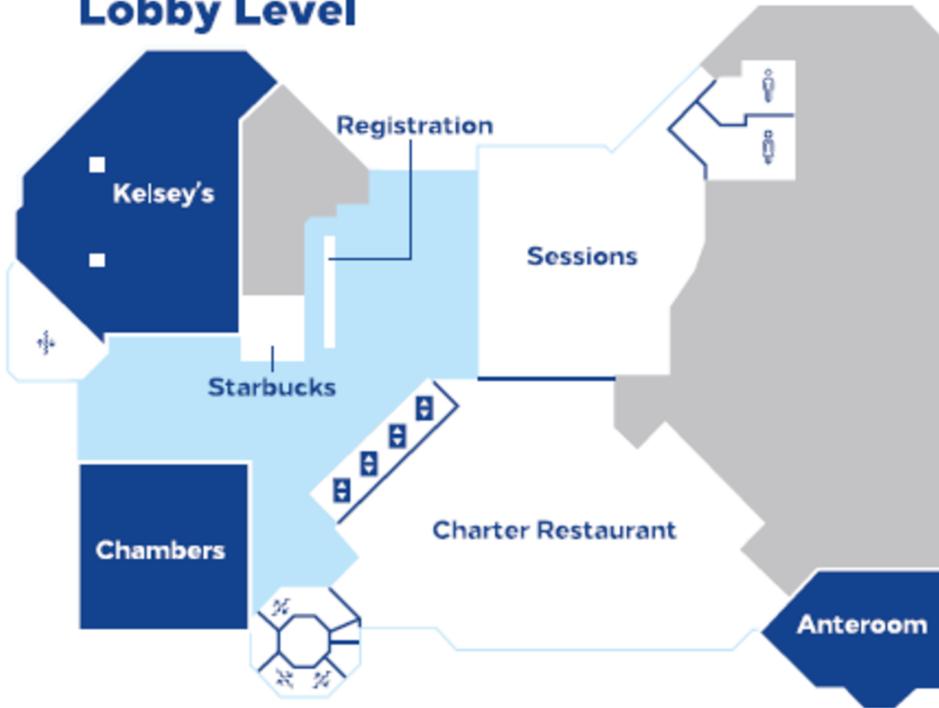


October 23-28, 2022

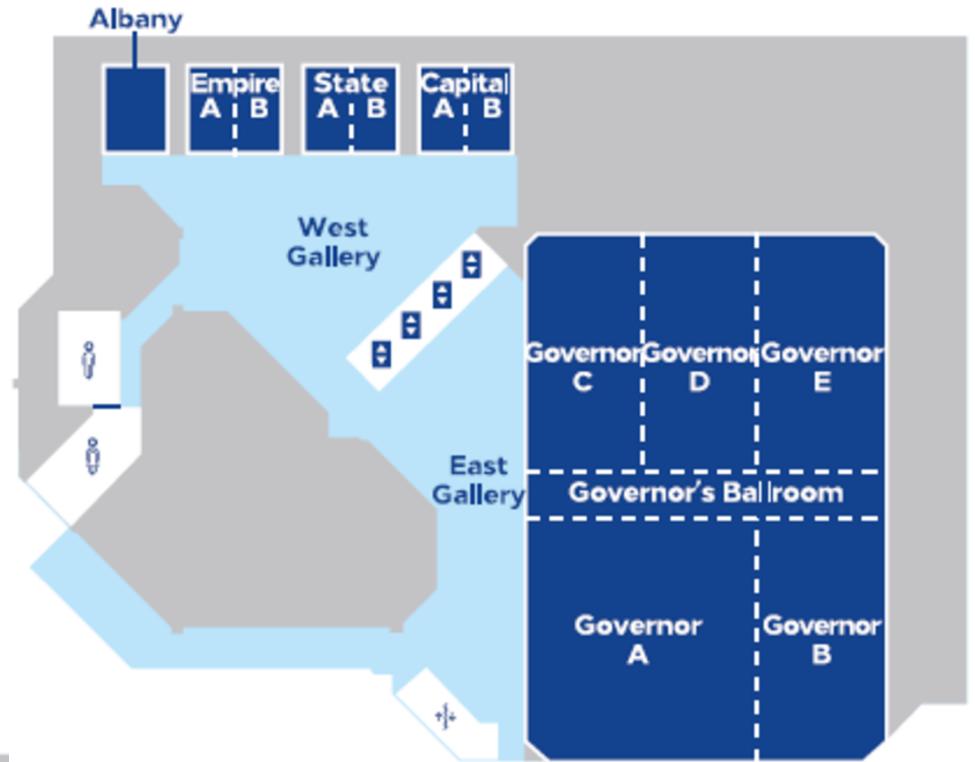


Science to Support Solutions  
from Shore to Shore

## Lobby Level



## Event Level



## Patio Level



Hilton Albany

### Welcome Reception

Sunday, October 23 @ 7:00-9:00pm

Welcome to the 11th U.S. Symposium on Harmful Algae! Appetizers and cash bar will be available in the West and East Galleries to kick off the event.

### Field Trip - New York State Museum: \$10

Sunday, October 23 @ 3:00-4:30pm

The New York State Museum is a center of art, science, and history dedicated to exploring the human and natural history of the state. Established in 1836, it is the oldest and largest state museum in the country. From its beginning, the Museum has been home to some of the nation's leading scientists, including the founders of American paleontology, ethnology, botany and mycology. Its collections rank among the finest in many fields and total more than 16 million scientific specimens and one million cultural objects.

### Student-Led Trivia @ Albany Pump Station: \$25

Monday, October 24 @ 6:00-9:00pm

Join us for a student hosted trivia & networking night at Albany Pump Station. Trivia, appetizers, and cash bar will be available.

[Directions](#)

### Field Trip - Haunted Tour of the Capitol Building: \$10

Tuesday, October 25 @ 6:00-7:00pm or Thursday, October 27 @ 4:00-5:00pm

Brave visitors will explore the legends, folklore, and tales of unexplained occurrences connected to the historic State Capitol, including mysteries behind the Capitol's most notorious carvings like the "Secret Demon" near the Great Western Staircase. Discover the Assembly Chamber's hidden murals and the tormented artist who created them. Learn about the two Presidents who visited the Capitol after their death and the exact spot where a night watchman died in the deadly fire of 1911.

### Banquet, Awards Ceremony, & Halloween Party: \$55

Thursday, October 27 @ 6:30-10:30pm

Join us for a fun filled night of tricks and treats at the Hilton Albany Hotel in the Governor AB room. Eat, Drink, and Be Scary: buffet dinner, cash bar, dancing, and photo booth will be available. Halloween Costumes are strongly encouraged!

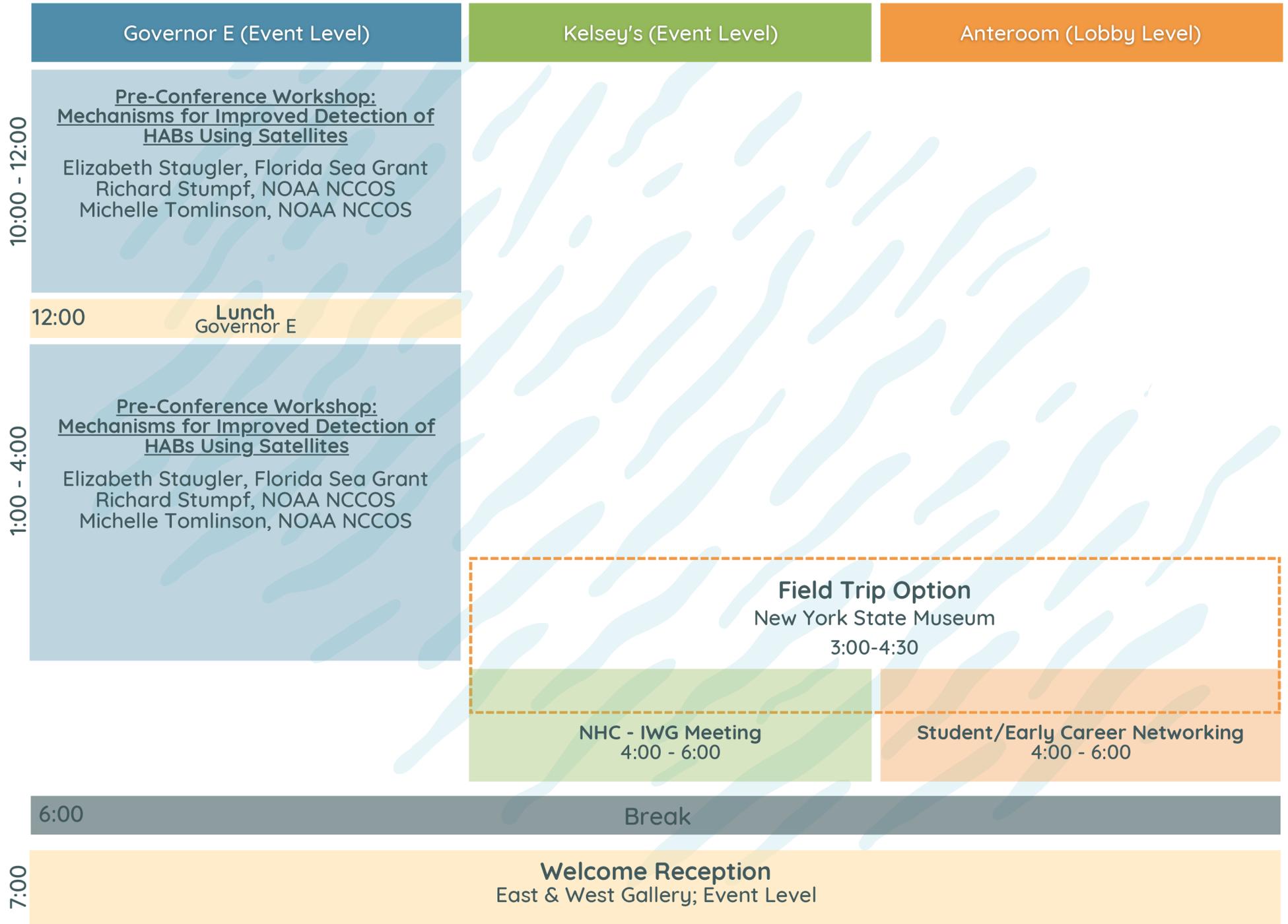
Please see the registration desk if you would like to purchase tickets for any of the above add-ons.

Continental Breakfast (Monday - Friday) will be served from 7:30am-9:00am in the West Gallery just outside of the daily session rooms.

Lunch (Tuesday & Wednesday) will be provided to all attendees on the Lobby Level from 12:00noon-1:30pm. A Lunch Buffet will be available for purchase Monday & Thursday.

Symposium Social Events

# SUNDAY, OCTOBER 23, 2022



# MONDAY, OCTOBER 24, 2022

9:00	Welcome Words: City of Albany Mayor, NEIWPCC, NYS DEC, & USGS		Governor AB
9:15	<u>Macrophytes and Harmful Algal Blooms: Protagonists, Antagonists, or Synonymous?</u> Chris Gobler, Stony Brook University		Governor AB
10:00	Break		
	Governor AB Predictive Models & Forecasting	Governor CD Bloom Dynamics	
10:30	<u>Modeling of Domoic Acid Production by Pseudo-nitzschia in a 3D Ocean Biogeochemical Model of the Santa Barbara Channel</u> Marco Sandoval Belmar, University of California Los Angeles	<u>Summertime Heat Waves in the Lower Chesapeake Bay and Their Effects on Blooms of <i>Margalefidinium polykrikoides</i></u> Margaret Mulholland, Old Dominion University	10:30
10:45	<u>Improving Respiratory Forecasts for <i>Karenia brevis</i> in the Gulf of Mexico</u> Richard Stumpf, NOAA	<u>Elevated CO2 Significantly Increases N2 Fixation, Growth Rates, and Alters Microcystin, Anatoxin, and Saxitoxin Cell Quotas in Strains of the Bloom-Forming Cyanobacteria, <i>Dolichospermum</i></u> Benjamin Kramer, Stony Brook University	10:45
11:00	<u>Predicting Harmful Algal Blooms in the Chesapeake Bay Using Empirical Habitat Models</u> Dante Horemans, Virginia Institute for Marine Science	<u>Enhancing Florida's HAB Monitoring Capabilities Using the Imaging FlowCytobot (IFCB) During the 2020-2021 <i>Karenia brevis</i> Bloom</u> Yida Gao, Florida Fish & Wildlife Conservation Commission - Fish & Wildlife Research Institute	11:00
11:15	<u>Updates from a Coastal Maine Biotoxin Forecasting System with Insights into Patterns of Alexandrium and PSP Over Space and Time</u> Johnathan Evanilla, Bigelow Laboratory for Ocean Science	<u>Insights from an Intensively Sampled, Long-Lived Cyanobacteria Bloom in a Sub-Tropical Reservoir</u> Bill Mausbach, Grand River Dam Authority	11:15
11:30	<u>Harmful Algae Forecasting Through an Environmental Data Justice Lens</u> Nicholas Record, Bigelow Laboratory for Ocean Science	<u>Examining the Relationship Between Genotype Frequency and Bloom Development in the Toxic Bioluminescent HAB species <i>Pyrodinium bahamense</i></u> Kathleen Cusick, University of Maryland Baltimore County	11:30
11:45	<u><i>Margalefidinium polykrikoides</i> Blooms in the Lower Chesapeake Bay: Tradeoffs Between Physical Forcing and Biological Potential</u> Eileen Hofmann, Old Dominion University	<u>A Comparison of Ideal Temperature Conditions for Optimal Growth of <i>Dinophysis</i> spp. Isolated in the United States</u> Rebecca Rogers, Stony Brook University	11:45
11:50	(cancelled)	<u>Phytoplankton Assemblages in Waters of New Jersey</u> Yaritza Acosta Caraballo, Montclair State University	11:50
11:55	<u>Application of Quantitative Molecular Methods to Characterize Abundance and Distribution of Alexandrium cysts for NOAA's HAB Forecasting</u> Cheryl Greengrove, University of Washington Tacoma	<u>Cyst Mapping of <i>Alexandrium catenella</i> in Surface Sediments of Puget Sound to Inform Shellfish Stakeholders of Potential Threats</u> Julie Masura, University of Washington Tacoma	11:55

# MONDAY, OCTOBER 24, 2022

12:00

Lunch Break  
(on your own)

Governor AB  
GIS & Remote Sensing

Governor CD  
Taxonomy & Genomics

1:30

Towards Better Prediction of Harmful Algal Blooms in Chesapeake Bay Through the Application of Optical Remote Sensing, Ecological Associations, and Community Monitoring Efforts

Michelle Tomlinson, NOAA/NCCOS

.....

A Decade of Time Series Sampling Reveals Thermal Variation and Shifts in Pseudo-nitzschia Species Composition that Contribute to Harmful Algal Blooms in an Eastern US Estuary.

Katherine Roche, University of Rhode Island

.....

1:45

The Use of Drones and Hyperspectral Imaging to Understand Inland Lake HABs

Courtney Wigdahl-Perry, State University of New York at Fredonia

.....

Novel Diversity of Benthic Cyanobacterial Proliferations from the Coasts of Florida (USA)

David Berthold, University of Florida/ IFAS

.....

2:00

Two Decades of Satellite Observation Show a Recent Widespread Decrease in Cyanobacteria Bloom Magnitude in Lakes Across the Contiguous United States

Sachidananda Mishra, NOAA

.....

Diversity and Dynamics of Macroalgal Epiphyte Communities from Ciguatera-Endemic Regions: the Florida Keys and US Virgin Islands, 2014-2015

Deana Erdner, University of Texas Marine Science Institute

.....

2:15

When the Sentinels Cannot See: An Ecological Perspective on the use of Sentinel 3 Data for Detecting Harmful Algal Blooms in New York State

Dana Keil, New York State Department of Health

.....

2:20

Accessible Real-Time HAB Monitoring Via Artificial Intelligence Enhanced Digital Microscopy

Igor Mrdjen, BloomOptix LLC

.....

Beyond the Transcriptomes: Are all Transcripts Translated or Functional?

Allen Place, University of Maryland

1:30

1:45

2:00

2:15

2:30

Break

# MONDAY, OCTOBER 24, 2022

## Governor AB Modeling

## Governor CD Marine Control

- 3:00 A Coupled Hydrodynamic-Biogeochemical Model for *Karenia brevis* Blooms on the West Florida Shelf  
Yuren Chen, University of Maryland  
.....
- 3:15 Developing a 1D Mechanic Model for *Margalefidinium polykrikoides* Blooms in Lower Chesapeake Bay  
Xin Yu, Oak Ridge Institute for Science & Education  
.....
- 3:30 Prediction of Harmful Algal Blooms in a lake using LSTM with Bayesian approximation  
Ibrahim Busari, Clemson University  
.....
- 3:45 Coupling Between Hydrological Changes, Nutrient Dynamics and Cyanobacterial Blooms in Deltaic Louisiana Estuaries...  
Sibel Bargu, Louisiana State University  
.....
- 4:00 A Hydrodynamic Model to Forecast Microcystins in the Western Basin of Lake Erie  
Justin Chaffin, Ohio State University  
.....
- 4:15 Estimating the Influence of Winds on the Cyanobacterial Blooms Duration in Lake Erie  
Yizhen Li, CSS Inc.  
.....
- 4:20 Episodic Inflow and Salinity Changes Produce Distinct Bloom Communities in a Low-Inflow Estuary (Baffin Bay, Texas)  
Laura Beecraft, Harte Research Institute for Gulf of Mexico Studies  
.....
- 4:25 Atmospheric Drivers for Transient Harmful Algal Blooms in a Medium-Sized Oligotrophic Lake  
Lloyd Treinish, IBM Thomas J. Watson Research Center

- 3:00 Shewanella sp. IRI-160 Algicidal Activity on *Karenia* spp.: A Closer Look at the Impact of Ammonium on Efficacy  
Kaytee Pokrzywinski, NOAA  
.....
- 3:15 Effect of Long Term Exposure of Toxic *Pyrodinium bahamense* on the Clearance Rate of Eastern Oysters  
Sara Kaminski, Florida Fish and Wildlife Research Institute  
.....
- 3:30 Quantifying the Response of *Karenia brevis* to Compounds Identified in Algicidal Exudates from *Shewanella* sp. IRI-160  
Gretchen Johnson, University of Delaware  
.....
- 3:45 Effectiveness of US EPA-Registered Algaecides to Manage the Red Tide Forming Dinoflagellate *Karenia brevis* and Brevetoxins  
Jing Hu, University of Florida / IFAS  
.....
- 4:00 Evaluation of the Efficacy of Curcumin in Simultaneously Mitigating *Karenia brevis* Cells and Brevetoxins  
Sarah Klass, Mote Marine Laboratory  
.....
- 4:15 Florida Red Tide Mitigation and Technology Development Initiative - Progress Update  
Kevin Claridge, Mote Marine Laboratory  
.....

4:30

Break

6:00

Student-Hosted Trivia  
Albany Pump Station  
Directions

# TUESDAY, OCTOBER 25, 2022

8:45	Welcome Words: NEIWPC, NYS DEC, & USGS			Governor AB
9:00	<u>HAB Town Hall</u>			Governor AB
10:30	Break			
	<b>Governor AB Monitoring</b>	<b>Governor CD Stakeholders I</b>	<b>Governor E HABs Across the Freshwater to Marine Continuum: Watersheds</b>	
11:00	<u>Using eDNA tools to identify and quantify the Phytoplankton Taxa of a Unique Algae Bloom</u> Sharon Mann, University of Southern Maine & Bigelow Laboratory	11:00 <u>STEM Education Through Art and Creative Design</u> Thayne Yazzie, Northwest Indian College	11:00 <u>Do Pinelands Protect an Estuary from Harmful Algal Blooms?</u> Taylor Armstrong, University of Maryland	
11:15	<u>PhytO-ARM, an Open Source/Open Design Toolkit for Automated and Adaptive HAB Monitoring and Response</u> Michael Brosnahan, Woods Hole Oceanographic Institution	11:15 <u>U.S. Government Accountability Office Review of Federal Efforts to Manage the Risks of Harmful Algal Blooms</u> Emily Ryan, U.S. Government Accountability Office	11:15 <u>Cyanobacteria Community Adaptation in Response to Diversion Operations in Coastal Louisiana</u> Courtney Hammond, Louisiana State University	
11:30	<u>Measuring Benthic Fluxes with an In Situ Autonomous Benthic Lander: Implications for HAB Dynamics</u> Mason Thackston, Florida Atlantic University	11:30 <u>SoundToxins, a Collaborative Phytoplankton Monitoring and Research Program for Puget Sound, Washington.</u> Teri King, Washington Sea Grant	11:30 <u>Septic System - Groundwater - Surface Water Couplings in Waterfront Communities Contribute to Harmful Algal Blooms in Southwest Florida</u> Rachel Brewton, Florida Atlantic University	
11:35	<u>All Cyanobacteria Matter: Monitoring Strategies for Cyanobacterial Communities in Diverse Aquatic Ecosystems</u> Nancy Leland, University of New Hampshire	11:45 <u>The HABscope™ 2.0 Project: Continuing to Improve Community Science Tools and Image Analysis Software</u> Barbara Kirkpatrick, TAMU/GCOOS	11:45 <u>Increases of Riverine N Load and N<sub>2</sub> Fixation Drive Rapid Eutrophication of the United States' Largest Oligohaline Lagoon, Albemarle Sound, North Carolina</u> Nathan Hall, University of North Carolina at Chapel Hill	
11:40	<u>HABs (or Not!) in Coastal Lakes of Monmouth County, New Jersey: a Comparative Analysis Using University, State, and Citizen Data</u> Jason Adolf, Monmouth University			
11:45	<u>Design and Validation of Genus-Specific and Non-Genus-Specific Cyanobacterial 16S rRNA qPCR Primers for Cyanobacteria Monitoring</u> Anna Antrim, Oak Ridge Institute for Science and Education			
11:50	<u>HABs in the Urban Environment</u> Laura Webb, US EPA			
11:55	<u>Implementing HABscope™ for Karenia brevis Monitoring and Event Response During Florida's 2020-2021 Bloom</u> Alicia Hoeglund, Florida Fish & Wildlife Research Institute			

# TUESDAY, OCTOBER 25, 2022

12:00

Lunch Break  
(provided for all attendees on the Lobby Level)

## Governor AB Toxin Detection

### LC-HRMS Profiling and Chemical Characterization of Ciguatoxins in Gambierdiscus spp. Isolated from the Caribbean

Elizabeth Mudge, National Research Council  
Canada  
.....

### Using Genetics to Detect and Quantify Toxic Alexandrium in the Salish Sea

Brandi Kamermans, Northwest Indian  
College  
.....

### Quantitative Assessment of Passive Toxin Samplers Across the Freshwater to Marine Continuum

Raphael Kudela, University of California  
Santa Cruz  
.....

### Spatiotemporal Occurrence and Water Quality Hazards of Common Cyanobacterial Toxins in Warm-Monomictic Reservoirs Located Across a Pronounced Annual Rainfall Gradient

Kevin Stroski, Baylor University  
.....

### Near Real-Time Measurement of Particle-Associated Freshwater Cyanobacterial Toxins in Western Lake Erie using a Surface Plasmon Resonance Instrument on a Long-Range Autonomous Underwater Vehicle

Christina Mikulski, NOAA/NOS/NCCOS  
.....

### Molecular Detection of Freshwater Cyanotoxins in Bellingham, WA

Rachael Mallon, Salish Sea Research Center  
.....

1:30

1:45

2:00

2:15

2:20

2:25

## Governor CD Animal Impacts & Food Web Dynamics I

### Algal Toxins in Arctic Food Webs and Estimated Doses to Pacific Walruses and Bowhead Whales

Kathi Lefebvre, NOAA  
.....

### Use of the Imaging Flow Cytobot to Assess Differential Grazing by Zooplankton During Dinophysis acuminata Blooms on Long Island, New York

Megan Ladds, Stony Brook University  
.....

### Cross-species comparison of brevetoxin (BTX-2) in vitro Phase I biotransformation in northern Gulf of Mexico fish and human liver microsomes

Jessica Gwinn, University of South  
Alabama/Dauphin Island Sea Lab  
.....

### Linking Regional Monitoring Observations to Domoic Acid Related Marine Mammal Stranding Events in Southern California

Jayme Smith, Southern California Coastal  
Water Research Project  
.....

### Evaluating Spatiotemporal and Trophic Factors to Trace Ciguatoxin in Mid Food Web Reef Fish: A Stable Isotope Approach

Clayton Bennett, University of South  
Alabama/Dauphin Island Sea Lab  
.....

### The Effects of the Harmful Algal Bloom Species Karenia brevis on Survival of Red Porgy (Pagrus pagrus) Larvae

Wayne Litaker, CSS Inc

1:30

1:45

2:00

2:15

2:20

2:25

## Governor E

### HABs Across the Freshwater to Marine Continuum: Estuaries

### Cyanobacteria and Cyanotoxins Across a Salinity Gradient in the San Francisco Estuary

Keith Bouma-Gregson, U.S. Geological Survey  
.....

### Niche Characteristics of Pyrodinium bahamense in Florida Estuaries

Cary Lopez, Florida Fish and Wildlife  
Conservation Commission  
.....

### Source Tracking and Mapping Microcystis in the Sacramento San Joaquin Delta

Ellen Preece, Robertson-Bryan, Inc  
.....

### Nutrient Availability Across the Lake Okeechobee Waterway: Relations to Microcystis Blooms in the St. Lucie and Caloosahatchee Estuaries

Brian Lapointe, Florida Atlantic University  
.....

1:30

1:45

2:00

2:15

# TUESDAY, OCTOBER 25, 2022

2:30

Break

	Governor AB Freshwater Control & Mitigation	Governor CD Public Health I	Governor E Bloom Dynamics & Ecophysiology
3:00	<u>Light-Based Mitigation Technology (LBMT) for the Reduction of Harmful Algal Blooms</u> Elizabeth Gao, U.S. Army Corps of Engineers	<u>Evaluating Health Effects from Cyanobacteria Exposure: Importance, Challenges, and Collaboration</u> Lorraine Backer, Centers for Disease Control and Prevention	<u>Karenia brevis Blooms on the West-Florida Shelf: Nutrient and Carbonate Chemistry Patterns 2019 - Present.</u> Emily Hall, Mote Marine Laboratory
3:15	<u>Additively Manufactured Polymer Photocatalyst Composites Reduce Harmful Algal Bloom Toxins</u> Alan Kennedy, U.S. Army Corps of Engineers	<u>Pilot Study to Assess the Health Effects from Cyanobacteria Exposure using Electronic Health Record Data: Classifying Exposure</u> Amy Lavery, Centers for Disease Control and Prevention	<u>Initial Trophic State Mediates Recent Freshwater Algal Bloom Trends in the United States</u> Edna Fernandez, Auburn University
3:30	<u>Effects of a Granular Peroxide-Based Algicide on Microbial Community Structure During a Cyanobacterial Bloom in Lake Okeechobee, Florida, USA.</u> Forrest Lefler, University of Florida	<u>Pilot Study to Assess the Relationship Between Harmful Cyanobacterial Blooms and Respiratory-Related Health Care Visits.</u> Jordan Murray, Wisconsin Division of Public Health	<u>Using Two Decades of PSP Testing Results and Regional Weather Patterns to Uncover Environmental Drivers of Toxicity in Southeast Alaska Geoduck Harvest Areas</u> Courtney Hart, University of Alaska Fairbanks
3:45	<u>Species-Specific Knockdown of Essential Genes in Cyanobacteria as a Novel Approach for Harmful Algal Blooms Management</u> Seung Ho Chung, Bennett Aerospace Inc.	<u>Harmful Freshwater Algal Blooms Affecting Lake Victoria: History, Current Situation, and Potential Remediation</u> Karyn Bischoff, Cornell University College of Veterinary Medicine	<u>Spatial and Temporal Trends in Protist Communities of Lake Okeechobee and the St. Lucie Estuary (Florida, USA)</u> Maximiliano Barbosa, University of Florida
4:00	<u>Evaluation of Nanobubble Ozone Technology for Cyanobacterial Harmful Algal Bloom Control</u> Heather Raymond, Ohio State University	<u>Alkanes linked to human dermatological health effects isolated from Microseira wollei in Lake Wateree, SC</u> Tryston Metz, University of South Carolina	<u>Spatial and Temporal Trends in Long Island Sound Phytoplankton Community Composition During 2020 and 2021</u> Zabdiel Roldan Ayala, Queens College
4:15	<u>The Harmful Algal Bloom Interception, Treatment, and Transformation System (HABITATS)</u> Marissa Campobasso, U.S. Army Corps of Engineers	<u>Case Study: A Caribbean Ciguatera TOXIC Experience in Puerto Rico</u> Elizabeth Murphy, University of South Alabama/Dauphin Island Sea Lab	<u>Investigating Dinophysis Response to Prey Scarcity in Nauset Marsh</u> Serena Sung-Clarke, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution
4:20	<u>A Preliminary Toxicological Study on the Use of Nanoparticles for CyanoHABs Treatment</u> Natalie Barker, US Army Engineer Research and Development Center	<u>The Ability of North Atlantic Bivalves to Filter Feed Dinophysis acuminata and Accumulate DSP Toxins</u> Bradley McGuire, Stony Brook University	<u>Toxin Profiles of Alexandrium catenella Isolates and Bloom Populations from the Northern Bering and Chukchi Seas</u> Evangeline Fachon, Woods Hole Oceanographic Institution
4:25	<u>Algae Harvesting Innovations for Effective HAB Mitigation</u> Byron Winston, AECOM		<u>Design and Application of a Molecular Tool for Monitoring Pseudo-nitzschia australis with Environmental DNA</u> Sydney Greenlee, University of Maine

# TUESDAY, OCTOBER 25, 2022

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4:30  
6:30

## Poster Session

Hudson Ballroom; Patio Level  
Appetizers & Cash Bar Available

6:00  
7:00

## Field Trip Option

Haunted Tour of the Capitol Building

6:30  
8:00

## Special Session: Impacts of HABs on Shellfish: Addressing Harvester and Industry Needs

Governor AB

# WEDNESDAY, OCTOBER 26, 2022

## Panel: Harmful Algal Bloom Science and Management in National Parks

Jennifer Graham, U.S. Geological Survey; Danielle Buttke, National Park Service; Victoria Christensen, U.S. Geological Survey; Jamie Kilgo, National Park Service; Kerensa King, National Park Service; Hayley Olds, U.S. Geological Survey      Governor AB

9:00

10:00

Break

Governor AB

Unique Problems & Approaches

Governor CD

Microbial Interactions

10:30

Environmental Factors Contributing to Unusual, Highly Destructive ‘Summer’ K. brevis Blooms

Tristyn Bercel, Mote Marine Laboratory

.....

10:45

Large-Scale Alexandrium catenella Blooms in the Alaskan Arctic: New Observations and Analyses

Donald Anderson, Woods Hole Oceanographic Institution

.....

11:00

Multifaceted Defense is the Best Strategy Against Grazing in a Toxic Dinoflagellate

Hans Dam, University of Connecticut

.....

11:15

Transcriptional Response of Microcystis and Co-Occurring Bacteria to Supplementation and Starvation of Three Nitrogen Forms

Matthew Gladfelter, Auburn University

.....

11:30

Molecular Monitoring of CyanoHABs Across the Freshwater-to-Marine Continuum in Coastal Maine

Robin Sleith, Bigelow Laboratory for Ocean Sciences

11:45

A Risk Characterization Tool for CyanoHABs on the Ohio River

Greg Youngstrom, Ohio River Valley Water Sanitation Commission

10:30

Temperature, Mixotrophy and Microbial Interactions in the Summer 2021 Karenia brevis Bloom in Florida

Pat Glibert, University of Maryland

.....

10:45

Characterizing the Effects of Two Growth-Promoting Bacteria in the Microcystis Phycosphere

Louie Wurch, James Madison University

.....

11:00

Bacterial Consortia of Cultured Coolia Species Exhibit Similar Community Structure and Temporal Oscillations

Deana Erdner, University of South Alabama/Dauphin Island Sea Lab

.....

11:15

Exploration of the Microcystis Phycosphere: Comparative Analyses of Nitrogen Assimilation and Bacterial Communities

Ann Marie Famularo, Stony Brook University

.....

11:30

Optimization of Cryopreservation Protocols for Cyanobacteria Long-Term Preservation in the Algal Resources Collection

Catharina Alves-de-Souza, University of North Carolina

.....

11:35

Spatiotemporal Diversity of Viral and Microbial Communities in Warm-Monocytic Lakes Across South Central USA and Their Relationships with Harmful Algal Blooms

Royoung Park, Texas A&M University at Galveston

.....

11:40

Allelopathy Effects of Alexandrium catenella on Non-HAB Phytoplankton Under Greenhouse Conditions

Ewaldo Leitão, University of Connecticut

.....

11:45

Gambierdiscus and Amphidinium, Investigating the Different Swimming Behaviors of Benthic Dinoflagellates

Jens Wira, IMET-UMCES

# WEDNESDAY, OCTOBER 26, 2022

12:00

Lunch Break  
(provided for all attendees on the Lobby Level)

Governor AB  
Nutrients I

Governor CD  
Toxin Pathways: Animal Impacts

1:30

Relationships Between Watershed and In-Lake Characteristics to Harmful Algal blooms in Southcentral USA: A Focus on Nitrogen Loading

Crista Kieley, Texas A&M University at Galveston  
.....

Harmful Algal Blooms and Alaska Seabirds: An Emerging Issue in Northern Waters

Caroline Van Hemert, U.S. Geological Survey  
.....

1:30

1:45

Sediment Nutrient Dynamics are the Dominant Driver of the Chemical Ecology Surrounding the 2021 Lake Okeechobee Microcystis Bloom.

Jordon Beckler, Florida Atlantic University

Impact of Zooplankton on Anatoxin-a Production by the Freshwater Cyanobacteria, Dolichospermum

Ronojoy Hem, Stony Brook University  
.....

1:45

2:00

Understanding the Impact of Nutrient Loads on Cyanobacterial Toxin Gene Activation in Lake Kabetogama

Erin Stelzer, USGS Ohio-Kentucky-Indiana Water Science Center  
.....

Hepatotoxic Shellfish Poisoning: Accumulation of Microcystins in East Coast Bivalves Exposed to Wild and Cultured Populations of the Harmful Cyanobacteria, Microcystis

Marcella Wallace, Stony Brook University

2:00

2:15

Modeling Cyanobacteria Bloom Formation and Toxin Production as a Function of Environmental N:P Stoichiometry

Sierra Cagle, Texas A&M University Galveston

Potential to Expand the Options for Monitoring of Diarrhetic Shellfish Poisoning Toxins

Carmen Cartisano, Bigelow Laboratory for Ocean Sciences  
.....

2:15

A Systemic Review of the Ecotoxicity of Cyanotoxins on Aquatic Organisms in Freshwater Ecosystems

Meredith Howard, California Water Boards  
.....

2:20

2:30

Break

# WEDNESDAY, OCTOBER 26, 2022

## Governor AB Karenia Control

The Targeted Destruction of Karenia brevis  
Vijay John, Tulane University

Using Clay Flocculation as a Karenia brevis Control in Florida Waters  
Kristy Lewis, University of Central Florida

Lethal and Sublethal Responses to Clay Treatment of Karenia brevis in Mercenaria campechiensis, Lytechinus variegatus, and Callinectes sapidus  
Victoria Roberts, University of Central Florida

Response of K. brevis Cells and Toxin to PAC-Modified Kaolinite Clay  
Vincent Lovko, Mote Marine Laboratory

Can QUATs control Karenia? Evaluation of the Efficacy of Quaternary Amines (QUATs) in the Mitigation of Karenia brevis Blooms  
Jessica Frankle, Mote Marine Laboratory

In-situ Red Tide Mitigation with Activated Carbon and Algaecide  
Domenic Contrino, Carbonxt

## Governor CD Toxin Biosynthesis, Pathways, & Effects

Transcriptome Analysis Reveals Potential Markers for Species Delineation in Dinophysis  
Chetan Gaonkar, Texas A&M University

Domoic Acid Biosynthetic Intermediates: in Vivo and in Environment  
Monica Thukral, UCSD Scripps Institution of Oceanography

Developing a Comparative Neurotoxicology Understanding of the Chiral Cyanotoxin Anatoxin-a in Two Common Fish Models  
Lea Lovin, Baylor University

It Takes a Community to Toxify: Mechanisms of Toxicity in Five Commonly Cohabiting Epi-Benthic Dinoflagellates  
Charlie Dvergsten, University of South Alabama

Release and Chemical Fate of Lyngbya wollei Toxins from Microseira wollei-Dominated Microbial Mats  
John Ferry, University of South Carolina

Changes in Protein Expression Following Anatoxin-a ( $\pm$ ) Exposure in Zebrafish (Danio rerio) and Fathead Minnows (Pimephales promelas)  
Laura Langan, Baylor University

Expression Analysis of a Novel Bacteria Isolate that has Significant Growth-Promoting Effects on Toxic Microcystis Aeruginosa  
Madeline McHugh, James Madison University

Exploration of In Vitro Mechanisms of Endocrine Disruption by Algal Biotoxins  
Sean Collins, University of South Alabama/Dauphin Island Sea Lab

## Poster Session

Hudson Ballroom; Patio Level  
Appetizers & Cash Bar Available

## Optional Dine-Around

See us @ the Registration Desk for More Details!

## NHABON Special Session: Partnering to Implement a National HAB Observing Network

Governor CD

3:00

3:15

3:30

3:45

4:00

4:15

4:30

6:30

6:30

6:30

8:00

7:30

3:00

3:15

3:30

3:45

4:00

4:15

4:20

4:25

# THURSDAY, OCTOBER 27, 2022

9:00 Harmful Algae Journal: Chris Gobler, Stony Brook University Governor AB

9:15

A National Overview of Diarrhetic Shellfish Poisoning in the USA and the Diversity of the Causative Organisms, *Dinophysis* spp.  
Nour Ayache, Virginia Institute of Marine Science

&

Microcystins: a Threat to Marine Food Security  
Misty Peacock, Northwest Indian College  
Governor AB

10:00 Break

Governor AB  
Public Health II

Governor CD  
Socioeconomic Impacts

10:30

Microseira wollei and Phormidium Algae More Than Doubles DBP Concentrations and Calculated Toxicity in Chlorinated Drinking Water  
Susan Richardson, University of South Carolina  
.....

Exploring the Human Dimensions of Harmful Algal Blooms Through a Well-Being Framework to Increase Resilience in a Changing World  
Stephanie Moore, NOAA  
.....

10:30

10:45

Public Health Surveillance in the United States: The One Health Harmful Algal Bloom System, 2020  
Virginia Roberts, Centers for Disease Control & Prevention  
.....

The Economic Impacts of Harmful Algal Blooms on Property Values in Southwest Florida  
Bijeta Bijen Saha, University of Florida  
.....

10:45

11:00

Microcystins in Dietary Supplements and a Beverage Containing Dried *Aphanizomenon flos aquae* (AFA) in the United States, 2018-2020  
Jonathan Deeds, US Food & Drug Administration  
.....

The Influence of COVID-19 on HAB Incidences within a Seasonally Hypoxic, Urban Estuary: Long Island Sound, USA  
Dianne Greenfield, CUNY Advanced Science Research Center  
.....

11:00

11:15

Breakthrough of Algal Toxins into Shellfish Hatcheries - New Lines of Research Needed to Support Production  
Marta Sanderson, Virginia Institute of Marine Science  
.....

Quantifying the Socioeconomic Impacts of Harmful Algal Blooms: Insights from the Investigation of Florida Red Tide  
Christa Court, University of Florida  
.....

11:15

11:30

Microcystin-LR Interferes with PP1-Mediated PI3K/AKT/FOXO1 Signaling in Granulosa Cells to Disrupt Female Ovarian Follicle Maturation and Ovulation  
Shuo Xiao, Rutgers University  
.....

Economic Impacts of Harmful Algal Blooms on Fishery-Dependent Communities  
Michael Weir, Woods Hole Oceanographic Institution  
.....

11:30

11:45

Michigan's 2022 State and Local Health Department Harmful Algal Bloom Assessment and Testing Effort  
Susan Peters, Michigan Department of Health & Human Services

Social Constructions of Health-Environment Risks: A Comparison of Fishing Community and Expert Perceptions of Cyanobacterial Blooms  
Katie Fiorella, Cornell University

11:45

Lunch Break  
(on your own)

**Governor AB  
Animal Impacts & Food Web Dynamics II**

**Governor CD  
Method Validation**

Uptake of HAB Biotoxins by Sharks and Rays Along Coastal Estuaries of Florida

Matthew Ajemian, Florida Atlantic University  
.....

Impacts of *Alexandrium monilatum* and *Margalefidinium polykrikoides* on Oysters in Lower Chesapeake Bay

Kimberly Reece, Virginia Institute of Marine Science  
.....

Factors Influencing Ciguatera Prevalence and Diversity in Highly Mobile Apex Predatory Reef Fish: A Management Challenge for Ciguatera Poisoning

Alison Robertson, University of South Alabama/Dauphin Island Sea Lab  
.....

Copepod Fitness as a Function of varying Toxin Content and Reactive Oxygen Species in Strains of the Neurotoxic Dinoflagellate *Alexandrium catenella*

Gihong Park, University of Connecticut  
.....

(cancelled)

Development of an LC-MS/MS Method for the Detection of Microcystins in Marine and Estuarine Shellfish

Ishuo Huang, U.S. Food & Drug Administration  
.....

Analysis of Microcystins and Nodularin in Ambient Freshwaters and Seawater by Liquid Chromatography-Tandem Mass Spectrometry

Zhihong Wang, NOAA  
.....

Development of a Dietary Supplement Reference Material for Multiple Classes of Cyanobacterial Toxins

Pearse McCarron, National Research Council of Canada  
.....

Comparison of Imaging Flow Cytometry and Manual Counts for Assessing Ecological Status and Harmful Cyanobacterial Bloom Monitoring

Sabina Gifford, U.S. Geological Survey

2:30

Break

# THURSDAY, OCTOBER 27, 2022

Governor AB  
Stakeholder II

Governor E

3:00

California Water: Assessment of Toxins for Community Health (Cal-WATCH) study - Harmful Algal Blooms at Clear Lake

David Chang, Tracking California  
.....

3:15

What Does the Public Know about Harmful Algal Blooms? Results from a Nationally Representative Survey of U.S. Adults

Amy Jacobi, Centers for Disease Control & Prevention  
.....

3:30

Structured Decision-Making Framework for Managing Cyanobacterial Harmful Algal Blooms in New York State Parks

Jennifer Graham, U.S. Geological Survey  
.....

3:45

Developing and Sustaining a Community-Based HAB Monitoring Program: It's Not One and Done!

Grant Craig, Gulf of Mexico Coastal Ocean Observing System

3:00

Roundtable Discussion (closed):

Can a Quantitative PCR Assay for Resting Cysts be Used to Improve the Alexandrium catenella Forecast in the Gulf of Maine?

Steve Kibler, NOAA NCCOS Beaufort Laboratory

4:00

Field Trip Option

Haunted Tour of the Capitol Building

5:00

6:30

Banquet, Awards Ceremony, & Halloween Party

Governor AB

10:30

# FRIDAY, OCTOBER 28, 2022

Governor AB

Governor CD  
Nutrients II

9:15

Development of a Red Tide Communications Plan for Florida

Lisa Krinsky, University of Florida  
.....

The Role of Legacy Sediment Phosphorous Inventories in the Proliferation of Benthic Harmful Algal Blooms

Timothy Shaw, University of South Carolina  
.....

9:15

9:30

A Discussion of Nitrogen in the Peconic Estuary: Should Orthodoxy be Questioned?

Robert Nuzzi, Suffolk County Department of Health Services (Retired)

Cyanotoxins Regulation Through Intrinsic and Extrinsic Ecosystem Features

Thad Scott, Baylor University  
.....

9:30

9:45

Nurture Essential Marine Algae; Be Wary of Trying to Starve Harmful Algae

Roger Tollefsen, New York's Seafood Council, Inc.  
.....

Holding States Accountable for Harmful Algal Blooms: Florida's Water Crisis in Focus

Jason Totoiu, Center for Biological Diversity  
.....

9:45

10:00

Break

10:30

Panel: Federal Funding for HAB Science and Management: Programs, Priorities, & Proposals

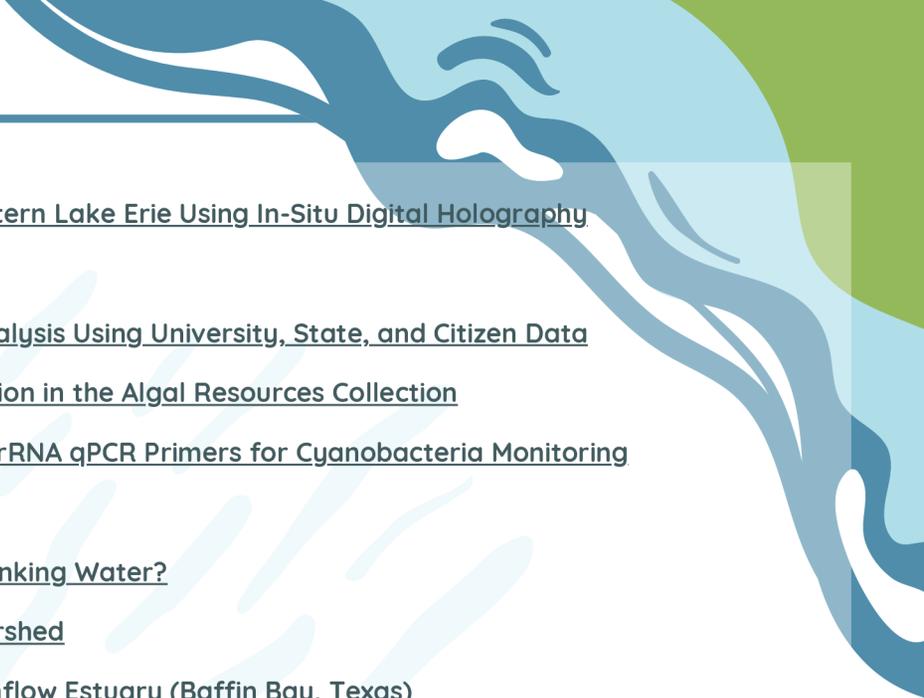
Maggie Broadwater, NOAA; additional speakers TBD

Governor AB

12:00

Thank you for attending the 11th U.S. Symposium on Harmful Algae!

# Poster Presentations - Tuesday

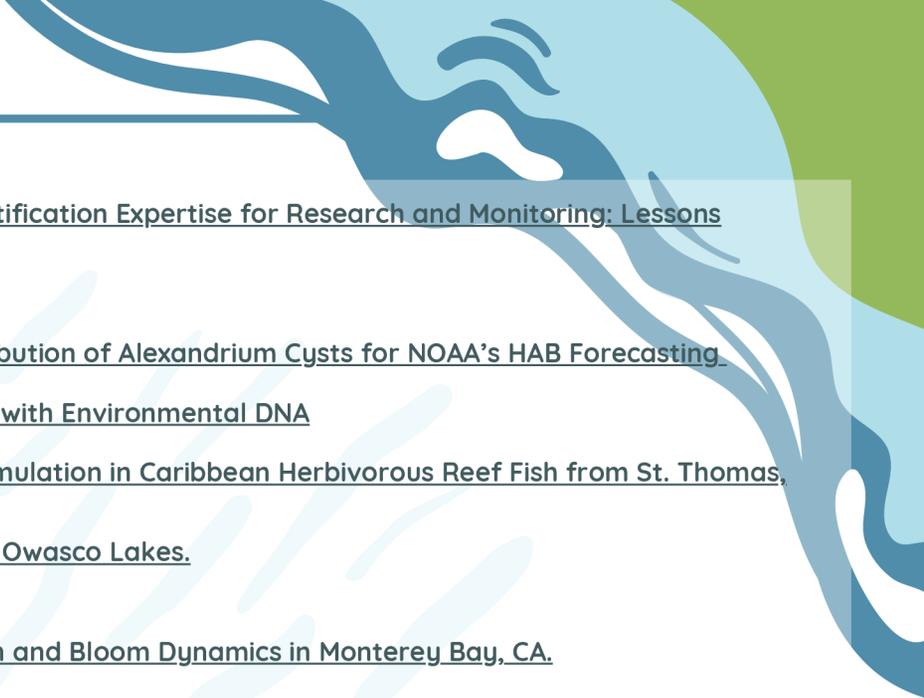


- 1 Ahammad, Abdullah, Florida Atlantic University  
Characterizing Cyanobacterial Blooms and Plankton Community Composition in Western Lake Erie Using In-Situ Digital Holography
- 2 Yaritza Acosta Caraballo, Montclair State University  
Phytoplankton Assemblages in Waters of New Jersey
- 3 Jason Adolf, Monmouth University  
HABs (or not!) in Coastal Lakes of Monmouth County, New Jersey: A Comparative Analysis Using University, State, and Citizen Data
- 4 Catharina Alves-de-Souza, University of North Carolina  
Optimization of Cryopreservation Protocols for Cyanobacteria Long-Term Preservation in the Algal Resources Collection
- 5 Anna Antrim, Oak Ridge U.S. Army Corps of Engineers  
Design and Validation of Genus-Specific and Non-Genus-Specific Cyanobacterial 16S rRNA qPCR Primers for Cyanobacteria Monitoring
- 6 Taylor Armstrong, University of Maryland  
Brewer's Spent Grain Impact on Harmful Algal Blooms - Is it Due to Chemicals?
- 7 Md. Tareq Aziz, University of South Carolina  
Algae Impacted Drinking Water: Does Switching to Chloramination Produce Safer Drinking Water?
- 8 Katie Barker, Bowling Green State University  
Rapid, Portable, Multiplexed Detection of Harmful Algal Toxins in the Lake Erie Watershed
- 9 Laura Beecraft, Harte Research Institute for Gulf of Mexico Studies  
Episodic Inflow and Salinity Changes Produce Distinct Bloom Communities in a Low-Inflow Estuary (Baffin Bay, Texas)
- 10 Clayton Bennett, University of South Alabama/Dauphin Island Sea Lab  
Evaluating Spatiotemporal and Trophic Factors to Trace Ciguatera in Mid Food Web Reef Fish: A Stable Isotope Approach
- 11 David Berthold, University of Florida  
A Harmful Algal Bloom Forecasting Model for Lake Okeechobee
- 12 Brian Bill, NOAA  
Macronutrient Sufficiency and Its Relationship to Domoic Acid Production Rate, Growth Rate and Calculation Parameters in Batch Cultures of *Pseudo-nitzschia australis*
- 13 Ryan Wagner, Bowling Green State University  
Environmental Factors Affecting Rhizophydiales spp. Infecting Planktothrix spp.
- 14 Lilly Blume, Virginia Institute of Marine Science (VIMS)  
Impacts of Harmful Algal Bloom Species on Aquatic Microbiomes and Biogeochemical Cycles in a Temperate Estuarine Ecosystem
- 15 Corrianna Boucher, University of South Carolina  
A Modeling Approach to Nutrient Dynamics in Benthic Harmful Algal Blooms
- 16 Kristina Broussard, Mississippi Department of Marine Resources  
Cyanobacteria Bloom Within the MS Sound in 2019
- 17 Katelyn Brown, Bowling Green State University  
Development of a Multiplexed Sandwich Hybridization Assay for In-Situ Detection of Freshwater Harmful Bloom-Forming Cyanobacterial Genera
- 18 Jessica Paradysz, US Army  
Identification and Characterization of Species Isolated from Harmful Algal Blooms (HABs)
- 19 Alyssa Calomeni, U.S. Army Corps of Engineers  
Environmental Drivers for Germination of Overwintering Cyanobacteria: A Review
- 20 Marissa Campobasso, U.S. Army Corps of Engineers  
The Harmful Algal Bloom Interception, Treatment, and Transformation System (HABITATS)
- 21 Margaret Carson, University of South Carolina  
Lake Wateree and *Microseira wollei*: Understanding the Toxicity of *Microseira wollei* Toxins on the Fathead Minnow and Applying Findings to Effective Lake Management and Public Health Risk

# Poster Presentations - Tuesday

- 22 Laura Markley, Florida Fish and Wildlife Conservation Commission  
The Prevalence of *Karenia brevis* Blooms as Part of Florida's Proposed Annual Review of Redfish (*Sciaenops ocellatus*) Management Approach
- 23 Tyler Hintz, In-Situ, Inc.  
Using Continuous Monitors to Expand Detection of and Response to Algal Blooms
- 24 Courtney Hart, NOAA  
Developing Monitoring Strategies and Forecasting Models to Understand Environmental Drivers of Harmful Algal Blooms at a Shellfish Farm in Southeast Alaska
- 25 Lauren Chacho, NOAA  
Paralytic Shellfish Toxins in Marine Fishes of Southern Alaska: Ecological and Health Implications
- 26 John Clarke, Washington State University  
Microcystin-LR Exacerbates Nonalcoholic Steatohepatitis in a Rodent Model
- 27 Aimee Clinkhammer, NYSDEC  
Chlorophyll-a and Cyanobacteria Concentrations in Skaneateles Lake and the Representativeness of a Long-term Monitoring Location
- 28 Michelle Tomlinson, NOAA  
Validations of Operational High Resolution Respiratory Irritation Forecast (RIF) Model Using Buoy Winds and Beach Conditions Reporting System (BCRS)
- 29 Adrienne Keel, EPA / ORISE  
Tracking Freshwater Harmful Algal Blooms Nationwide: EPA's CyanoHABs Story Map
- 30 Natalie Barker, US Army Engineer Research and Development Center  
A Preliminary Toxicological Study on the Use of Nanoparticles for CyanoHABs Treatment
- 31 Cassidy Crandell, University of South Carolina  
Redox Mediated Control of Sediment Phosphorus Storage and Release by Benthic Harmful Algal Blooms
- 32 Katherine Crider, Old Dominion University  
Examining Grazing and Osmotrophy as Carbon Acquisition Strategies in the Mixotrophic Dinoflagellate *Margalefidinium polykrikoides* (Chesapeake Bay, VA)
- 33 Brady Cunningham, Centers for Disease Control and Prevention  
Anatoxin Detection in Human Urine by LC-MS/MS and Toxicity Measurement by Patch Clamp Electrophysiology
- 34 Lawrence Feinson, U.S. Geological Survey  
Evidence of Photosynthetically Active Radiation Interference in Continuous Chlorophyll Measurements for a Harmful Algal Bloom (HAB) Study in the Raritan Basin, NJ
- 35 Aliyah Downing, Old Dominion University  
Microcystis aeruginosa: Understanding the Controls of Toxin Production During a Bloom and Potential Impacts of Climate Change
- 36 Todd Egerton, Virginia Department of Health  
Biotoxin Monitoring Strategies in Virginia Shellfish Waters
- 38 Craig Burnell, Bigelow Laboratory for Ocean Sciences  
Investigating the Potential to Reduce Time and Cost of HPLC Analysis for PST Monitoring in the Gulf of Maine
- 37 Mary Anne Evans, U.S. Geological Survey  
Great Lakes Cladophora Community Assessment
- 38 Evangeline Fachon, Woods Hole Oceanographic Institution  
Toxin Profiles of *Alexandrium catenella* Isolates and Bloom Populations from the Northern Bering and Chukchi Seas
- 39 (cancelled)
- 40 Damon Freitag, University of Texas at Austin  
Effects of Media Composition and inoculation density on the growth of *Gambierdiscus* spp.
- 41 Sylvain Gaillard, Virginia Institute of Marine Science (VIMS)  
Exposure of the Eastern Oyster, *Crassostrea virginica* to *Alexandrium monilatum*: Toxicity Pathway, Histopathology and Gene Expression
- 42 Jacob Flanzenbaum, Stony Brook University  
Nitrogen Limitation of Intense and Toxic Cyanobacteria Blooms in the Two Most Visited Parks in New York City: The Lake in Central Park and Prospect Park Lake

# Poster Presentations - Tuesday



- 43 Leah Anne Gibala-Smith, New Jersey Department of Environmental Protection  
Imaging Technologies Build Capacity and Accessibility in Phytoplankton Species Identification Expertise for Research and Monitoring: Lessons Learned During the COVID-19 Pandemic
- 44 Chris Girggs, U.S. Army ERDC  
Enhanced Adsorption of Microcystin-LR Utilizing Graphene Induced Pi-Pi Interactions
- 45 Cheryl Greengrove, University of Washington Tacoma  
Application of Quantitative Molecular Methods to Characterize Abundance and Distribution of Alexandrium Cysts for NOAA's HAB Forecasting
- 46 Sydney Greenlee, University of Maine  
Design and Application of a Molecular Tool for Monitoring Pseudo-nitzschia australis with Environmental DNA
- 47 Jessica Gwinn, University of South Alabama/Dauphin Island Sea Lab  
Investigation of Ecological, Physiological, and Environmental Drivers of CTX Bioaccumulation in Caribbean Herbivorous Reef Fish from St. Thomas, USVI
- 48 John Halfman, Hobart & William Smith Colleges  
Meteorological and Limnological Precursors to Cyanobacteria Blooms in Seneca and Owasco Lakes.
- 49 (cancelled)
- 50 Kendra Hayashi, University of California  
Using the Imaging Flow Cytobot (IFCB) to Better Understand Particle Size Distribution and Bloom Dynamics in Monterey Bay, CA.
- 51 Darren Henrichs, Texas A&M University  
Nitrogen Utilization by Karenia brevis - Can We Develop a Functional Fingerprint for Field Populations?
- 52 Alicia Hoeglund, Florida Fish and Wildlife Research Institute  
Implementing HABscope™ for Karenia brevis Monitoring and Event Response During Florida's 2020-2021 Bloom
- 53 Eileen Hofmann, Old Dominion University  
Margalefidinium polykrikoides Blooms in the Lower Chesapeake Bay: Tradeoffs Between Physical Forcing and Biological Potential
- 54 Miah Manning, Rutgers University / Mote Marine Laboratory  
Characterizing the Photophysiology of Karenia brevis Following Exposure to Bloom Mitigation Compounds
- 55 Kylie Holt, University of Texas at Austin  
Development of a T-RFLP Method for Analysis of Gambierdiscus Community Composition
- 56 Greg Youngstrom, Ohio River Valley Water Sanitation Commission  
A Risk Characterization Tool for CyanoHABs on the Ohio River
- 57 Emilie Houliez, Northwest Fisheries Science Center  
Effect of the Physiological Status of Dinophysis spp. on Fluorescence-Based Detection by the Imaging FlowCytobot
- 58 Alexandria Hounshell, NOAA  
Gauging Stakeholder Awareness of HAB Biological Control Measures in the Delaware Inland Bays
- 59 Miranda Judd, University of Maryland  
Real-Time Oxygen Consumption and Respiration in Dinoflagellates
- 60 T. David Hsu, Montclair State University  
Using Cyanobacteria Assessment Network Application (CyAN) for Harmful Algal Bloom Monitoring at a Recreational Lake in New Jersey/New York
- 61 David Hsu, Montclair State University  
Assessing Seasonal Dynamics of Cyanobacteria in a Eutrophic Lake in New Jersey Using Next-Generation Sequencing
- 62 Anthony Prestigiaco, NYS DEC  
Patterns and Impacts of Cyanobacterial Harmful Algal Blooms in a Deep, Thermally Stratified Oligotrophic Lake
- 63 Keleigh Reynolds, NYS DEC  
Survey Study of Presence of Cyanotoxins in Wadeable Streams in New York State, US (2017-2021)
- 64 Lewis McCaffrey, NYS DEC  
Use of ICESat-2 Photon Characteristics to Identify Algae Blooms in Two Finger Lakes of New York

# Poster Presentations - Tuesday



65 Dana Keil, New York State Department of Health

When the Sentinels Cannot See: An Ecological Perspective on the Use of Sentinel 3 Data for Detecting Harmful Algal Blooms in New York State

66 Steve Kibler, NOAA/NCCOS

Rapid Assessment of *Alexandrium catenella* Cysts Densities in the Gulf of Maine, USA using qPCR Assay Methods

67 Christina Mikulski, NOAA/NOS/NCCOS

Near Real-Time Measurement of Particle-Associated Freshwater Cyanobacterial Toxins in Western Lake Erie using a Surface Plasmon Resonance Instrument on a Long-Range Autonomous Underwater Vehicle

68 Di Jin, Woods Hole Oceanographic Institution

Socioeconomic Disruptions of Harmful Algal Blooms in Indigenous Communities: The Case of Quinault Indian Nation

69 Heather Krempa, U.S. Geological Survey

U.S. Geological Survey's Next Generation Water Observing System responds to Harmful Algae Blooms in the Illinois River

70 Dail Laughinghouse, University of Florida

Maximizing Phyococyanin Yields Across Common Cyanobacterial Strains and Natural Bloom Samples

71 Min-Sun Lee, The City University of New York

Harmful Algal Bloom Monitoring in Long Island Sound: A Satellite Remote Sensing Approach

72 Bofan Wei, SUNY College of Environmental Science and Forestry

The Occurrence of Microcystin-LR Photoisomerization Products in a New York State Local Lake

73 Mary Kate Rogener, NOAA/NOS/ NCCOS/ CRP

HAB Event Response Program

# Poster Presentations - Wednesday

1 Domenic Contrino, Carbonxt  
Phosphorus Reduction in the Community As Prevention of Harmful Algal Blooms

2 Forrest Lefler, University of Florida  
CyanoSeq: a Curated Reference Database of Cyanobacterial Sequences with Cyanobacterial-Driven Taxonomies for Environmental Studies

3 Ewaldo Leitão, University of Connecticut  
Allelopathy Effects of *Alexandrium catenella* on non-HAB Phytoplankton Under Greenhouse Conditions

4 Nancy Leland, University of New Hampshire  
All Cyanobacteria Matter: Monitoring Strategies for Cyanobacterial Communities in Diverse Aquatic Ecosystems

5 Yizhen Li, CSS Inc.  
Estimating the Influence of Winds on the Cyanobacterial Blooms Duration in Lake Erie

6 Hua Li, Oceanographic Research Laboratory JFE Advantech Co., Ltd.  
A Novel Fluorometric Method of Cell Abundance Estimation on Harmful Algae (*Karenia brevis*), the Concept and Lab Experiment

7 Jennifer Graham, USGS & Erin Stelzer, USGS  
Assessing Cyanobacteria and Potential Cyanotoxin Producing Taxa in Large Rivers of the United States

8 Wayne Litaker, CSS Inc.  
The Effects of the Harmful Algal Bloom Species *Karenia brevis* on Survival of Red Porgy (*Pagrus pagrus*) Larvae

9 Lizabeth Longstreet, Mote Marine Laboratory  
Red Tide Mitigation & Technology Development Initiative: Facility Design, Operations & Management Practices

10 Sean Collins, University of South Alabama/Dauphin Island Sea Lab  
Exploration of In Vitro Mechanisms of Endocrine Disruption by Algal Biotoxins

11 Fred Lubnow, Princeton Hydro, LLC  
Using Phycocyanin Meters to Monitor Harmful Algal Blooms (HABs) and the Development of HAB Management Plans

12 Rachael Mallon, Salish Sea Research Center  
Molecular Detection of Freshwater Cyanotoxins in Bellingham, WA

13 Chloe Manley, Mote Marine Laboratory & Aquarium  
Did the Piney Point Nutrient Effluent Spill Influence the Nutrient Status of the West Florida Shelf during the 2021 *Karenia brevis* Bloom?

14 Savannah Mapes, Virginia Institute of Marine Science  
FlowCam Assisted Life Cycle Studies of *Alexandrium monilatum*

15 Heath Mash, US EPA  
Occurrence of Harmful Algal Blooms (HABs) in Urban Environments

16 Julie Masura, University of Washington Tacoma  
Cyst Mapping of *Alexandrium catenella* in Surface Sediments of Puget Sound to Inform Shellfish Stakeholders of Potential Threats

17 Julie Matweyou, University of Alaska Fairbanks, Alaska Sea Grant  
Building Capacity in Alaska to Monitor *Alexandrium catenella* Cyst Abundance and Distribution

18 Melissa Mazzaro, New Jersey Center for Water Science and Technology at Montclair State University  
Assessment of Digital Imaging Flow Cytometry in its Application of Harmful Algal Blooms Monitoring

19 Meredith Howard, California Water Boards  
A Systemic Review of the Ecotoxicity of Cyanotoxins on Aquatic Organisms in Freshwater Ecosystems

20 Bradley McGuire, Stony Brook University  
The Ability of North Atlantic Bivalves to Filter Feed *Dinophysis acuminata* and Accumulate DSP Toxins

21 Madeline McHugh, James Madison University  
Expression Analysis of a Novel Bacteria Isolate that has Significant Growth-Promoting Effects on Toxic *Microcystis Aeruginosa*

22 Katelun McKindles, University of Michigan  
Lake Erie *Microcystis* Hosts a Diverse Array of Parasites and Predators

23 Andrew McQueen, U.S. Army Engineer Research and Development Center  
Planktonic Growth Potential of Overwintering Cyanobacteria in Sediments from Three HAB-Impacted Waterbodies

24 Tryston Metz, The University of South Carolina  
Alkanes Linked to Human Dermatological Health Effects Isolated from *Microseira wollei* in Lake Wateree, SC

# Poster Presentations - Wednesday



25 Mandy Michalsen, U.S. Army Engineer Research Development Center  
U.S. Army Corps of Engineers Freshwater Harmful Algal Bloom Research & Development Initiative

26 Christelle Miller, Mote Marine Laboratory  
Characterizing Toxin Profiles in Cultured Strains and Growth Phases of *Karenia brevis* for Determination of Brevetoxins of Most Significant Concern

27 Terrence Mitchell, Tuskegee University  
REU Experiences in Ciguatera Research: Evaluating Toxins from Their Source, Through Marine Foodwebs, and Behavioral Outcomes in Fish

28 Jessica Moretto, University of Florida  
The Cyanobacterial Community of the Kissimmee Chain of Lakes (Florida, USA) is Dominated by Toxicogenic Bloom Formers

29 Vincent Moriarty, IBM Research  
Ultra-High Frequency Data Collection Used to Investigate Leading Indicators of Harmful Algal Blooms

30 Igor Mrdjen, BloomOptix LLC  
Accessible Real-Time HAB Monitoring Via Artificial Intelligence Enhanced Digital Microscopy

31 Ernest Neafsey, LG Sonic US  
An Integrated Approach to HABs Monitoring and Advisory Systems

32 Kari Norris, University of Colorado  
Photochemical Fate of Saxitoxins in Surface Waters

33 Royoung Park, Texas A&M University at Galveston  
Spatiotemporal Diversity of Viral and Microbial Communities in Warm-Monocytic Lakes Across South Central USA and Their Relationships with Harmful Algal Blooms

34 Gihong Park, University of Connecticut  
Copepod Fitness as a Function of Varying Toxin Content and Reactive Oxygen Species in Strains of the Neurotoxic Dinoflagellate *Alexandrium catenella*

35 Sabina Perkins, U.S. Geological Survey  
Comparison of Imaging Flow Cytometry and Manual Counts for Assessing Ecological Status and Harmful Cyanobacterial Bloom Monitoring.

36 Ellen Preece, Robertson-Bryan, Inc  
Accumulation of Microcystin in Sacramento-San Joaquin Delta Shellfish

37 Carmen Cartisano, Bigelow Laboratory for Ocean Sciences  
Potential to Expand the Options for Monitoring of Diarrhetic Shellfish Poisoning Toxins

38 Natalia Pritchard, University of Florida  
Novel Potentially Toxic Freshwater Prochlorococcacean Cyanobacteria Isolated from Florida, USA

39 Laura Reitz, University of Michigan  
Genomic Insights into Natural Products Produced by *Pseudanabaena* in the Phycosphere of Lake Erie *Microcystis*

40 Laura Langan, Baylor University  
Changes in Protein Expression Following Anatoxin-a ( $\pm$ ) Exposure in Zebrafish (*Danio rerio*) and Fathead Minnows (*Pimephales promelas*)

41 Mindy Richlen, Woods Hole Oceanographic Institution  
HAB Science in the Classroom: Improving Ocean Literacy Through Educational Activities on Harmful Algal Blooms

42 Rebecca Rogers, Stony Brook University  
A Comparison of Ideal Temperature Conditions for Optimal Growth of *Dinophysis* spp. Isolated in the United States

43 Susan Niven, University of North Carolina at Wilmington  
Brevetoxin Production in Different Clonal Cultures of *Karenia brevis*

44 Drajad Seto, University of Maine  
Prolonged Nutrient Depletion as a Selection Factor for Pseudo-nitzschia Blooms

45 Tracy Sherwood, Mote Marine Laboratory  
The Development of a Shellfish Red Tide Toxin Field-Based Biosensor and Land-Based Depuration Strategies to Mitigate the Socio-Economic Hardships of Red Tide on Shellfish Farming

46 Megan Skinner, U.S. Fish and Wildlife Service  
Results from the 2022 U.S. Fish and Wildlife Service Synoptic Cyanotoxin Assessment in Upper Klamath Lake, Oregon

# Poster Presentations - Wednesday

47 Margaret Smigo, Virginia Department of Health  
Adaptive Management Strategies Used for Harmful Algae (Cyanobacteria) Alerts and Recreational Advisories in Virginia 2020-2022

48 Zacharias Smith, U.S. Geological Survey  
Evidence for Unusual Paralytic Shellfish Poisoning Toxin-like Compounds in Cayuga Lake, New York

49 Jaclyn Smith, Environmental Microbial Food Safety Laboratory, USDA-ARS  
Spatiotemporal Variation of Phytoplankton Functional Groups in Agricultural Irrigation Ponds

50 Matthew Smith, U.S. Geological Survey  
Evaluating the Sublethal and Chronic Effects of Saxitoxin Ingestion by Common Murres

51 Jayme Smith, Southern California Coastal Water Research Project  
Linking Regional Monitoring Observations to Domoic Acid Related Marine Mammal Stranding Events in Southern California

52 Nathaniel Spada, Woods Hole Oceanographic Institution  
Long-Term Preservation of Alexandrium catenella Cells for Fish Hybridization

53 Beckye Stanton, Office of Environmental Health Hazard Assessment (OEHHA)  
Cyanotoxins in California's Fish and Shellfish: Addressing a Dynamic, Time-Critical Issue

54 Michael Stouder, U.S. Geological Survey  
Assessing Efficacy of Solid Phase Adsorption Toxin Tracking (SPATT) as an Indicator of the Presence of Cyanotoxins in the New York Finger Lakes

55 Vanessa Strohm, Virginia Institute of Marine Science  
Role of Turbulence in Dinophysis spp. Feeding, Growth, and Toxin Production

56 Kevin Stroski, Baylor University  
Spatiotemporal Occurrence and Water Quality Hazards of Common Cyanobacterial Toxins in Warm-Monomictic Reservoirs Located Across a Pronounced Annual Rainfall Gradient

57 Emily Summers, Texas A & M Galveston  
A Modified Stratification Index Method to Assess Hydrodynamic Impacts on Reservoir Water Quality Trends

58 Serena Sung-Clarke, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution  
Investigating Dinophysis Response to Prey Scarcity in Nauset Marsh

59 Mason Thackston, Florida Atlantic University  
Measuring Benthic Fluxes with an In Situ Autonomous Benthic Lander: Implications for HAB Dynamics

60 Marcie Tidd, US EPA  
EPA Region 8's Long-Term Comparison of ELISA and LC/MS/MS Methodologies in Quantifying Algal Toxins from Freshwater Harmful Algal Bloom (HAB) Sampling Events, and a Closer Examination of HABs in Urban Environments

61 Lloyd Treinish, IBM Thomas J. Watson Research Center  
Atmospheric Drivers for Transient Harmful Algal Blooms in a Medium-Sized Oligotrophic Lake

62 Jordan Walker, Texas A&M University at Galveston  
Seasonal Variation in Viral Assemblages Related to a Persistent Brown Tide Bloom

63 Yi Wang, University of Florida  
Diversity and Toxicity of Planktonic Cyanobacteria from the Kissimmee Chain of Lakes

64 Yanfei Wang, University of Delaware  
Efficacy and Resilience of DinoSHIELD Biocontrol Beads for Karenia brevis Treatment in Natural Seawater

65 Laura Webb, US EPA  
HABs in the Urban Environment

66 Abby Webster, SUNY College of Environmental Science and Forestry  
Characterizing Benthic Cyanobacteria and Their Toxicity in the Finger Lakes of New York State

67 Anne Wilkinson, Stantec  
The Effect of Local Physical Lake Conditions on the Vertical Heterogeneity of Cyanobacteria and Microcystin in Stratified Eutrophic Lakes

# Poster Presentations - Wednesday



68 Byron Winston, AECOM  
Algae Harvesting Innovations for Effective HAB Mitigation

69 Jens Wira, IMET-UMCES  
Gambierdiscus and Amphidinium, Investigating the Different Swimming Behaviors of Benthic Dinoflagellates

70 Timothy Wynne, NOAA  
Remotely Sensed Cyanobacterial Bloom Phenology in Lake Champlain

71 Jingping Xie, Beacon Analytical Systems Inc.  
A Rapid Tube Assay for the Detection of Microcystins in Water

72 Elizabeth Murphy, University of South Alabama/Dauphin Island Sea Lab  
Case Study: A Caribbean Ciguatera TOXIC Experience in Puerto Rico

73 Kyla Kelly, University of Southern California  
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