October 23-28, 2022

U.S. SYMPOSIUM ON HARMFUL ALGAE

14th

Science to Support Solutions
from Shore to Shore

Lobby Level

Kelsey's

Registration

Starbucks

Sessions

Chambers

Charter Restaurant

Anteroom

Event Level

Albany

Empire A B

State A B

Capital A B

West Gallery

East Gallery

Governor C

Governor D

Governor E

Governor's Ballroom

Governor A

Governor B

Patio Level

Fitness Center

Indoor Atrium Pool

Hudson Gallery

Hudson Ballroom

Hudson Gallery
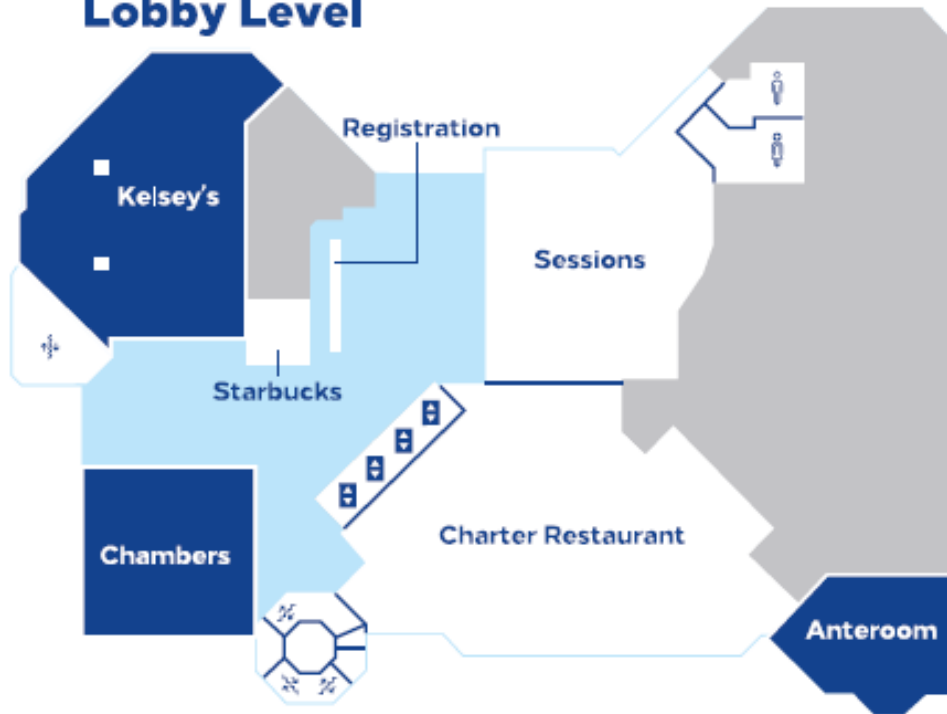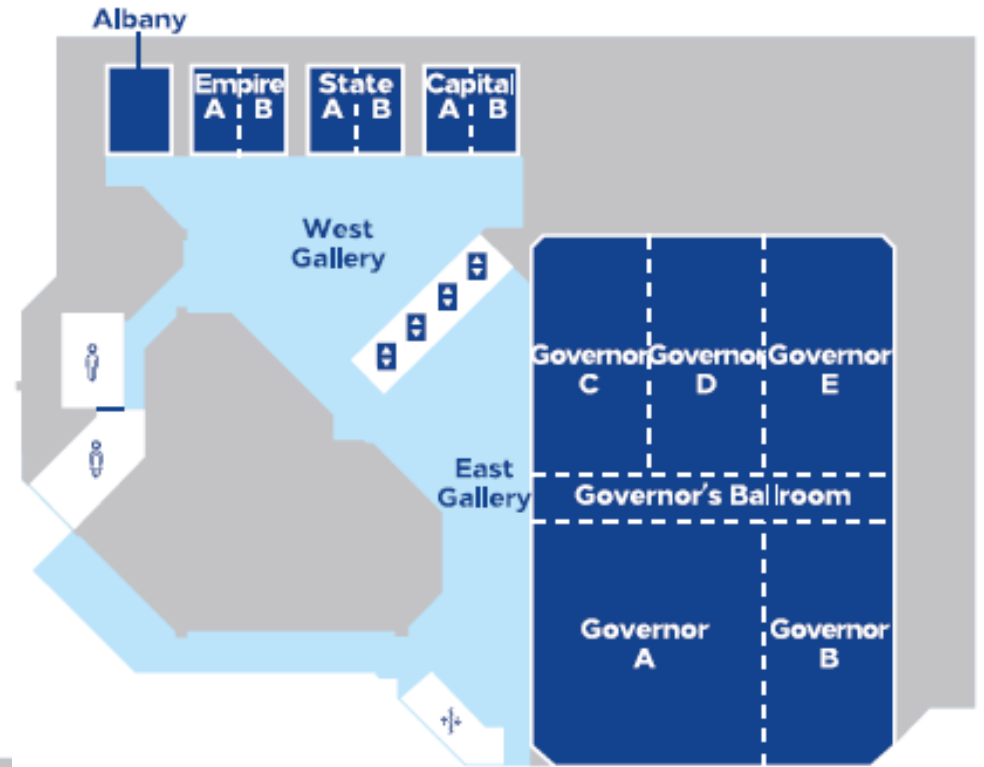
Hilton Albany

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

Governor E (Event Level)	Kelsey's (Event Level)	Anteroom (Lobby Level)

10:00 - 12:00

**Pre-Conference Workshop:
Mechanisms for Improved Detection of
HABs Using Satellites**

Elizabeth Staugler, Florida Sea Grant
Richard Stumpf, NOAA NCCOS
Michelle Tomlinson, NOAA NCCOS

12:00 **Lunch**
Governor E

1:00 - 4:00

**Pre-Conference Workshop:
Mechanisms for Improved Detection of
HABs Using Satellites**

Elizabeth Staugler, Florida Sea Grant
Richard Stumpf, NOAA NCCOS
Michelle Tomlinson, NOAA NCCOS

Field Trip Option
New York State Museum
3:00-4:30

NHC - IWG Meeting
4:00 - 6:00

Student/Early Career Networking
4:00 - 6:00

6:00 Break

7:00

Welcome Reception
East & West Gallery; Event Level

MONDAY, OCTOBER 24, 2022

9:00	Welcome Words: City of Albany Mayor, NEIWPCC, NYS DEC, & USGS	Governor AB
9:15	**Macrophytes and Harmful Algal Blooms: Protagonists, Antagonists, or Synonymous?** Chris Gobler, Stony Brook University	Governor AB
10:00	Break	

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

MONDAY, OCTOBER 24, 2022

12:00 — Lunch Break
(on your own)

Governor AB
GIS & Remote Sensing

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
....

1:45

The Use of Drones and Hyperspectral Imaging to Understand Inland Lake HABs
Courtney Wigdahl-Perry, State University of New York at Fredonia
....

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
....

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
....

Governor CD
Taxonomy & Genomics

1:30

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

Novel Diversity of Benthic Cyanobacterial Proliferations from the Coasts of Florida (USA)
David Berthold, University of Florida/ IFAS
....

2:00

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

Beyond the Transcriptomes: Are all Transcripts Translated or Functional?
Allen Place, University of Maryland

2:30 — Break

MONDAY, OCTOBER 24, 2022

Governor AB — Modeling

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

Governor CD — Marine Control

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: NEIWPCC, NYS DEC, & USGS	Governor AB
9:00	**HAB Town Hall**	Governor AB
10:30	Break	

Governor AB Monitoring	Governor CD Stakeholders I	Governor E HABs Across the Freshwater to Marine Continuum: Watersheds
11:00 **Using eDNA tools to identify and quantify the Phytoplankton Taxa of a Unique Algae Bloom** Sharon Mann, University of Southern Maine & Bigelow Laboratory .... **11:15** **PhytO-ARM, an Open Source/Open Design Toolkit for Automated and Adaptive HAB Monitoring and Response** Michael Brosnahan, Woods Hole Oceanographic Institution .... **11:30** **Measuring Benthic Fluxes with an In Situ Autonomous Benthic Lander: Implications for HAB Dynamics** Mason Thackston, Florida Atlantic University .... **11:35** **All Cyanobacteria Matter: Monitoring Strategies for Cyanobacterial Communities in Diverse Aquatic Ecosystems** Nancy Leland, University of New Hampshire .... **11:40** **HABs (or Not!) in Coastal Lakes of Monmouth County, New Jersey: a Comparative Analysis Using University, State, and Citizen Data** Jason Adolf, Monmouth University .... **11:45** **Design and Validation of Genus-Specific and Non-Genus-Specific Cyanobacterial 16S rRNA qPCR Primers for Cyanobacteria Monitoring** Anna Antrim, Oak Ridge Institute for Science and Education .... **11:50** **HABs in the Urban Environment** Laura Webb, US EPA .... **11:55** **Implementing HABscope™ for Karenia brevis Monitoring and Event Response During Florida's 2020-2021 Bloom** Alicia Hoeglund, Florida Fish & Wildlife Research Institute	**11:00** **STEM Education Through Art and Creative Design** Thayne Yazzie, Northwest Indian College .... **11:15** **U.S. Government Accountability Office Review of Federal Efforts to Manage the Risks of Harmful Algal Blooms** Emily Ryan, U.S. Government Accountability Office .... **11:30** **SoundToxins, a Collaborative Phytoplankton Monitoring and Research Program for Puget Sound, Washington.** Teri King, Washington Sea Grant .... **11:45** **The HABscopeTM 2.0 Project: Continuing to Improve Community Science Tools and Image Analysis Software** Barbara Kirkpatrick, TAMU/GCOOS	**11:00** **Do Pinelands Protect an Estuary from Harmful Algal Blooms?** Taylor Armstrong, University of Maryland .... **11:15** **Cyanobacteria Community Adaptation in Response to Diversion Operations in Coastal Louisiana** Courtney Hammond, Louisiana State University .... **11:30** **Septic System – Groundwater – Surface Water Couplings in Waterfront Communities Contribute to Harmful Algal Blooms in Southwest Florida** Rachel Brewton, Florida Atlantic University .... **11:45** **Increases of Riverine N Load and N2 Fixation Drive Rapid Eutrophication of the United States' Largest Oligohaline Lagoon, Albemarle Sound, North Carolina** Nathan Hall, University of North Carolina at Chapel Hill ....

TUESDAY, OCTOBER 25, 2022

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

12:00

Governor AB
Toxin Detection

1:30 — **LC-HRMS Profiling and Chemical Characterization of Ciguatoxins in Gambierdiscus spp. Isolated from the Caribbean**
Elizabeth Mudge, National Research Council Canada
....

1:45 — **Using Genetics to Detect and Quantify Toxic Alexandrium in the Salish Sea**
Brandi Kamermans, Northwest Indian College
....

2:00 — **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
....

2:15 — **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
....

2:20

2:25 — **Molecular Detection of Freshwater Cyanotoxins in Bellingham, WA**
Rachael Mallon, Salish Sea Research Center
....

Governor CD
Animal Impacts & Food Web Dynamics I

1:30 — **Algal Toxins in Arctic Food Webs and Estimated Doses to Pacific Walruses and Bowhead Whales**
Kathi Lefebvre, NOAA
....

1:45 — **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
....

2:00 — **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
....

2:15 — **Linking Regional Monitoring Observations to Domoic Acid Related Marine Mammal Stranding Events in Southern California**
Jayme Smith, Southern California Coastal Water Research Project
....

2:20 — **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
....

2:25 — **The Effects of the Harmful Algal Bloom Species Karenia brevis on Survival of Red Porgy (Pagrus pagrus) Larvae**
Wayne Litaker, CSS Inc

Governor E
HABs Across the Freshwater to Marine Continuum: Estuaries

1:30 — **Cyanobacteria and Cyanotoxins Across a Salinity Gradient in the San Francisco Estuary**
Keith Bouma-Gregson, U.S. Geological Survey
....

1:45 — **Niche Characteristics of Pyrodinium bahamense in Florida Estuaries**
Cary Lopez, Florida Fish and Wildlife Conservation Commission
....

2:00 — **Source Tracking and Mapping Microcystis in the Sacramento San Joaquin Delta**
Ellen Preece, Robertson-Bryan, Inc
....

2:15 — **Nutrient Availability Across the Lake Okeechobee Waterway: Relations to Microcystis Blooms in the St. Lucie and Caloosahatchee Estuaries**
Brian Lapointe, Florida Atlantic University
....

2:30	Break

Governor AB
Freshwater Control & Mitigation

3:00
Light-Based Mitigation Technology (LBMT) for the Reduction of Harmful Algal Blooms
Elizabeth Gao, U.S. Army Corps of Engineers
....

3:15
Additively Manufactured Polymer Photocatalyst Composites Reduce Harmful Algal Bloom Toxins
Alan Kennedy, U.S. Army Corps of Engineers
....

3:30
Effects of a Granular Peroxide-Based Algaecide on Microbial Community Structure During a Cyanobacterial Bloom in Lake Okeechobee, Florida, USA.
Forrest Lefler, University of Florida
....

3:45
Species-Specific Knockdown of Essential Genes in Cyanobacteria as a Novel Approach for Harmful Algal Blooms Management
Seung Ho Chung, Bennett Aerospace Inc.
....

4:00
Evaluation of Nanobubble Ozone Technology for Cyanobacterial Harmful Algal Bloom Control
Heather Raymond, Ohio State University
....

4:15
The Harmful Algal Bloom Interception, Treatment, and Transformation System (HABITATS)
Marissa Campobasso, U.S. Army Corps of Engineers
....

4:20
A Preliminary Toxicological Study on the Use of Nanoparticles for CyanoHABs Treatment
Natalie Barker, US Army Engineer Research and Development Center
....

4:25
Algae Harvesting Innovations for Effective HAB Mitigation
Byron Winston, AECOM

Governor CD
Public Health I

3:00
Evaluating Health Effects from Cyanobacteria Exposure: Importance, Challenges, and Collaboration
Lorraine Backer, Centers for Disease Control and Prevention
....

3:15
Pilot Study to Assess the Health Effects from Cyanobacteria Exposure using Electronic Health Record Data: Classifying Exposure
Amy Lavery, Centers for Disease Control and Prevention
....

3:30
Pilot Study to Assess the Relationship Between Harmful Cyanobacterial Blooms and Respiratory-Related Health Care Visits.
Jordan Murray, Wisconsin Division of Public Health
....

3:45
Harmful Freshwater Algal Blooms Affecting Lake Victoria: History, Current Situation, and Potential Remediation
Karyn Bischoff, Cornell University College of Veterinary Medicine
....

4:00
Alkanes linked to human dermatological health effects isolated from Microseira wollei in Lake Wateree, SC
Tryston Metz, University of South Carolina
....

4:15
Case Study: A Caribbean CiguaTOXIC Experience in Puerto Rico
Elizabeth Murphy, University of South Alabama/Dauphin Island Sea Lab
....

4:20
The Ability of North Atlantic Bivalves to Filter Feed Dinophysis acuminata and Accumulate DSP Toxins
Bradley McGuire, Stony Brook University
....

Governor E
Bloom Dynamics & Ecophysiology

3:00
Karenia brevis Blooms on the West-Florida Shelf: Nutrient and Carbonate Chemistry Patterns 2019 – Present.
Emily Hall, Mote Marine Laboratory
....

3:15
Initial Trophic State Mediates Recent Freshwater Algal Bloom Trends in the United States
Edna Fernandez, Auburn University
....

3:30
Using Two Decades of PSP Testing Results and Regional Weather Patterns to Unconver Environmental Drivers of Toxicity in Southeast Alaska Geoduck Harvest Areas
Courtney Hart, University of Alaska Fairbanks
....

3:45
Spatial and Temporal Trends in Protist Communities of Lake Okeechobee and the St. Lucie Estuary (Florida, USA)
Maximiliano Barbosa, University of Florida
....

4:00
Spatial and Temporal Trends in Long Island Sound Phytoplankton Community Composition During 2020 and 2021
Zabdiel Roldan Ayala, Queens College
....

4:15
Investigating Dinophysis Response to Prey Scarcity in Nauset Marsh
Serena Sung-Clarke, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution

4:20
Toxin Profiles of Alexandrium catenella Isolates and Bloom Populations from the Northern Bering and Chukchi Seas
Evangeline Fachon, Woods Hole Oceanographic Institution
....

4:25
Design and Application of a Molecular Tool for Monitoring Pseudo-nitzschia australis with Environmental DNA
Sydney Greenlee, University of Maine

TUESDAY, OCTOBER 25, 2022

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

9:00 | <u>**Panel: Harmful Algal Bloom Science and Management in National Parks**</u>
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**

10:00 | Break

Governor AB
Unique Problems & Approaches

Governor CD
Microbial Interactions

Governor AB	Governor CD
10:30 <u>**Environmental Factors Contributing to Unusual, Highly Destructive 'Summer' K. brevis Blooms**</u> Tristyn Bercel, Mote Marine Laboratory	**10:30** <u>**Temperature, Mixotrophy and Microbial Interactions in the Summer 2021 Karenia brevis Bloom in Florida**</u> Pat Glibert, University of Maryland ....
10:45 <u>**Large-Scale Alexandrium catenella Blooms in the Alaskan Arctic: New Observations and Analyses**</u> Donald Anderson, Woods Hole Oceanographic Institution	**10:45** <u>**Characterizing the Effects of Two Growth-Promoting Bacteria in the Microcystis Phycosphere**</u> Louie Wurch, James Madison University ....
	11:00 <u>**Bacterial Consortia of Cultured Coolia Species Exhibit Similar Community Structure and Temporal Oscillations**</u> Deana Erdner, University of South Alabama/Dauphin Island Sea Lab ....
11:00 <u>**Multifaceted Defense is the Best Strategy Against Grazing in a Toxic Dinoflagellate**</u> Hans Dam, University of Connecticut	**11:15** <u>**Exploration of the Microcystis Physcosphere: Comparative Analyses of Nitrogen Assimilation and Bacterial Communities**</u> Ann Marie Famularo, Stony Brook University ....
11:15 <u>**Transcriptional Response of Microcystis and Co-Occurring Bacteria to Supplementation and Starvation of Three Nitrogen Forms**</u> Matthew Gladfelter, Auburn University	**11:30** <u>**Optimization of Cryopreservation Protocols for Cyanobacteria Long-Term Preservation in the Algal Resources Collection**</u> Catharina Alves-de-Souza, University of North Carolina ....
11:30 <u>**Molecular Monitoring of CyanoHABs Across the Freshwater-to-Marine Continuum in Coastal Maine**</u> Robin Sleith, Bigelow Laboratory for Ocean Sciences	**11:35** <u>**Spatiotemporal Diversity of Viral and Microbial Communities in Warm-Monomictic Lakes Across South Central USA and Their Relationships with Harmful Algal Blooms**</u> Royoung Park, Texas A&M University at Galveston ....
11:45 <u>**A Risk Characterization Tool for CyanoHABs on the Ohio River**</u> Greg Youngstrom, Ohio River Valley Water Sanitation Commission	**11:40** <u>**Allelopathy Effects of Alexandrium catenella on Non-HAB Phytoplankton Under Greenhouse Conditions**</u> Ewaldo Leitão, University of Connecticut ....
	11:45 <u>**Gambierdiscus and Amphidinium, Investigating the Different Swimming Behaviors of Benthic Dinoflagellates**</u> 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	**1:30** **Harmful Algal Blooms and Alaska Seabirds: An Emerging Issue in Northern Waters** Caroline Van Hemert, U.S. Geological Survey ....
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	**1:45** **Impact of Zooplankton on Anatoxin-a Production by the Freshwater Cyanobacteria, Dolichospermum** Ronojoy Hem, Stony Brook University ....
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	**2:00** **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
	2:15 **Potential to Expand the Options for Monitoring of Diarrhetic Shellfish Poisoning Toxins** Carmen Cartisano, Bigelow Laboratory for Ocean Sciences ....
2:15 **Modeling Cyanobacteria Bloom Formation and Toxin Production as a Function of Environmental N:P Stoichiometry** Sierra Cagle, Texas A&M University Galveston	**2:20** **A Systemic Review of the Ecotoxicity of Cyanotoxins on Aquatic Organisms in Freshwater Ecosystems** Meredith Howard, California Water Boards ....

2:30	**Break**

WEDNESDAY, OCTOBER 26, 2022

Governor AB
Karenia Control

Governor CD
Toxin Biosynthesis, Pathways, & Effects

3:00

The Targeted Destruction of Karenia brevis
Vijay John, Tulane University
....

3:15

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

3:30

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

3:45

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

4:00

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

4:15

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

3:00

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

3:15

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

3:30

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

3:45

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

4:00

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

4:15

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

4:20

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

4:25

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

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4:30 – 6:30

Poster Session
Hudson Ballroom; Patio Level
Appetizers & Cash Bar Available

6:30 – 8:00

Optional Dine-Around
See us @ the Registration Desk for More Details!

6:30 – 7:30

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

THURSDAY, OCTOBER 27, 2022

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

9:15 — <u>A National Overview of Diarrhetic Shellfish Poisoning in the USA and the Diversity of the Causative Organisms, Dinophysis spp.</u>
Nour Ayache, Virginia Institute of Marine Science

&

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

10:00 — Break

Governor AB — Public Health II

Governor CD — Socioeconomic Impacts

Time	Governor AB — Public Health II	Governor CD — Socioeconomic Impacts
10:30	<u>Microseira wollei and Phormidium Algae More Than Doubles DBP Concentrations and Calculated Toxicity in Chlorinated Drinking Water</u> Susan Richardson, University of South Carolina	<u>Exploring the Human Dimensions of Harmful Algal Blooms Through a Well-Being Framework to Increase Resilience in a Changing World</u> Stephanie Moore, NOAA
10:45	<u>Public Health Surveillance in the United States: The One Health Harmful Algal Bloom System, 2020</u> Virginia Roberts, Centers for Disease Control & Prevention	<u>The Economic Impacts of Harmful Algal Blooms on Property Values in Southwest Florida</u> Bijeta Bijen Saha, University of Florida
11:00	<u>Microcystins in Dietary Supplements and a Beverage Containing Dried Aphanizomenon flos aquae (AFA) in the United States, 2018-2020</u> Jonathan Deeds, US Food & Drug Administration	<u>The Inflence of COVID-19 on HAB Incidences within a Seasonally Hypoxic, Urban Estuary: Long Island Sound, USA</u> Dianne Greenfield, CUNY Advanced Science Research Center
11:15	<u>Breakthrough of Algal Toxins into Shellfish Hatcheries - New Lines of Research Needed to Support Production</u> Marta Sanderson, Virginia Institute of Marine Science	<u>Quantifying the Socioeconomic Impacts of Harmful Algal Blooms: Insights from the Investigation of Florida Red Tide</u> Christa Court, University of Florida
11:30	<u>Microcystin-LR Interferes with PP1-Mediated PI3K/AKT/FOXO1 Signaling in Granulosa Cells to Disrupt Female Ovarian Follicle Maturation and Ovulation</u> Shuo Xiao, Rutgers University	<u>Economic Impacts of Harmful Algal Blooms on Fishery-Dependent Communities</u> Michael Weir, Woods Hole Oceanographic Institution
11:45	<u>Michigan's 2022 State and Local Health Department Harmful Algal Bloom Assessment and Testing Effort</u> Susan Peters, Michigan Department of Health & Human Services	<u>Social Constructions of Health-Environment Risks: A Comparison of Fishing Community and Expert Perceptions of Cyanobacterial Blooms</u> Katie Fiorella, Cornell University

THURSDAY, OCTOBER 27, 2022

Lunch Break
(on your own)

Governor AB	Governor CD
Animal Impacts & Food Web Dynamics II	**Method Validation**

1:30

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

Matthew Ajemian, Florida Atlantic University
....

1:30 — **Development of an LC-MS/MS Method for the Detection of Microcystins in Marine and Estuarine Shellfish**

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

1:45

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

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

1:45 — **Analysis of Microcystins and Nodularin in Ambient Freshwaters and Seawater by Liquid Chromatography-Tandem Mass Spectrometry**

Zhihong Wang, NOAA
....

2:00

Factors Influencing Ciguatoxin 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
....

2:00 — **Development of a Dietary Supplement Reference Material for Multiple Classes of Cyanobacterial Toxins**

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

2:15

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
....

2:15 — **Comparison of Imaging Flow Cytometry and Manual Counts for Assessing Ecological Status and Harmful Cyanobacterial Bloom Monitoring**

Sabina Gifford, U.S. Geological Survey

2:20

(cancelled)

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 **5:00**

Field Trip Option
Haunted Tour of the Capitol Building

6:30 **10:30**

Banquet, Awards Ceremony, & Halloween Party
Governor AB

FRIDAY, OCTOBER 28, 2022

Governor AB	Governor CD Nutrients II

9:15

Development of a Red Tide Communications Plan for Florida

Lisa Krimsky, University of Florida

....

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

Timothy Shaw, University of South Carolina

....

9:30

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

....

9:45

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

....

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 Ciguatoxin 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 innoculation 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 John Harley, University of Alaska Southeast
Forecasting HABs Using Real-time Environmental Data, a Case Study with the Southeast Alaska Tribal Ocean Research Network

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 Prestigiacomo, 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 Ese 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 Phycocyanin 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 Katelyn 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-Monomictic 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 (±) 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
<u>Adaptive Management Strategies Used for Harmful Algae (Cyanobacteria) Alerts and Recreational Advisories in Virginia 2020-2022</u>

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

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

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

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

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

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

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

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

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

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

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

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

60 Marcie Tidd, US EPA
<u>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</u>

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

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

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

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

65 Laura Webb, US EPA
<u>HABs in the Urban Environment</u>

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

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

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 CiguaTOXIC Experience in Puerto Rico

73 Kyla Kelly, University of Southern California
Understanding the Mechanisms of Pseudo-nitzschia australis Bloom Formation During Contrasting Upwelling and Marine Heatwave Scenarios

74 Hannah Bonner, Utah Division of Water Quality
Neurotoxins in a National Park: Monitoring and Communicating Benthic Cyanobacteria in Zion's Virgin River

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NEW YORK STATE Department of Environmental Conservation

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U.S. National Office for Harmful Algal Blooms
WOODS HOLE OCEANOGRAPHIC INSTITUTION