing Capability of an AI generated ‘Cell Count’ |
| A73          | Marcella Kretz Wallace (Stony Brook University) | Microcystin Contamination of Shellfish Along the Freshwater-to-Marine Continuum within US Northeast Estuaries |
| Poster Number | Author(s) | Title |
|---------------|----------|-------|
| A74 | Forrest Lefler (University of Florida) | Characterizing Cyanobacterial HABs Microbiomes |
| A75 | Keith Loftin (USGS) | Ground to Space Verification of CyAN in Suspended Sediment-laden Kansas Reservoirs |
| A76 | Ronaldo Lopez (Virginia Commonwealth University) | Modelling Cyanobacterial Reflectance to Estimate Benthic Cyanobacterial Biomass: Preliminary Results |
| A77 | Jingrang Lu (US EPA) | Anatoxin-Producer Dominated Cyanobacterial Community Structure, Succession and qPCR-Based Indication of Cyanotoxin Production |
| A78 | Savannah Mapes (Virginia Institute of Marine Science) | Integrating Traditional Polynesian Voyaging and Modern Science: VIMS and PVS Collaboration Utilizing PlanktoScope Technology |
| A79 | Sachidananda Mishra (CSS Inc.) | 25 years of Continuous Cyanobacteria Bloom Time Series for Great Lakes Region through Multi-Sensor Data Fusion and Machine Learning |
| A80 | Jackie Motyka (NERACOOS) | Monitoring the 2023 Tripos Bloom in the Gulf of Maine: A Collaborative Response |
| A81 | Margaret Mulholland (Old Dominion University) | Integrated Surveillance across Multiple Scales to Improve HAB Monitoring and Detection: Toward an Early Warning System for HABs in the Lower Chesapeake Bay |
| A82 | Jennifer Murphy (USGS) | Predictive Modeling of River Harmful Algal Blooms: A Systematic Literature Review |
| A83 | Caroline Owens (CSS Inc.) | Lake Okeechobee CyanoHAB Forecast Model and Evaluation |
| A84 | Mary Kate Rinderle (University of North Carolina) | Assessing the Impact of Cyanobacterial Community Composition and Sediment Concentration on the Efficacy of a Peroxide-Based Algaecide |
| A85 | William Sanderson (Los Alamos National Laboratory) | Linking Spatiotemporal Biological Data to Predict Harmful Algal Blooms |
A86: Marco Sandoval Belmar (UCLA)
Factors Driving Domoic Acid Production in the Southern California Bight: Insights from a 3D Ocean Biogeochemical Model

A87: Kari St.Laurent (NOAA / NOS / NCCOS)
Harmful Algal Bloom Forecasting at NOAA’s National Centers for Coastal Ocean Science: A Research to Operations to Research (R2O2R) Approach

A88: Emily Summers (US ACE)
Current Capabilities and Opportunities for Numerical Water Quality Modeling of Harmful Algae Blooms (HABs)

A89: Julia Sweet (University of Louisiana)
Effects of the Cyanobacteria Microcystis aeruginosa on Eastern Oyster Feeding

A90: Victoria Vossler (Mote Marine Laboratory)
The Use of EPA Approved Biologically Derived Substances (BDSs) to Mitigate Harmful Algal Cells and Toxins: A Natural Products Review

A91: Abby Webster (SUNY ESF)
From New York to New South Wales: Investigating Novel Toxin Production by Nostochopsis spp.

A92: Meiyin Wu (Montclair State University)
Traveling HAB Lab: Empowering Citizen Scientists to Protect Water Resources

A93: Yihan Zhang (New Jersey Institute of Technology)
Nanobubble-Based Foam Fractionation Removal of Algogenic Odorous Compounds
| Poster Title                                                                 | Author                                                                 |
|----------------------------------------------------------------------------|------------------------------------------------------------------------|
| Assessing the Effect of Global Warming at a Fish Cage Culture in Epe Lagoon Nigeria | Raimot Akanmu (Lagos State University, Ojo Lagos Nigeria)                |
| Advancing a National Framework for Harmful Algal Bloom Monitoring and Forecasting | Kristin Anderson (NOAA NCCOS)                                           |
| Diversity and Toxicity of Benthic Marine Cyanobacteria from Florida (USA) and the Caribbean | David Berthold (University of Florida)                                   |
| What Does a Typical Recreator Know about HABs? Improving Communication through a Public Perception Survey | Hannah Bonner (Utah Division of Water Quality)                           |
| Evidence of Pacific Walrus Exposure to HAB Toxins in the Alaskan Arctic    | Emily Bowers (NOAA Northwest Fisheries Science Center)                  |
| Development of Deep Learning Models for Harmful Algal Blooms Monitoring in a North-Eastern Reservoir, USA | Ibrahim Busari (Clemson University)                                     |
| Understanding the Affects of Ammonium and Prey on a Novel Bloom Of Dinophysis acuminata using its Isolates | Lucas Chen (Stony Brook University)                                     |
| Oral Exposure to Microcystin-LR Induced Sublethal Responses in Mallard Ducks, Anas platyrhynchos | Robert Dusek (U.S. Geological Survey, National Wildlife Health Center) |
| Assessing the Source of Microcystin in the Des Moines River                | Molly Finster (Argonne National Laboratory)                             |
| Mapping the Landscape of Data Sources for Harmful Algal Bloom-Related Diseases in Southeast Asia: A Scoping Review on the Philippines, Indonesia and Malaysia | Lora Fleming (European Centre for Environment and Human Health, University of Exeter Medical School) |
| Genetic Diversity of Alexandrium catenella in Coastal Embayments in Cape Cod, MA | Sylvain Gaillard (Woods Hole Oceanographic Institution)                 |
| Spatiotemporal Variations and Drivers in Phytoplankton Composition During Karenia Brevis Blooms in Southwest Florida Revealed by Automated Imaging Flow Cytometry | Yida Gao (Florida Fish & Wildlife Research Institute)                   |
| Evaluating Multispectral Image Data for Markers Associated with Harmful Algal Blooms | Jessie Garrett (USGS)                                                   |
| Poster ID | Presenter(s)                                    | Title                                                                                                    |
|----------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| B14      | Sabina Gifford (U.S. Geological Survey)        | Cyanobacterial Harmful Algal Blooms in Low-Nutrient New York Lakes: Combined Approaches to Examine the History of an Ephemeral Phenomenon |
| B16      | Julie Hambrook & Sophia Feuerhake (Association to Preserve Cape Cod) | Cape Cod’s Cyanobacteria Pond Monitoring Program 2017-2024                                               |
| B17      | Sabrina Heiser (University of Texas at Austin Marine Science Institute) | Using Novel Long-Read Metabarcoding to Assess Intraspecific Diversity of Toxin-Producing Gambierdiscus spp. |
| B18      | Elizabeth Hilborn (US EPA)                     | What are we Really Breathing? Investigating Cyanobacteria-Associated Aerosols                             |
| B19      | David Hsu (New Jersey Center for Water Science and Technology at Montclair State University) | An Investigation of Cyanobacteria, Cyanotoxins and Environmental Variables in Selected Drinking Water Treatment Plants in New Jersey |
| B20      | Sebin John (University of South Florida)       | A Coupled Physical-Biological Model of Karenia brevis on the West Florida Shelf: An Application to the 2018 Bloom Event |
| B21      | Steve Kibler (NOAA National Ocean Service, Beaufort Laboratory) | Mapping Alexandrium Resting Cyst Distribution in Southcentral Alaska to Inform Alexandrium catenella Bloom Forecasting, |
| B22      | Daniel Killam (San Francisco Estuary Institute) | Relating Phytoplankton Molecular Percent Abundances to Chlorophyll-A and Mussel Toxin Concentration in San Francisco Bay |
| B23      | Benjamin Kramer (University of Minnesota Duluth) | Synergistic Impact of Climate Change - Induced Acidification, Temperature, and Nitrogen on Bloom-Forming Cyanobacteria from Lake Erie |
| B24      | Forrest Lefler (University of Florida)         | Genomic Insights into Bloom-Forming Cyanobacterial Strains from Temperate to Tropical Environments          |
| B25      | Nancy Leland (Lim-Tex)                         | Trophic Cascades in the Mill Ponds Complex, Brewster, MA: Juvenile River Herring (Alosa pseudoharengus) and Cyanobacterial Populations Form a Unique Relationship |
| B26      | Carly Maas (U.S. Geological Survey)            | Extensive and Intensive Monitoring Approaches to Investigate the Drivers of HABs in Lake Anna, VA          |
| B27      | Jasmine Mancuso (Cooperative Institute for Great Lakes Research) | Assessing Bloom Conditions Along a North-South Transect in Western Lake Erie During 2021-2023 |
| Postnumber | Name & Affiliation | Title |
|------------|-------------------|-------|
| B28 | Emily Marquis (Connecticut Department of Agriculture, Bureau of Aquaculture) | First Statewide Analysis of Connecticut Shellfish for a Suite of Marine and Freshwater Biotoxins |
| B29 | Heath Mash (US EPA) | The Dynamic Influence of a Reservoir on the Downstream Distribution of Algal Toxins in a Perennial Headwater Stream |
| B30 | Sarah May (US Food and Drug Administration) | Comparison of Solid Phase Extraction Methods for the Isolation of Caribbean Ciguatoxin-1 across Fish Species Commonly Implicated in Ciguatera Poisoning |
| B31 | Pearse McCarron (National Research Council of Canada) | Research and Development of Reference Materials for Cyanobacterial Toxins at NRCC |
| B32 | Morgan McNeely (US EPA) | Monitoring Planktothrix and Microcystis Migration from an Upstream Harmful Algal Bloom Source into Downstream Waterways via Automated Flow Cytometry |
| B33 | Julio Morell (CARICOOS) | Towards a Pan-Regional Sargassum Inundation Forecast Program |
| B34 | Jessica Moretto (University of Florida) | Spatiotemporal Diversity of Toxic Bloom-Forming Cyanobacteria within the Kissimmee Chain of Lakes (Florida, USA) |
| B35 | Elizabeth Mudge (National Research Council Canada) | Deciphering the Chemical Behaviour of Prymnesins to Improve Isolation Yields from Prymnesium parvum |
| B36 | Elizabeth Murphy (Stokes School of Marine & Environmental Sciences, University of South Alabama and the Dauphin Island Sea Lab) | Spatiotemporal Distribution of Ciguatoxins from Long-Term Monitoring in the Florida Keys Marine Sanctuary |
| B37 | Jordan Murray (Wisconsin Department of Health Services) | Cyanobacterial Blooms: A Public Health Issue in Wisconsin’s Waters |
| B38 | Patricia Nease (Midcoast Conservancy) | The Cyanotoxin Knowledge Gap: Addressing an Emerging Threat to Maine Public Health through Monitoring and Messaging |
| B39 | Christopher Nietch (U.S. EPA/ORD) | Benthic Cyanobacteria Stream Mesocosm Study |
| B40 | Chase Novello (Vermont Department of Environmental Conservation - Drinking Water and Groundwater Protection Division) | Assessing Cyanotoxin Vulnerability in Vermont Public Drinking Water Systems |
| Poster Number | Presenter                          | Title                                                                 |
|--------------|-----------------------------------|----------------------------------------------------------------------|
| B41          | Hayley Olds (U.S. Geological Survey) | Cyanotoxin Mixtures and Phytoplankton Community Interactions in Rivers, Lakes, and Reservoirs across the Upper Midwest |
| B42          | Gihong Park (University of Connecticut) | PST vs. Bioluminescence: Skewed Expression of Multiple Defense Strategies Against Grazers in Alexandrium catenella |
| B43          | Mrunmayee Pathare (WHOI)          | Nutrient Uptake and Encystment by the Toxic Dinoflagellate Alexandrium catenella in Nauset Marsh Estuary |
| B44          | Kimberly Popendorf (University of Miami) | Atmospheric Oxidation of Microcystin Revealed During Ambient High Volume Aerosol Sampling |
| B45          | Leah Ruth (Gold Standard Diagnostics Horsham) | Immunoaffinity Magnetic Beads for Microcystins Capture and Concentration in Biological Samples |
| B46          | Alessia Saul (The Ohio State University Stone Lab) | Monitoring Microcystin Toxin Production in Lake Erie |
| B47          | William Scott (Mote Marine Laboratory & Aquarium) | Toxicity of Newly Manufactured vs. Weathered Synthetic Rubbers on the Health and Survival of Karenia brevis |
| B48          | Jayme Smith (Southern California Coastal Water Research Project) | A OneHealth Regional Response Plan for Wildlife Stranding Events Associated with Harmful Algal Blooms: A California Pilot |
| B49          | Zacharias J Smith (USDA Agricultural Research Service) | The Application of a Novel Nitrogen Tracer, Metolachlor-ESA, to Lake Erie and Several Associated Tributaries |
| B50          | Abeer Sohrab (The University of Utah) | Toxic Cyanobacterial Benthic Mats Grow in the Virgin River in Zion’s National Park under Low Nutrients Conditions |
| B51          | Nathaniel Spada (Woods Hole Oceanographic Institution) | Chilling Dependent Induction of Quiescence in Newly Formed Alexandrium catenella Cysts |
| B52          | Ian Struewing (United States EPA) | Harmful Benthic Cyanobacteria and their Associated Community Structures across the United States |
| B53          | Kathleen Sway (Mote Marine Laboratory) | Quantifying the Effects of Sargassum Blooms on Acropora cervicornis: An Emerging Threat to Restoration Corals in Acidifying Seas |
B55: Anjana Talapatra (Los Alamos National Laboratory)
Prediction of CyanoHABs via Machine Learning using Comprehensive Datasets

B56: Marcie Tidd (US EPA)
Microcystin Production Trends in Urban Lakes as a Function of Community Composition – a Multi-Analysis Approach

B57: Martina Tingley (U.S. Geological Survey)
Evaluating Climatic and Anthropogenic Change as Drivers of Harmful Algal Blooms: A Paleo Perspective Integrating Analysis of Pollen, Non-Pollen Palynomorphs, Pigments, and Toxins

B58: Michelle Tomlinson (NOAA/NCCOS)
The Future of Ocean Color Remote Sensing and its Potential for HAB Monitoring and Forecasting in a Changing Climate

B59: Sara Turner (Mote Marine Laboratory & Aquarium)
The Comparative Impacts of Hurricanes Charley and Ian on Southwest Florida Coastal Waters and Potential Nutrient Links with Subsequent Karenia brevis Blooms

B60: Christopher Ward (Bowling Green State University)
Mining a Riverine Metagenomics Database to Reveal Distribution Patterns of Freshwater Cyanobacterial Toxin Genes

B61: Cathy Wazniak (MD Department of Natural Resources)
Detection of Freshwater Saxitoxins in Epipelic Cyanobacteria Mats in Maryland

B62: Chloe Weinstock (Monterey Bay Aquarium Research Institute)
A Newly Developed Digital PCR Assay for the DabA Gene Involved in Domoic Acid Biosynthesis

B63: Lynn Wilking (CSS Inc. under contract to NOAA)
Assessing Alexandrium catenella Bloom Distribution in Kodiak, AK in Support of Toxinicity Monitoring and Bloom Forecasting
| Poster Number | Presenter (Institution)                        | Title                                                                 |
|---------------|-----------------------------------------------|----------------------------------------------------------------------|
| B64           | Laila Abdullah (Roskamp Institute)           | Neurological Effects of Aerosolized Red Tide Neurotoxins              |
| B65           | Stephanie Anderson (US EPA)                   | Discerning the Thermal Traits of Marine Harmful Algal Species from Bloom Events |
| B66           | Nour Ayache (Virginia Institute of Marine Science (VIMS)) | Impact of Harmful Algal Toxins Yessotoxins, Pectenotoxins, and Azaspiracids on Larval Bivalves: Effects on Mortality, Growth, and Metamorphosis Rates |
| B67           | Shounak Banerjee (Los Alamos National Laboratory) | Harmful Algal Blooms as a Big Data Problem                               |
| B68           | David Beaudoin (Woods Hole Oceanographic Institution) | Development of a Quantitative PCR Assay for the Detection of Amoebophyra Parasites in Alexandrium catenella Resting Cysts |
| B69           | Clayton Bennett (University of South Alabama)  | Ecological and Spatial Influences on Caribbean Ciguatoxin Distribution in Fish from St. Thomas, U.S. Virgin Islands |
| B70           | Kelley Breeden (Mote Marine Laboratory)       | Lake Guard Dew Efficacy Towards Nutrient and Harmful Algal Bloom Reduction |
| B71           | Patrick Charapata (NOAA Northwest Fisheries Science Center) | Walruses are Exposed to Paralytic Shellfish Toxin Levels that May Impact their Health During Summer Alexandrium Blooms in the Alaskan Arctic |
| B72           | Lauren Cortez French (University of Washington) | Geographic Variability and Seasonal Patterns of Paralytic and Diarrhetic Shellfish Toxin Co-Occurrence in the Puget Sound Region |
| B73           | Lydia Davis (University of North Carolina)     | Evaluating an Estuarine Mat-Forming Cyanobacterium for Secondary Metabolite Production using Genomic and Chemoinformatic Analyses |
| B74           | Victoria Devillier (Mote Marine Laboratory)    | Between the Bench and the Bay: Methods and Considerations for Conducting Large-Scale Mesocosm Experiments for HAB Mitigation Permitting Purposes |
| B75           | Robyn Espinosa (CDC)                          | Understanding Public Knowledge and Information Preferences Regarding Water Quality and Harmful Algal Blooms – Porter Novelli View 360+ Survey, 2021 |
| B76           | Megan Fleming (Mississippi Department of Marine Resources) | Cyanotoxin Testing of Mississippi’s Seafood During a Cyanobacteria Bloom |

**POSTERS ON THIS PAGE ARE ASSOCIATED WITH A SPEED TALK**
| Poster Number | Presenter                        | Title                                                                 |
|---------------|----------------------------------|----------------------------------------------------------------------|
| B77           | Lauren Gallagher (NYS Parks)     | Lake Welch HAB Mitigation Efforts                                    |
| B78           | Kasia Kenitz (Scripps Institution of Oceanography, University of California) | Ecological Insights into the Unprecedented Bloom of Lingulodinium polyedra in 2020 in Southern California |
| B79           | Chelsea Kovalcsik (University of Alaska) | Saxitoxin and Domoic Acid Exposure Risks to Northern Fur Seals on St. Paul Island, Alaska |
| B80           | Ami Krasner (Florida Institute of Technology) | Microcystin Exposure and Liver Lesions in Estuarine Sentinels in the Indian River Lagoon, Florida |
| B81           | James Larson (USGS)              | Water Level Fluctuations Could Influence Bloom Toxicity via Effects on Nearshore Sediment Biogeochemistry |
| B82           | Yizhen Li (NOAA NCCOS)           | Ocean Weather in the Coastal Gulf of Maine and its Influence on Harmful Algal Blooms |
| B83           | Christopher Loeffler (German Federal Institute for Risk Assessment) | Transatlantic Impacts of Ciguatera Poisoning (CP) from Lutjanus bohar: a Traditional CP Paradigm Shift |
| B84           | Daniela Maizel (University of Miami) | Environmental and Human Biomonitoring of Microcystin Toxin Exposure in a Florida Cohort: A Citizen Science Approach in the Framework of the DISPEL Project |
| B85           | Christina Mikulski (NOAA / NOS / NCCOS) | Single Laboratory Validation of a Field-Portable Duplex Assay for PSP and ASP Toxins in Shellfish |
| B86           | Ernest Neafsey (LG Sonic US)     | Harmful Algae Monitoring, Prediction, and Control - Methodologies and Operator Perspectives |
| B87           | Erin Peters (USACE ERDC)         | Isolation and Characterization of Cyanophages from Freshwater Environmental Samples for Mitigation of Harmful Cyanobacterial Blooms |
B88: Tessa Rock (University of Louisiana)
Drivers of Toxin-Producing Marine HAB Species across Estuarine Gradients in Louisiana Oyster-growing Habitats

B89: Juliette Smith (Virginia Institute of Marine Science)
Oxylipins, Bioactive Byproducts of Phytoplankton are an Emerging Concern for the Shellfish Aquaculture Industry

B90: Jennifer Toyoda (Mote Marine Laboratory)
Ultradilute TAML®/Peroxide Utilizes Biomimicry to Safely Control Florida Red Tide

B91: Jingping Xie (Beacon Analytical Systems Inc.)
Improved Saxitoxin ELISA Plate Kit for Shellfish