Sunday				
1300	Check in open			
1700	Welcome Reception			
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1800				
1815	Wayne Carmichael	A Paradigm for preventing cyanoHABs: The Why and How of Moving from Monitoring and Management to Prevention and Remediation of Cyanobacteria Harmful Algae Blooms (cyanoHABs)		
1830				
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Monday				
730	Breakfast			
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815	Coffee			
830	Welcome Meeting			
Detection, Identification and Diversity of CHABs				
845	Susan Wilde	Ecosystem effects of the novel "eagle killer" cyanotoxin aetokthonotoxin responsible for neuropathy and mortality in wildlife		
900				
915				
930	In-Su Kim	Appearance and toxin production potential of invasive nostocalean cyanobacteria in a large temperate river, the Nakdong River, Korea		
945	Cody Sheik	Hiding in plain sight: Characterizing a novel cyanobacterium that packs a potent punch		
1000	David Berthold	Diversity of toxin-producing benthic cyanobacterial proliferations from the Gulf Coast of Florida (USA)		
1015	Sebastien Sauvé	Presence of less monitored bioactive cyanotoxins (anabaenopeptins, saxitoxins, and BMAA isomers) in surface waters		
1030	Coffee/Exhibits			
1045				
1100	Sabina Perkins	Comparison of imaging flow cytometry and manual counts for assessing ecological status and harmful cyanobacterial bloom monitoring		
1115	Malcolm Barnard	Evaluating the FluoroProbe as a tool for rapid chlorophyll *a* and phytoplankton group identification during Western Lake Erie CyanoHAB bloom conditions		
1130	Benjamin Gincley	Accessible quantitation of surface water phytoplankton with ARTiMiS		
1145	Sandra Lagauzere	Genetic biosensors to measure the activity of toxigenic cyanobacteria: towards a new standardized method to forecast harmful algal blooms		
1200	Stuart Oehrle	Cyanobacterial toxins in recreational and intake waters using a targeted UPLC/MS/MS method		
1215	Els Faassen	Critical evaluation of commercially available rapid tests for cyanobacterial toxin detection in surface water		

1230	Lunch			
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New Technologies, Modeling, and Smart Lakes				
1345	Reagan Errera	Exploring toxic cyanobacteria blooms using emerging technologies: From space to the benthos		
1400				
1415				
1430	José Risco-Martin	IA-GES-BLOOM-CM: Creating synergies between biologist and engineers to develop tools for Cyanobacteria Bloom Management		
1445	Ernest Neafsey	Using Actionable Data to Achieve Successful HAB Control		
1500	Ed Verhamme	Lake Erie Early Warning Network for HABs: Past, Present, Future		
1515	Jessica Cicale	Field verification of Cyanobacteria Assessment Network (CyAN) derived satellite estimates of cyanobacteria harmful blooms in Ohio lakes		
1530	Hoi-Ying Holman	Visualizing Cyanotoxins Behavior Using Synchrotron Infrared Spectral Microscopy		
1545	Coffee/Exhibits			
1600				
1615	Franesco Pomati	Automated underwater microscopy and machine learning to understand and forecast algal blooms		
1630	Emily Summers	Utilization of high frequency monitoring for an inland lake eutrophication model		
1645	Karina Gin	Multi-class secondary metabolites in cyanobacterial blooms from a tropical water body: distribution patterns and real-time prediction		
1700	Eva Riehle	Exploring cyanotoxin diversity in field samples – an untargeted HRMS/MS based approach		
1715	Bar open			
1730				
1745	Posters (even numbers)			
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1915	Optional - Screening of *The Erie Situation* (University Hall)			
1930				
1945				
2000				

Tuesday				
730	Breakfast			
745				
800				
815	Coffee			
Ecology of Cyanobacteria - Toxic CHAB in Freshwaters and Coastal Systems				
830	Thad Scott	Biogeochemical constraints on ecosystem stoichiometry and its influence on cyanotoxin hazards		
845				
900				
915	Hans Paerl	Tackling the global expansion of CyanoHABs along the freshwater to marine continuum: The need for a dual nutrient (N and P) control strategy		
930	Leah Egan	Phenology of cyanobacteria bloom development and maintenance in nutrient-rich Minnesota lakes differing in nutrient limitation status		
945	Kaela Natwora	The physiological and transcriptional response of harmful algal blooms in nitrogen limited lakes		
1000	Iwona Jasser	Cyanobacteria in hot pursuit: Characterization of cyanobacteria strains from thermal springs, including novel taxa, and comparison of their thermophilic ability with the genetic background.		
1015	Nada Tokodi	Photosynthetic efficiency in Polish and Australian *Raphidiopsis raciborskii* strains		
1030	Coffee/Exhibits			
1045				
1100	Mikolaj Kokociński	Environmental factors related to the distribution pattern of *Raphidiopsis raciborskii* and *R. mediterranea* in Central East Europe		
1115	Lukasz Wejnerowski	Identification of cyanometabolites and toxicity assessment of cyanobacteria isolates from chosen Polish eutrophic waters and polar glaciers		
1130	Sarah Caltabiano	Characterization of nitrate reductase in *Microcystis aeruginosa* PCC7806 wild type and non-toxic mutant strain		
1145	Shu Ham Te	Augmentation of cyanobacterial bloom microbiomes in response to *Microcystis* and *Synechococcus* blooms		
1200	Oloyede Adekolurejo	Low environmental microcystin concentrations affected sublethal population-level responses but not survival among freshwater keystone species		
1215	Justin Chaffin	Rates of microcystin production and biodegradation in the western basin of Lake Erie		
1230	Lunch			
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Secondary Cyanometabolites – Structure, Biosynthesis, Physiological Function, Environmental Significance and Biotechnical Application				
1345	Elizabeth Janssen	Increasing confidence in identifying cyanobacterial metabolites to study their occurrence and behavior		
1400				
1415				
1430	John Ricca	Investigating the interaction between microcystins and cyanobacterial cells using nanoscale secondary ion mass spectrometry		
1445	Ruben Moron-Asen	Monitoring of intracellular and extracellular toxin/bioactive peptide production under physiological stress conditions through labeling by chemical modification		
1500	Sevasti-Kiriaki Zerv	Analytical workflow integrating LC-HRMS untargeted analysis and CyanoMetDB for fast and extensive detection of cyanobacterial metabolites		
1515	Ariel Kaminski	Impact of unidentified secondary metabolites from five new cyanobacterial species on aquatic plant		
1530	Markus Schwark	Aetokthonostatins: Highly cytotoxic dolastatin derivatives produced by the “eagle killer” cyanobacterium *Aetokthonos hydrillicola*		
1545	Coffee/Exhibits			
1600				
1615	Elke Dittmann	Non-canonical carbon fixation in microcystin-producing cyanobacteria		
1630	Manthos Panou	Linking environmental heterogeneity and chemo-diversity in cyanobacteria: A culture-dependent profile based analysis		
1645	Pierre Van Horrick	Accumulation and elimination kinetics of free and total (free plus protein-bound) microcystin-LR in the common carp *Cyprinus carpio*		
1700	Emani Pinto	Investigation of CyanoMetabolites in Brazilian cyanobacteria using LC-MS-QTOF: distribution in different cultured strains, bloom samples and physiological studies		
1715	Bar open			
1730				
1745	Posters (odd numbers)			
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Wednesday				
730	Breakfast			
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815	Coffee			
CHABs and Omics: Advances in Genetics, Transcriptomics, Metabolomics, and Proteomics to Understanding CHABs				
830	Morgan Steffen	Progressing from exploratory studies to hypothesis testing: Harnessing the power of -omics tools to understand cyanobacterial harmful algal blooms		
845				
900				
915	Theo Dreher	Diverse genome sequences from recent toxic and non-toxic US Pacific Northwest freshwater HABs belong to the Nostocales ADA clade		
930	Anders Kiledal	The Great Lakes Atlas of Multi-omics Research (GLAMR) Database: Facilitating the Great Lakes Research of Tomorrow		
945	Robbie Martin	Sulfolipid profiles of *Microcystis aeruginosa* and cyanobacterial blooms as an indicator of P availability		
1000	Xavier Mayali	Do *Microcystis* laboratory cultures hold clues to bacterial microcystin degradation?		
1015	Gwendolyn Stark	Microcystin aids in photo-acclimation during prolonged cold stress treatment in *Microcystis aeruginosa* strain PCC7806		
1030	Coffee/Exhibits			
1045				
1100	Cecillio Valadez Cano	Anatoxin-producing and non-toxic strains of *Microcoleus* sp. coexist in benthic cyanobacterial mats in the Wolastoq (Saint John River, Canada)		
1115	Xuexiu Chang	Comparative metabolomics of exudates between toxigenic and non-toxigenic *Microcystis aeruginosa*		
1130	Jason Woodhouse	Insights from the global pangenome of *Raphidiopsis raciborskii*		No abstract fou
1145	David Fewer	Phylogenomic insights into toxic bloom formation in the Baltic Sea		
1200	Katelyn McKindles	Cyanophages Infecting *Planktothrix agardhii* from a Lake Erie Embayment		
1215	Darius Dziga	Cyanophage resistance on proteome level in the bloom-forming cyanobacterium *Aphanizomenon flos-aquae*		
1230	Lunch			
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Special Session Hosted by the Interdisciplinary Freshwater Harmful Algal Bloom Workshop (IFHAB) - Current and Future Issues in cHAB Detection, Monitoring, Mitigation and Management				
1345	Greg Boyer	Evolution of our understanding of harmful algal blooms and their monitoring		
1400				
1415				
1430	Dana Simon	Using citizen science to track harmful cyanobacterial blooms through crowdsourcing and crowdfunding - Adopt a Lake project		
1445	Paul MacKeigan	Quantifying microcystin concentrations, their composition and drivers across over 400 north-temperate and boreal Canadian lakes		
1500	Charles Trick	Harmonizing science and management options to reduce risks of cyanobacteria blooms		
1515	Akaash Bansal	Impact of Cyanobacteria on the pelagic phosphorus cycle		
1530	Kevin Erratt	The missing middle – Investigating a North American metalimnetic cyanobacteria layer		
1545	Coffee/Exhibits			
1600				
1615	Lewis Molot	Long-term nitrate trends and possible cyanobacteria bloom prevention by nitrate oxidation of sediments in Hamilton Harbour		
1630	Robert Smith	The economic costs of algal blooms: Great Lakes evidence and research priorities		
1645	Ethan McCann	Deciphering the diversity and concentrations of cyanopeptides from blooms in Ontario and Quebec, Canada		
1700	Coffee/Exhibits			
1715				
1730	**Special Panel Discussion Hosted by the Interdisciplinary Freshwater Harmful Algal Bloom Workshop (IFHAB) - Experts in the Hot Seat: Challenges and Lessons with Research, Risk Communication and Community Engagement** Moderator: Susan Watson - IFHAB/Trent University Wayne Carmichael - Wright State University Keith Loftin - U.S. Geological Survey Arash Zamyady - Water Research Australia Ltd Rene Sahba Shahmohamadloo - Washington State Univ/Univ of Guelph Ingrid Chorus - German Environment Agency Lori Bradford - Univ of Saskatchewan/Safe Drinking Water Association			
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1930	Special reception hosted by the Interdisciplinary Freshwater Harmful Algal Bloom Workshop (IFHAB)			
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Thursday				
730	Breakfast			
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815	Coffee			
Interactions Between CHABs and the Phycosphere				
830	Greg Dick	New dimensions of *Microcystis* diversity: the phycosphere		
845				
900				
915	Vincent Denef	Trait variation in resource competition traits among *Microcystis* strains in presence and absence of their microbiomes		
930	Joanna Mankiewicz-Boczek	Bacterioplankton communities affect toxigenic *Microcystis* bloom – from environmental to laboratory study		
945	Wei Li	New insights on organic nitrogen assimilation in *Microcystis* phycosphere and impacts on microcystin production		
1000	Adam Antosiak	Modification of the freshwater *Aphanizomenon flos-aquae* cyanobacterium proteome at cyanophage infection		
1015	Nicolas Tromas	Conservation of CRISPR-based immunity in a decade of *Microcystis*-phage interactions in a natural lake		
1030	Coffee/Exhibits			
1045				
Toxic Cyanobacteria in the Context of Climate Change				
1100	Dedmer van de Waal	Impacts of multiple global change factors on toxic cyanobacteria: from elements to traits and toxicity		
1115				
1130				
1145	Todd Miller	Unusual toxic cyanobacterial blooms in a tannin stained lake		
1200	Jerome Kok	Potential role of sulphate in cylindrospermopsin dynamics within urban freshwaters		
1215	Muriel Gugger	Bloom capacity of various *Microcystis* strains, are they all the same?		
1230	Spyros Gkelis	A Greek *Raphidiopsis raciborskii* strain and microcystins: A toxic relationship		
1245	Lunch			
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1400	Excursions			
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1745	Buses leave for Banquet			
1800	Banquet - Toledo Port Authority (former Toledo Union Terminal) 415 Emerald Ave, Toledo			
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2100	Buses leaves from Banquet			
	Friday			
730	Breakfast			
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815	Coffee			
	Risk, Prevention, Management, and Mitigation of CHABs: Applied Applications from Establishing Risk to Remediation			
830	Faith Kibuye	Performance of source water control strategies for cyanobacterial blooms		
845				
900				
915	Heather Raymond	Field-scale evaluation of nanobubble ozone technology for cyanobacterial harmful algal bloom control		
930	Maria Antoniou	Exploring the potential of metallic peroxide granules for the in-situ mitigation of cyano-HABs		
945	Carlos Pestana	A paradigm-shift in water treatment: In-reservoir UV-LED-driven TiO2 photocatalysis for the removal of cyanobacteria – a mesocosm study		
1000	Sathya Ganegoda	Development of a novel & low cost domestic filter unit to treat drinking water contaminants		
1015	Hae-Kyung Park	Applicability of flow management to mitigate harmful cyanobacterial blooms in the large river with consecutive dam-scale weirs		
1030	Coffee/Exhibits			
1045				
1100	Arnoldo Font-Najer	Improving conditions for nutrient-transforming microbial communities in multi-zoned biofilters to help prevent eutrophication of downstream reservoirs		
1115	Jyotshana Gautam	Using native Lake Erie bacteria and their enzymes for degradation/removal of microcystin toxins from water		
1130	Jason Dexter	Application of CyanoGate, a Cyanobacterial Synthetic Biology Molecular Cloning Suite, for Exploring Optimal Heterologous Microcystinase (MlrA) Production for Freshwater Bioremediation from Cyanotoxins		
1145	Elivira Perona	Ecology of cyanotoxin-producer cyanobacterial communities in Spanish National Parks		
1200	Petra Visser	Suppression of cyanobacterial blooms using hydrogen peroxide: effects on phytoplankton and bacteria		
1215	Apurva Lad	Cyanotoxin Degrading Lake Bacteria Significantly Alleviate Microcystin-LR Induced Hepatotoxicity in Both In Vitro and In Vivo Models		
1230	Ingrid Chorus	Toledo triggered new WHO guidance for cyanotoxin risk assessment		
1245	Lunch			
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1400	Closing Meeting			