

9th US HAB Conference

Baltimore, MD

2017

**Sheraton Inner Harbor
Baltimore, Maryland, USA
11 - 17 November, 2017**

US Harmful Algae Symposium

9TH ANNUAL CONFERENCE

9th US HAB 2017

PROGRAM HANDBOOK

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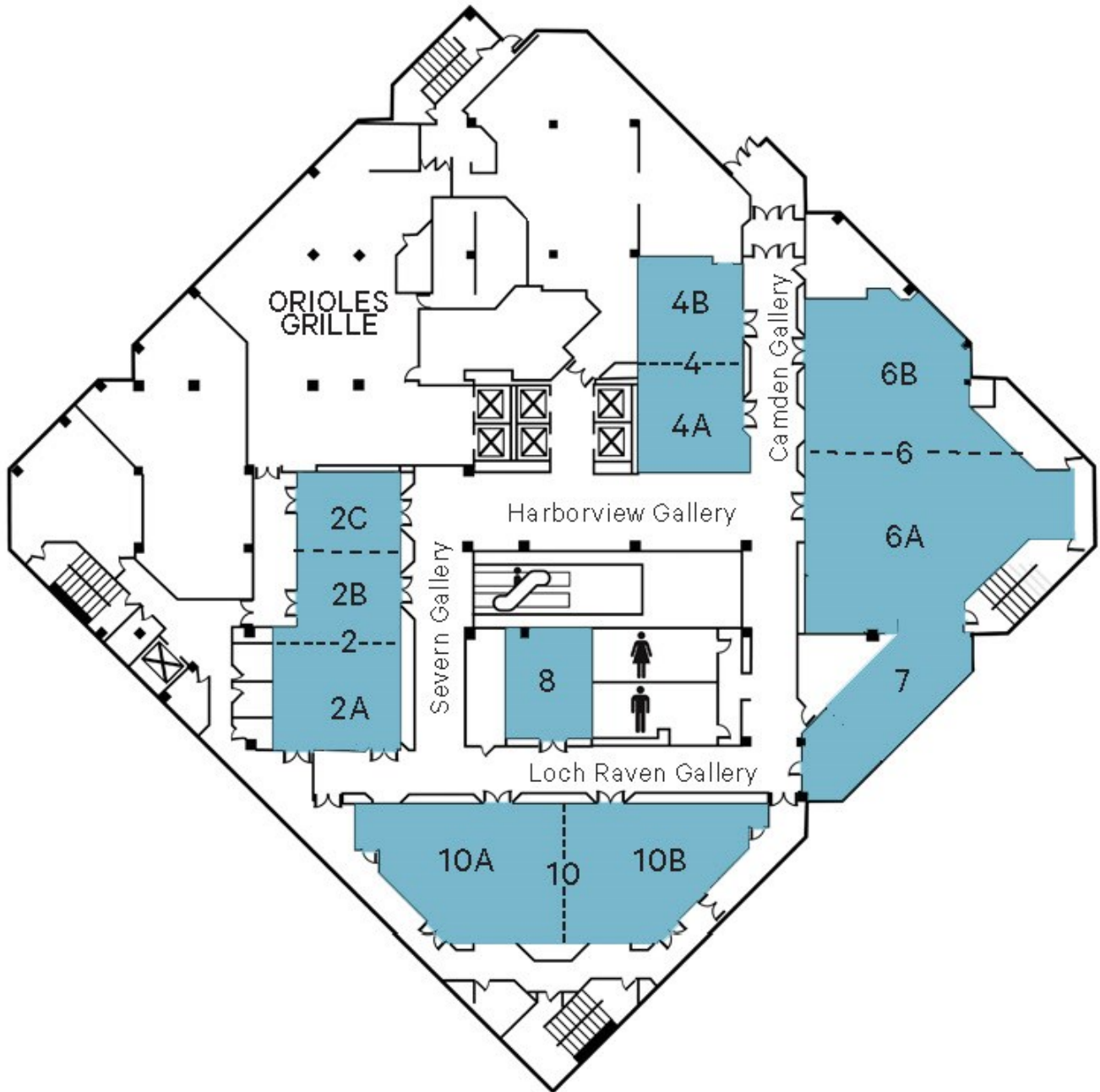
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Conference Secretariat

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SHERATON MEETING SPACE MAP

2nd Floor Map



2—Severn Rooms

7—Board Room

4—Camden Rooms

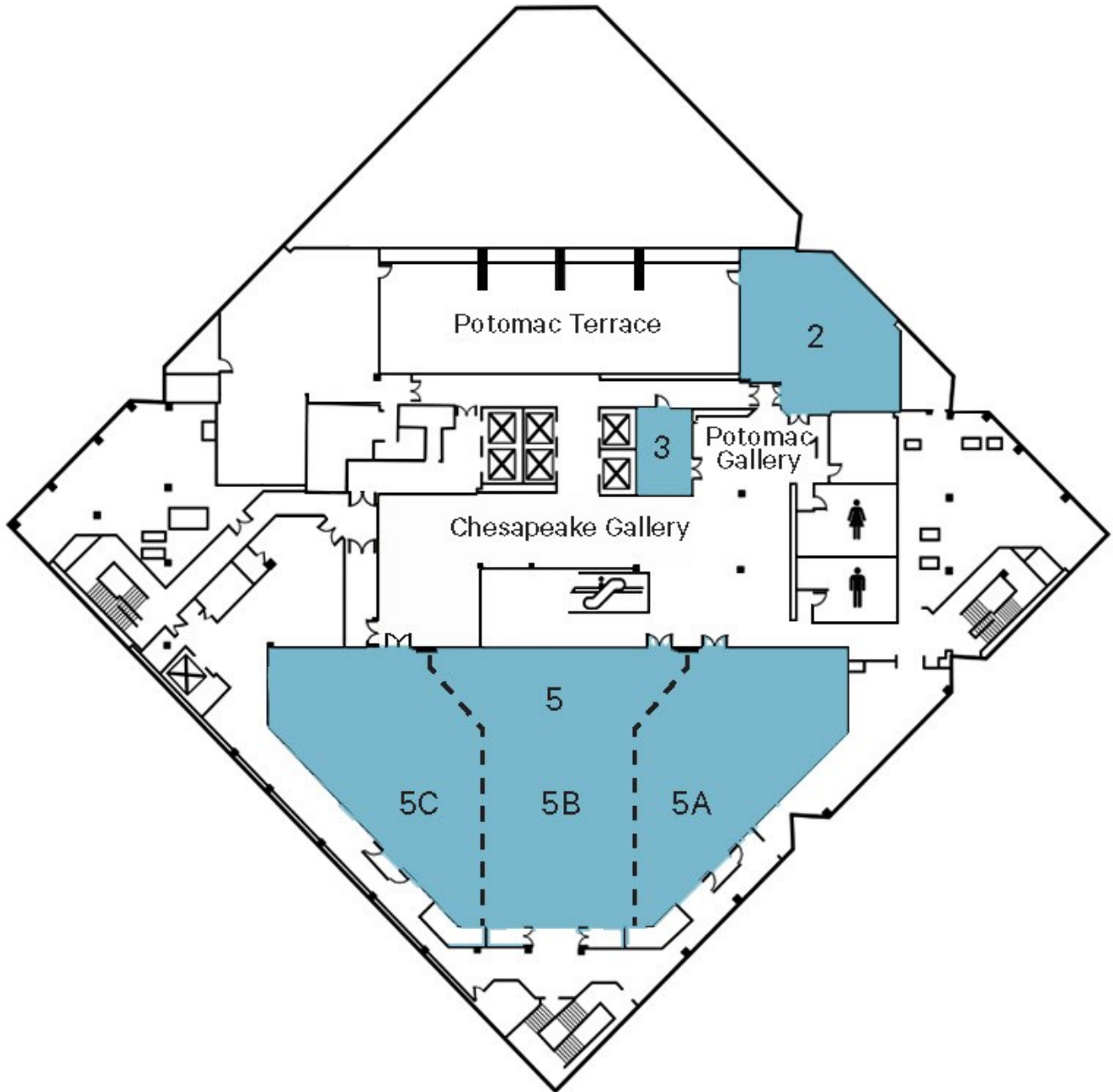
8—Sassafras Room

6—Harborview Rooms

10—Loch Raven Rooms

SHERATON MEETING SPACE MAP

3rd Floor Map



2—Potomac Room

3—Patapsco Room

5—Chesapeake Rooms*

***General Session**

WELCOME FROM THE CONFERENCE ORGANIZER FOR THE 9TH US HAB

Welcome to Baltimore and the 9th US HAB Conference! Much has changed since the 8th US HAB Conference, both in Baltimore and around the world, and never has the importance of HAB research been greater than it is today.

The theme for the 9th US HAB Conference is **“Training The Next Generation.”** Harmful algae and its environmental effects are becoming better understood by scientists. This meeting will hopefully serve as a means to usher in new ideas and ways of researching and treating harmful algae that will be embraced by the next generation of researchers in the field.

We are thrilled with the quality and diversity of the program for the 9th US HAB Conference. Delegates will be able to experience work that is at the forefront of what is being done nationally. The 9th US HAB Conference features speakers and attendees from all over the United States, and spans a wide variety of topics such as HABs and drinking water, mitigation, toxin standards, and remote sensing. If it wasn't for the support of our sponsors and other local organizations, this conference would not have been possible. Everyone is encouraged to find out more about sponsors and partner organizations, all of whom are listed in the program. We would like to truly thank everyone involved in allowing such a terrific conference to come together.

In addition to the outstanding scientific program, the 9th US HAB Conference provides us with an opportunity to catch up socially with friends and colleagues from around the world. On behalf of the Local Organizing Committee and everyone else responsible for planning the 9th US HAB Conference we wish you a very successful and enjoyable conference. We thank you for attending and welcome you to Baltimore for what should be an exciting week!

Best Wishes,



Allen R. Place
Conference Organizer



WELCOME FROM THE NATIONAL HAB COMMITTEE

Dear Colleagues,

The National HAB Committee (NHC) is pleased to welcome you to the 9th Symposium on Harmful Algae in the United States. This Symposium was first held in Woods Hole, MA in 2000, and brought together a group of scientists and managers engaged in HAB research in marine systems to discuss ongoing and emergent issues. Since then, the Symposium has expanded to include HABs in freshwater systems, as well as a greater diversity of research topics and themes. The locations selected for the Symposium also better reflect the widespread distribution of HAB problems in the U.S. After switching between East and West coast venues for several years, the Symposium was held in Texas in 2011, and Florida's Gulf coast in 2013, and at this year's meeting we will vote between proposed venues in Alabama and Ohio. Attendance regularly exceeds 200, and this year's meeting is expected to draw over 230 participants.

Participation in the Symposium has also expanded over time to include increasing numbers of managers involved in monitoring HAB taxa and toxins, as well as increased participation by students and early career scientists. Since its inception, student engagement and involvement in the Symposium has been a priority, promoted through the establishment of travel awards for student attendees, which are coordinated by the NHC and sponsored by the U.S. National Office for Harmful Algal Blooms. The importance of student participation is reflected in the theme of this year's Symposium "Training the next generation", which further expands the impact of this meeting through technical workshops geared for students and early career scientists, managers, and technicians. These workshops address a core national infrastructure need for expertise in HAB detection and identification, and will help the next generation of scientists expand their technical skills and explore innovative approaches to HAB research. Student participation is also fostered through networking opportunities provided during poster sessions and social events, and through the Young Investigators meeting, which brings together small, interactive groups of established scientists and students.

It has been rewarding to see this conference evolve into a vital community forum that serves to advance ongoing HAB research in marine and freshwater systems. On the behalf of the NHC, we thank Dr. Allen Place and the national and local organizing committees for developing an excellent technical program that includes topics ranging from physiological ecology to emerging technologies and instrumentation. We look forward to what promises to be an outstanding Symposium, and to interacting with friends and colleagues who have contributed to the significant progress made in understanding and preventing HAB impacts.



Barbara Kirkpatrick
NHC Co-chair



Raphael Kudela
NHC Co-chair

9th US HAB ORGANIZING COMMITTEE MEMBERS

Local Organizing Committee

Conference Organizer

Allen Place, Institute of Marine and Environmental Technology, Maryland

Delaware

Kathryn Coyne, University of Delaware Lewes

Jennifer Merrill, Delaware Sea Grant

Maryland

Pat Glibert, UMCES Horn Point Laboratory

Cathy Wazniak, Maryland DNR

Judy O'Neil, UMCES Horn Point Laboratory

Jennifer Wolny, Maryland DNR

Fredrika Moser, Maryland Sea Grant

Jon Deeds, FDA

Kathy Brohawn, Maryland MDE

Kevin Sellner, Hood College

Virginia

Juliette Smith, Virginia Institute of Marine Science

Kim Reece, Virginia Institute of Marine Science

National Organizing Committee

Quay Dortch, NOAA National Centers for Coastal Ocean Science

Stephanie Moore, NOAA Northwest Fisheries Science Center

Deana Erdner, University of Texas Marine Science Institute

Mindy Richlen, Woods Hole Oceanographic Institution

Dianne Greenfield, CUNY Advanced Science Research Center

Marc Suddleson, NOAA National Centers for Coastal Ocean Science

VENUE AND CONFERENCE STRUCTURE

Registration

Registration will be located on the 3rd level outside of the main meeting room and will be staffed daily from 0730 - 1700 Monday - Thursday, and 0730 -1330 Friday. Registration will also be available at IMET during the weekend workshops and at the opening mixer on Sunday evening.

Name Badges

Delegates are requested to wear their name badge at all times during the conference. This badge is also your ticket to conference functions.

Presentation Uploads

All presentations are to be loaded onto the conference laptop computers in the Speakers Prep Room in advance - you cannot use your own laptop. Please ensure that you take your CD / USB to the Speakers Prep Room to be loaded well before your session (preferably the day before). While you can check that the presentation works after uploading, there is no computer availability for major changes to be done. Please do not leave your upload until the last moment.

The Speaker Ready Room is located in the Patapsco Room on the 3rd floor. There will be 2 laptops labeled AM and PM. The AM laptop will be the one used for all AM talks and the PM laptop for all PM talks. The laptop not being used in the current session will be available for uploads throughout the day, and both will be available at the beginning and end of conference days. There will be a projector available in the Speaker Ready Room for testing.

Conference Structure

For session details, refer to the Timetable pages (printed in color)

Each morning begins with a plenary session. After the plenary talk, sessions will commence in the main room and continue throughout the day. Most talks are 15 minutes with some 5-minute speed talks mixed in. Every effort will be made by the chairpersons to keep to the allotted times. If you are a presenter, please assist the program by keeping your talk within the allotted timeframe.

Posters

Posters will be on display for the entire conference in the 2nd Floor Rooms. Poster Cocktail Sessions will be held each evening. Poster presenters will be standing with their posters during this session to answer any questions; please see the schedule to find out which evenings specific presenters are expected to stand with their posters. Student posters will be judged during respective poster sessions. A rotating selection of hors d'oeuvres and drinks will be served.

Exhibition Booth Displays

Exhibition booth displays from our sponsors and exhibitors will be in the 2nd Floor Foyer for the duration of the conference and can be accessed throughout the conference, Sunday to Friday. Refreshments will be served in this area during the conference to enable maximum time for delegates to meet Exhibition Stand holders and study the posters. Exhibitors have put in enormous cost and effort to exhibit to the marine biotechnology audience. Please make them feel welcome.

Conference Dress Code

Dress for the conference is business-casual comfortable clothing. Ties and jackets are not necessary. Dress for the Conference Banquet on Thursday 1 November is smart casual.

Messages

Please check the notice board by the Conference Registration regularly for messages.

During conference hours: 0800-1700 Secretariat Telephone is: 1-267-994-7098

Public Transport, Taxis, ATM and Banking

Please check with the Convention Center Reception on the Ground Level.

CONFERENCE SOCIAL FUNCTIONS

SUNDAY—OPENING MIXER - 19:00-21:00

The welcome reception features music, food, and drinks. It's a great chance to mingle with other participants at the conference.

MONDAY-FRIDAY—POSTER SESSIONS

During the poster session, drinks and light hors d'oeuvres will be served. These sessions will give poster presenters the opportunity to discuss their work with conference participants. Authors will stand with their posters for discussions at the times listed on the schedule (arranged by topic). Student posters will be judged during this time.

WEDNESDAY—CRAB FEAST AT IMET - 19:30-21:30

A traditional Maryland Crab Feast will be held on Wednesday evening at the Institute of Marine and Environmental Technology. Crabs will be steamed fresh on site, and we will have some great local beer available. There is a feast of other options available besides crabs. *Tickets must be purchased in advance.

THURSDAY—CONFERENCE BANQUET - 19:00-21:00

The conference banquet will be held in the Chesapeake Ballroom on Thursday evening. The banquet will be buffet-style, and includes drinks. *Tickets must be purchased in advance.

STUDENT PRIZES

Student presentations will be judged by a panel during the conference and prizes will be awarded during the banquet.

BEST ORAL PRESENTATION

A prize of \$250 USD is available for the best student oral presentation.

BEST POSTER PRESENTATION

A prize of \$250 USD is available for the best student poster presentation.

BEST SPEEDTALK/POSTER PRESENTATION

A prize of \$250 USD is available for the best student speedtalk and poster presentation.

PLENARY SPEAKERS

The committee is pleased to present plenary speakers at the **9th US HAB Conference**, a wonderful mix of the finest researchers in harmful algae:



Dr. Eric Davidson

Director and Professor, UMCES Appalachian Laboratory

Manure Happens: The Consequences of Feeding Seven Billion Human Carnivores

Monday, November 13 at 8:20AM



Dr. Xin Zhang

Assistant Professor, UMCES Appalachian Laboratory

Manure Happens: The Consequences of Feeding Seven Billion Human Carnivores

Monday, November 13 at 8:20AM



Dr. James Cloern

Senior Research Scientist, US Geological Survey

Phytoplankton: Large Cells Rule in Temperate Estuaries, and Why

Tuesday, November 14 at 8:30AM



Dr. Todd Rex Miller

Associate Professor, University of Wisconsin Milwaukee

Cyanotoxins in Lakes and Drinking Water: A tale of four cities

Wednesday, November 15 at 8:30AM



Dr. Clarissa Anderson

Executive Director, Southern California Coastal Ocean Observing System

The struggle is real: regional challenges for predicting blooms of toxic *Pseudo-nitzschia*

Thursday, November 16 at 8:30AM



Dr. Don Anderson

Senior Scientist, Woods Hole Oceanographic Institute

The US National HAB Program – A Retrospective and Look to the Future

Friday, November 17 at 8:30AM

THANK YOU TO OUR SPONSORS

9th US HAB Sponsors

- Institute of Marine and Environmental Technology
- Maryland Department of Natural Resources
- Maryland Sea Grant
- Delaware Sea Grant
- Virginia Sea Grant
- NCCOS (NOAA)
- FlowCam
- McClane Research Laboratories
- Cambridge Isotope Laboratories
- Bay Instruments
- US Food & Drug Administration: Center for Food Safety and Applied Nutrition
- IKA
- Abraxis
- NASA
- Phytoxigene
- Turner Designs
- Keyence
- Maryland Department of the Environment
- University of Maryland Center for Environmental Science
- National Institute of Standards and Technology
- Xylem, Inc.



Institute of Marine and Environmental Technology



The Institute of Marine and Environmental Technology (IMET) is home to one of the largest groups of scientists in the world addressing marine and environmental research through molecular approaches. Focusing on the sustainable use of natural resources and enhancement of human health, IMET is a joint University System of Maryland research institute capitalizing on the strengths of the University of Maryland Center for Environmental Science (UMCES), the University of Maryland Baltimore County (UMBC) and the University of Maryland Baltimore (UMB) in a state-of-the-art research facility located at Baltimore's Inner Harbor.

The scientists at IMET create technologies and processes designed to foster the protection and restoration of coastal marine systems and their watersheds, sustainable use of resources and improvement of human health.



IMET's work includes the use of aquaculture and genomics to foster conservation and creation of marine resources, including marine bioenergy; environmental sensor development; environmental remediation; developmental biology; marine biomedicine; molecular and cellular systems and sustainable urban ports and ecosystems.



imet.usmd.edu

TIMETABLE AND PROGRAM

OVERALL CONFERENCE TIMETABLE AND PROGRAM EXPLANATION

Please use the following color guide to help find the location of conference talks/events:

IMET*
(off-site)

Chesapeake Gallery
3rd Floor

Potomac (Sheraton)
3rd Floor

Harborview (Sheraton)
2nd Floor

**Sassafras, Severn,
Camden, Loch Raven
(Sheraton)**
2nd Floor

Chesapeake (Sheraton)
3rd Floor

*The Institute of Marine and Environmental Technology (IMET) is located at 701 E Pratt Street. It is located ~.6 miles from the Sheraton Inner Harbor.

TIME	SATURDAY, 11TH NOVEMBER 2017		
	(WORKSHOPS AT IMET)		
08:00	REGISTRATION		
09:30	IDENTIFICATION OF FRESHWATER HABS IMET ROOM 2078 ANDY CHAPMAN & JENNIFER WOLNY	DETECTION AND QUANTIFICATION OF MARINE TOXINS IMET ROOM 2038 JOHN DEEDS & JULIETTE SMITH	MOLECULAR IDENTIFICATION OF HABS IMET ROOM 5081 KATHY COYNE & WAYNE LITAKER
12:30	Lunch		
17:00	Workshops End		

TIME	SUNDAY, 12TH NOVEMBER 2017			
	(WORKSHOPS AT IMET)			
08:00	REGISTRATION			
09:30	IDENTIFICATION OF MARINE HABS IMET ROOM 2078 ANDY CHAPMAN & JENNIFER WOLNY	DETECTION AND QUANTIFICATION OF FRESHWATER TOXINS IMET ROOM 5081 GREG BOYER & TODD MILLER	FLOW CYTOBOT WORKSHOP IMET ROOM 2041 LISA CAMPBELL & HEIDI SOSIK	PAM FLUOROMETRY IMET ROOM 4093 PAT GLIBERT & TODD KANA
12:30	LUNCH			
15:00	REGISTRATION AND POSTER MOUNTING (SHERATON - 2ND FLOOR SPACES)			
16:30	NATIONAL HAB COMMITTEE MEETING (SHERATON - POTOMAC ROOM)			
17:30	YOUNG INVESTIGATOR PROGRAM (SHERATON - BOARDROOM)			
17:00	WORKSHOPS END			
19:00	CONFERENCE MIXER (SHERATON - HARBORVIEW ROOM)			

TIME	MONDAY, 13TH NOVEMBER 2017
07:30	REGISTRATION & COFFEE
08:20	<p>PLENARY 1: MANURE HAPPENS: THE CONSEQUENCES OF FEEDING SEVEN BILLION HUMAN CARNIVORES</p> <p>SPEAKERS: ERIC A. DAVIDSON AND XIN ZHANG</p>
09:30	<p>PHYSIOLOGY AND PHYSIOLOGICAL ECOLOGY</p> <p>MODERATOR: PAT GLIBERT</p> <p>9:30 - AN INTEGRATED LOOK AT <i>KARENIA BREVIS</i> PHOTOPHYSIOLOGY - CHARLES TILNEY</p> <p>9:45 - THE EFFECT OF VARIOUS SPECIES OF MACROALGAE ON THE GROWTH, SURVIVAL, AND TOXICITY OF <i>KARENIA BREVIS</i> - KAYLA GARDNER</p> <p>10:00 - NUTRITIONAL AND PHYSIOLOGICAL ADAPTATIONS OF <i>KARLODINIUM VENEFICUM</i>: IMPLICATIONS FOR CHESAPEAKE BAY - CHIHHSIEN (MICHELLE) LIN</p> <p>10:15 - DETERMINING THE DIVISION TIME (TD) OF <i>KARLODINIUM VENEFICUM</i> USING AN ASYNCHRONOUS CULTURE GROWTH METHOD - MATTHEW PARROW</p> <p>10:30 - RECENT DISCOVERIES BROADEN THE ECOLOGICAL NICHE OF BROWN TIDES CAUSED BY THE PELGOPHYTES, <i>AUREOCOCCUS ANOPHAGENFFERENS</i> AND <i>AUREOUMBRA LAGUNESIS</i> - CHRISTOPHER GOBLER</p> <p>10:45 - (S) THE INTERACTIVE ROLES OF NITROGEN LOADING AND WARMING IN CONTROLLING MICROCYSTIN PRODUCTION IN <i>MICROCYSTIS</i> - BENJAMIN J. KRAMER</p>
10:50	COFFEE BREAK
11:10 (1)	<p>11:10 - TRADE-OFF AND PUTATIVE TAX BETWEEN GRAZER-INDUCED TOXIN PRODUCTION AND CELL GROWTH IN THE MARINE DINOFLAGELLATE <i>ALEXANDRIUM FUNDYENSE</i> - GIHONG PARK</p> <p>11:25 - (S) BENEFIT AND COST OF GRAZER-INDUCED TOXIN PRODUCTION IN THE DINOFLAGELLATE <i>ALEXANDRIUM TAMARENSE</i> COMPLEX - HANS DAM</p> <p>11:30 - THE ROLE OF DORMANCY-BREAKING BY CHILLING IN DETERMINING <i>ALEXANDRIUM CATENELLA</i> BLOOM PHENOLOGY - ALEXIS FISCHER</p> <p>11:45 - INTERPLAY OF TEMPERATURE AND GENETIC COMPOSITION ON THE SEASON SIZE DISTRIBUTIONS OF THE MIXOTROPHIC CILIATE, <i>MESODINIUM</i>, ON THE NEW ENGLAND SHELF - EMILY F. BROWNLEE</p> <p>12:00 - (S) EFFECT OF THE DINOFLAGELLATE PARASITE <i>AMOEBOPHYRA</i> ON <i>KARENIA BREVIS</i> - VINCENT J LOVKO</p> <p>12:05 - (S) THE INFLUENCE OF THE ENVIRONMENTAL FACTORS ON THE ALLELOPATHIC EFFECT OF DOMOIC ACID ON NATURAL PHYTOPLANKTON COMMUNITIES - ELISE VAN MEERSSCHE</p>

<p>11:10 (2)</p>	<p>12:10 - (S) DRAMATIC CHANGES IN PROTEIN SYNTHETIC RATE OF AXENIC <i>AMPHIDINIUM CARTERAE</i> IN RESPONSE TO INCREASING TEMPERATURES, DENSITY OF CULTURE, AND OVER THE DIEL CYCLE - ROSEMARY JAGUS</p> <p>12:15 - (S) IMAGE CYTOMETRY (ICM) AS A METHOD FOR CELL CYCLE ANALYSIS OF MIXO-TROPHIC CULTURES AND FIELD BLOOM SAMPLES OF <i>KARLODINIUM VENEFICUM</i> - ERIK BRO-EMSEN</p>
<p>12:20</p>	<p style="text-align: center;">LUNCH</p>
<p>13:20</p>	<p style="text-align: center;">FISHERIES AND FOODWEBS AND BENTHIC HABS WITH A FOCUS ON CIGUATERA</p> <p style="text-align: center;">MODERATORS: CATHY WAZNIAK AND MARC SUDDLESON</p> <p>13:20 - KEYNOTE: INFLUENCE OF <i>KARENIA BREVIS</i> BLOOMS ON FISH, SHRIMP AND CRAB COMMUNITY DIVERSITY: THE APALACHICOLA BAY EXAMPLE - CYNTHIA HEIL</p> <p>13:40 - PRESENCE AND PERSISTENCE OF THE CYANOTOXIN MICROCYSTIN IN AQUATIC AND RIPARIAN CONSUMERS - SPENCER TASSONE</p> <p>13:55 - HIGH-RESOLUTION TEMPORAL POPULATION GENETIC STRUCTURE OF <i>GAMBIERDISCUS CARIBAUES</i> COMPARED TO SPATIAL DIFFERENTIATION ACROSS THE GREATER CARIBBEAN REGION - INGRID SASSENHAGEN</p> <p>14:10 - CIGUATOXICITY AND MAITOTOXICITY OF REPRESENTATIVE <i>GAMBIERDISCUS</i> AND <i>FUKUYOYA</i> SPECIES - WAYNE LITAKER</p> <p>14:25 - <i>GAMBIERDISCUS</i> HAS NEIGHBORS: AN EXAMINATION OF THE EPIPHYTIC COMMUNITY COHABITING MACROPHYTE HOSTS WITH <i>GAMBIERDISCUS</i> - MICHAEL PARSONS</p> <p>14:40 - REGIONAL GROWTH PROJECTIONS FOR CIGUATERA-ASSOCIATED DINOFLAGELLATES IN THE CARIBBEAN - STEVE KIBLER</p> <p>14:55 - THE IMPACT OF DOMOIC ACID ON MICROBIAL COMMUNITIES IN THE COASTAL OCEAN - MARILOU SISON-MANGUS</p> <p>15:10 - (S) TROPHIC TRANSFER OF BREVETOXINS AND NEUROTOXIC SHELLFISH POISONING (NSP) IN CARNIVOROUS MOLLUSKS - RICHARD PIERCE</p> <p>15:25 - (S) PINFISH CIGUATOXICITY IN RELATION TO VARYING <i>GAMBIERDISCUS</i> DENSITIES IN THE FLORIDA KEYS - DANELLE DOWNS</p> <p>15:30 - (S) NODULARIN FROM BENTHIC FRESHWATER PERIPHYTON AND IMPLICATIONS FOR TROPHIC TRANSFER - AMANDA FOSS</p>
<p>16:30</p>	<p style="text-align: center;">POSTER SESSION</p>

**PHYCOTOXINS STANDARDS AND CERTIFIED REFERENCE MATERIALS:
NEEDS & SOURCES**

18:00

18:00 - INTRODUCTION TO THE SESSION - FRANK MARI AND BETH HAMELIN

18:05 - VARIABILITY OF MICROCYSTIN-LR STANDARDS AVAILABLE FROM COMMERCIAL VENDORS
I: CHEMICAL ANALYSIS - JOHNSIE LANG

18:20 - VARIABILITY OF MICROCYSTIN-LR STANDARDS AVAILABLE FROM COMMERCIAL VENDORS
II: TOXICOLOGICAL EVALUATION - DONNA HILL

18:35 - EVALUATION AND OPTIMIZATION OF MICROCYSTIN ANALYTICAL METHODS - JUDY
WESTRICK

18:50 - WORKING WITHOUT A SAFETY NET: WHAT DO YOU DO WHEN STANDARDS ARE NOT
AVAILABLE BUT YOU STILL NEED TO DO THE ANALYSIS? - GREG BOYER

19:05 - DEVELOPMENT AND CERTIFICATION OF REFERENCE MATERIALS FOR ALGAL BIOTOXINS: A
PERSPECTIVE FROM THE NATIONAL RESEARCH COUNCIL CANADA (NRCC) - PEARSE MCCARRON

19:20 - CERTIFIED REFERENCE MATERIALS CASE STUDY: REQUIREMENTS FOR AN INTERSTATE
SHELLFISH SANITATION CONFERENCE VALIDATION OF A LIQUID CHROMATOGRAPHY TANDEM
MASS SPECTROMETRY METHOD FOR DIARRHETIC SHELLFISH POISONING TOXINS IN SHELLFISH -
WHITNEY L. STUTTS

19:35 - THE PRODUCTION OF ISOTOPICALLY LABELED CYANOTOXIN STANDARDS: 15N-LABELED
MICROCYSTINS - JEFFREY WRIGHT

TIME	TUESDAY, 14TH NOVEMBER 2017
07:30	REGISTRATION & COFFEE
08:30	<p>PLENARY 2: NUTRIENTS, PHYTOPLANKTON BIOMASS, AND PRIMARY PRODUCTION IN THE WORLD'S ESTUARINE-COASTAL ECOSYSTEMS</p> <p>SPEAKER: JAMES CLOERN</p>
09:30	<p>MONITORING, MITIGATION AND MANAGEMENT OF HABS PART 1</p> <p>MODERATOR: JENNIFER WOLNY</p> <p>9:30 - KEYNOTE: PROGRESS IN HAB MITIGATION FOR FRESH AND MARINE SYSTEMS? - KEVIN SELLNER</p> <p>9:50 - (S) USE OF HYDROGEN PEROXIDE TO MITIGATE TOXIC CYANOBACTERIAL BLOOMS: REFINING APPROACHES AND DIFFERENTIAL EFFECTS ON PROKARYOTES - MARK LUSTY</p> <p>9:55 - (S) EFFECTS OF POTENTIAL ALGICIDAL COMPOUNDS PRODUCED BY <i>SHEWANELLA</i> SP. IRI-160 ON HARMFUL DINOFLAGELLATES - YANFEI WANG</p> <p>10:00 - USE OF A MULTI-PLEX QPCR ASSAY AS A CYANOTOXIN SCREENING TOOL FOR OHIO PUBLIC WATER SYSTEMS AND INLAND LAKES- HEATHER RAYMOND</p> <p>10:15 - COMMUNITY-BASED MITIGATION OF HARMFUL ALGAL BLOOMS AND SHELLFISH POISONINGS IN SOUTHEAST ALASKA - ESTHER KENNEDY</p>
10:30	COFFEE BREAK
10:45 (1)	<p>10:45 - MONITORING MULTIPLE HAB TOXINS AT THE LAND-SEA INTERFACE IN COASTAL CALIFORNIA - MEREDITH HOWARD</p> <p>11:00 - (S) MULTIPLE FRESHWATER AND MARINE ALGAL TOXINS AT THE LAND-SEA INTERFACE: IS BROADER MONITORING OF ALGAL TOXINS NECESSARY TO PROTECT NON-COMMERCIAL SHELLFISH HARVESTERS? - MELISSA PEACOCK</p> <p>11:05 - (S) A DECADE AND A HALF OF <i>PSEUDO-NITZSCHIA</i> SPP. AND DOMOIC ACID ALONG THE COAST OF SOUTHERN CALIFORNIA - JAYME SMITH</p> <p>11:10 - FORECASTING 'EVERY BEACH, EVERY DAY' TO IMPROVE PUBLIC HEALTH INFORMATION DURING <i>KARENIA BREVIS</i> BLOOMS - BARBARA KIRKPATRICK</p> <p>11:25 - (S) INNOVATION THROUGH CITIZEN SCIENCE AND OUTREACH - TRACY FANARA</p> <p>11:30 - USING NEW INSTRUMENTATION AND PIGMENT RATIOS TO MONITOR CYANOBACTERIA - LAWRENCE YOUNAN</p> <p>11:45 - KEYNOTE: EXPLORING CLIMATE IMPACTS ON INLAND AND COASTAL WATERS - ANNA M. MICHALAK</p>

<p>12:05</p>	<p style="text-align: center;">LUNCH</p>
<p>13:30</p>	<p style="text-align: center;">EMERGING HABS AND TOXINS MODERATOR: JONATHAN DEEDS</p> <p>13:30 - (S) FIRST RECORDS OF THE GENUS <i>AZADINIUM</i> (DINOPHYCEAE) FROM PUGET SOUND, WASHINGTON STATE - NEIL HARRINGTON</p> <p>13:35 - TEMPORAL AND SPATIAL DISTRIBUTION OF <i>AZADINIUM SP.</i> IN WASHINGTON STATE WATERS - NICOLAUS ADAMS</p> <p>13:50 - LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETRY ANALYSIS OF A NEW AZASPIRACID PRODUCED BY <i>AZADINIUM POPORUM</i> IN WASHINGTON STATE - WHITNEY STUTTS</p> <p>14:05 - CLADISTIC ASSESSMENT OF CYANOBACTERIAL BIOACTIVE METABOLITE ACCUMULATION IN MARINE, FRESHWATER, AND TERRESTRIAL CYANOBACTERIAL ISOLATES - I-SHUO HUANG</p> <p>14:20 - SELF PROTECTION FOR THE DSP PRODUCER <i>PROROCENTRUM LIMA</i>: SULFATED DIESTERS AND A SPECIALIZED ESTERASE - JEFFREY WRIGHT</p> <p>14:35 - PARALYTIC SHELLFISH TOXIN MONITORING IN NEW YORK STATE FRESHWATER - ZACHARIAS SMITH</p> <p>14:50 - DISINFECTION BY-PRODUCTS ARISING FROM <i>MICROCYSTIS AERUGINOSA</i> ALGAL DOM - MICHAEL GONSIOR</p> <p>15:05 - UNTARGETED METABOLOMICS OF SPIROIMINE TOXIN PRODUCING DINOFLAGELLATES AND DISCOVERY OF THE POTENT CYTOTOXIN PORTIMINE - WENDY STRANGMAN</p> <p>15:20 - LATE SUMMER HARMFUL ALGAL BLOOMS IN LOWER CHESAPEAKE BAY: EMERGING PATTERNS AND IMPACTS - KIMBERLY REECE</p> <p>15:35 - (S) EMERGENCE OF <i>ALEXANDRIUM MONILATUM</i> IN SOUTHWESTERN CHESAPEAKE BAY: SEDIMENT CYST DISTRIBUTION AND HEALTH IMPACTS ON ADULT OYSTERS - SARAH PEASE</p> <p>15:40 - (S) <i>ANABAENA</i> AS THE LIKELY SOURCE OF MICROCYSTIN RESPONSIBLE FOR THE RAPID DEATH OF 31 STEERS DRINKING FROM A S.E. OREGON RESERVOIR - THEO DREHER</p> <p>15:45 - (S) PHYLOGENETICS, GROWTH AND TOXICITY ASSESSMENT OF <i>COOLIA MONOTIS</i> MEUNIER (DINOPHYCEAE) FROM NOVA SCOTIA, CANADA - CHERYL RAFUSE</p> <p>15:50 - (S) UNUSUAL "COLD WEATHER" FISH KILLS IN MARYLAND CAUSED BY KARLOTOXIN - CHARLIE POUKISH</p>
<p>16:30 (1)</p>	<p style="text-align: center;">HABHRCA AND NOAA PROGRAM UPDATES</p> <p>16:30 - OVERVIEW NOAA HAB RESEARCH AND RESPONSE - STEVE THUR, ACTING DIRECTOR, NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE (NCCOS)</p> <p>16:45 - UPDATE ON HABHRCA 2014 AND CURRENT CONGRESSIONAL REAUTHORIZATION EFFORTS - CAITLIN GOULD, NCCOS, HABHRCA COORDINATOR</p> <p>17:00 - OPEN DISCUSSION: EVENT RESPONSE PROGRAM - QUAY DORTCH, MARC SUDDLESON, CAITLIN GOULD, NCCOS EVENT RESPONSE PROGRAM MANAGERS AND HABHRCA COORDINATOR</p>

<p>16:30 (2)</p>	<p>17:15 - OPEN DISCUSSION: ON THE NEED FOR HAB OBSERVING NETWORKS - GREG DOUCETTE, ECOLOGICAL FORECASTING ROADMAP, HAB TEAM CO-LEAD</p> <p>17:30 - UPDATE ON COMPETITIVE RESEARCH PROGRAMS - ALAN LEWITUS, DIRECTOR, NCCOS COMPETITIVE RESEARCH PROGRAM</p> <p>17:45 - UPDATE ON ECOLOGICAL FORECASTING ROADMAP - LONNIE GONSALVES, PROGRAM CO-ORDINATOR, NOAA ECOLOGICAL FORECASTING ROADMAP</p> <p>18:00 - GAO: FEDERAL AGENCIES' HAB-RELATED EXPENDITURES AND COORDINATION - JOSEY BALLENGER, SENIOR ANALYST, GAO</p> <p>18:15 - QUESTIONS AND ANSWERS</p>
<p>18:30</p>	<p>POSTER SESSION</p>

TIME	WEDNESDAY, 15TH NOVEMBER 2017
07:30	REGISTRATION & COFFEE
08:30	<p>PLENARY 3: CYANOTOXINS IN LAKES AND DRINKING WATER: A TALE OF FOUR CITIES SPEAKER: TODD MILLER</p>
09:30	<p>HUMAN & NATURAL DRIVERS FOR WATERSHED & COASTAL HABS MODERATOR: JENNIFER MERRILL</p> <p>9:30 - KEYNOTE: MITIGATING A GLOBAL EXPANSION OF TOXIC CYANOBACTERIAL BLOOMS: THE CONFOUNDING IMPACTS AND CHALLENGES POSED BY CLIMATE CHANGE - HANS PAERL 9:50 - CULTURAL EUTROPHICATION AND HARMFUL ALGAL BLOOMS IN THE INDIAN RIVER LAGOON, EAST-CENTRAL FLORIDA - BRIAN LAPOINTE 10:05 - UNRAVELING THE MULTIFACETED EFFECTS OF CHANGING FLOW REGIMES AND HYDROLOGIC MODIFICATIONS ON CYANOBACTERIAL BLOOM POTENTIALS ALONG THE CAPE FEAR RIVER, NC - NATHAN HALL 10:20 - INTERACTIVE EFFECTS OF SIMULATED HYPOXIA AND OCEAN ACIDIFICATION ON GROWTH OF THE HARMFUL DINOFLAGELLATE <i>AMPHIDINIUM CARTERAE</i> - ALEXANDRA BAUSCH 10:35 - EARLY ONSET OF A MICROCYSTIN-PRODUCING CYANOBACTERIAL BLOOM IN THE MAUMEE RIVER (OH, USA) - ROBERT MCKAY</p>
10:50	COFFEE BREAK
11:10	<p>11:10 - <i>PSEUDO-NITZSCHIA</i> SPECIES DETECTED IN BARNEGAT BAY-LITTLE EGG HARBOR, NEW JERSEY DURING 2012-2014 - LING REN 11:25 - HABS AT THE COAST OF BAJA CALIFORNIA: THE ROLE OF IRON IN POTENTIAL ALGAE-BACTERIAL MUTUALISM - KYOKO YARMIZU 11:40 - INVESTIGATING VERTICAL AND TEMPORAL HETEROGENIETIES OF CYANOBACTERIA BLOOMS USING A LONG TERM IN-SITU MONITORING STATION - ANNE WILKINSON</p>
12:00	LUNCH
13:00 (1)	<p>MONITORING, MITIGATION, AND MANAGEMENT OF HABS PART 2 MODERATOR: KEVIN SELLNER</p>

<p>13:00 (2)</p>	<p>13:00 - (S) EXPANDING THE NETWORK OF IMAGING FLOW CYTOBOTS FOR EARLY WARNING OF HABS - LISA CAMPBELL</p> <p>13:05 - DECADAL TRENDS IN OCEAN WARMING WITHIN TEMPERATE COASTAL OCEANS CONTRIBUTES TO INCREASED GROWTH, DISTRIBUTION, AND INTENSITY OF <i>COCHLODINIUM POLYKRIKOIDES</i> BLOOMS - ANDREW GRIFFITH</p> <p>13:20 - (S) A 15-YEAR SUMMARY OF SOUTH CAROLINA HARMFUL ALGAL BLOOMS AND FISH KILLS: MONITORING, RESPONSE, AND OUTREACH - DIANNE GREENFIELD</p> <p>13:25 - (S) OVERVIEW OF US EPA OFFICE OF RESEARCH AND DEVELOPMENT'S RESEARCH ON ANALYSIS AND MONITORING OF FRESH WATER AND COASTAL/ESTUARINE ENVIRONMENTS - HEATH MASH</p> <p>13:30 - SPATIOTEMPORAL SURVEY OF THE 2016 LAKE OKEECHOBEE AND ST. LUCIE RIVER CYANOBACTERIAL BLOOM - TIMOTHY DAVIS</p> <p>13:45 - SPATIAL AND TEMPORAL VARIATION IN MICROCYSTIN OCCURRENCE IN WADEABLE STREAMS IN THE SOUTHEASTERN UNITED STATES - KEITH LOFTIN</p> <p>14:00 - TOXIC <i>PLANKTOTHRIX</i> BLOOMS IN THE LAKE ERIE WATERSHED - GEORGE BULLERJAHN</p>
<p>14:15</p>	<p style="text-align: center;">BREAK</p>
<p>14:30</p>	<p>14:30 - LAKE HARSHA: THREE YEARS OF HABS MONITORING - JOEL ALLEN</p> <p>14:45 - USING HISTORICAL DATA FROM 20 MIDWESTERN USA RESERVOIRS TO IDENTIFY TRENDS IN HARMFUL CYANOBACTERIA BLOOMS AND FACTORS AFFECTING THEIR SEVERITY - NATHAN SMUCKER</p> <p>15:00 - CYANOBACTERIA AND ASSOCIATED TOXINS AND TASTE-AND-ODOR COMPOUNDS IN THE KANSAS RIVER, KANSAS - JENNIFER GRAHAM</p> <p>15:15 - OCCURRENCE OF MICROCYSTIN CONTAMINATION IN BLUE-GREEN ALGAL DIETARY SUPPLEMENTS IN THE UNITED STATES AND THE EVALUATION OF A COMMERCIALY AVAILABLE PROTEIN PHOSPHATASE INHIBITION ASSAY (PPIA) SCREENING KIT - JONATHAN DEEDS</p> <p>15:30 - HOW TO BETTER TARGET HAB RESEARCH BY UNDERSTANDING THE ROLE OF THE INTERSTATE SHELLFISH SANITATION CONFERENCE - QUAY DORTCH</p>
<p>16:00</p>	<p style="text-align: center;">POSTER SESSION</p>
<p>18:00 (1)</p>	<p style="text-align: center;">SPECIAL SESSION: EPA-HABS AND DRINKING WATER</p> <p>18:00 - INTRODUCTION TO HABS AND DRINKING WATER - HANNAH HOLSINGER</p> <p>18:10 - STATE PERSPECTIVE ON MANAGING HABS AND DRINKING WATER - HEATHER RAYMOND</p> <p>18:15 - HAB MITIGATION POSSIBILITIES FOR SOURCES AND IN-PLANT TREATMENT IN DRINKING WATER FACILITIES - KEVIN SELLNER</p>

<p>18:00 (2)</p>	<p>18:20 - SOURCE WATER PROTECTION STRATEGIES FOR HABS - BO WILLIAMS 18:25 - COMMUNICATING THE RISKS OF CYANOTOXINS IN DRINKING WATER - KATIE FOREMAN 18:30 - PANEL DISCUSSION</p>
<p>19:30</p>	<p>9TH US HAB CRAB FEAST TICKETS MUST BE PURCHASED IN ADVANCE (OFF-SITE AT IMET*)</p> <p>*The Institute of Marine and Environmental Technology (IMET) is located at 701 E Pratt Street. It is located ~.6 miles from the Sheraton Inner Harbor.</p>

TIME	THURSDAY, 16TH NOVEMBER 2017
07:30	COFFEE
08:30	<p align="center">PLENARY 4: THE STRUGGLE IS REAL: REGIONAL CHALLENGES FOR PREDICTING BLOOMS OF TOXIC <i>PSEUDO-NITZSCHIA</i></p> <p align="center">SPEAKER: CLARISSA ANDERSON</p>
09:30	<p align="center">HOT TOPIC SESSION: RECENT EAST AND WEST COAST ASP EVENTS</p> <p align="center">MODERATOR: JONATHAN DEEDS</p> <p>9:30 - SYNERGISTIC CHARACTERIZATION OF <i>PSEUDO-NITZSCHIA</i> COMMUNITIES DURING UNPRECEDENTED DOMOIC ACID EVENTS - KATHERINE HUBBARD</p> <p>9:45 - WHAT'S FOR DINNER? PERSISTENT AND EXTENSIVE DOMOIC ACID CONTAMINATION IN THE FOOD WEB BEFORE, DURING, AND AFTER THE 2015 MEGA-BLOOM IN CALIFORNIA - RAPHAEL KUDELA</p> <p>10:00 - <i>PSEUDO-NITZSCHIA</i> EARLY WARNING BULLETIN INCREASES CLAMMING OPPORTUNITIES ON PACIFIC NORTHWEST OUTER COAST BEACHES - VERA TRAINER</p> <p>10:15 - ECONOMIC AND SOCIOCULTURAL IMPACTS OF THE 2015 WEST COAST DOMOIC ACID EVENT: IDENTIFYING COMMUNITY NEEDS TO HELP FISHING COMMUNITIES COPE - STEPHANIE MOORE</p> <p>10:30 - NOVEL COGNITIVE PROFILES ASSOCIATED WITH FETAL AND GERIATRIC EXPOSURE TO DOMOIC ACID IN NATIVE AMERICANS - LYNN GRATTAN</p> <p>10:45 - (S) THE GULF OF MAINE DOMOIC ACID EVENT OF 2016: AN EMERGING PUBLIC HEALTH CONCERN - BRYANT LEWIS</p> <p>10:50 - (S) WASHINGTON DEPARTMENT OF FISH AND WILDLIFE: MONITORING AND MANAGEMENT ACTIONS IN RESPONSE TO RECENT DOMOIC ACID EVENTS ALONG WASHINGTON'S COAST - ZACH FORSTER</p>
10:55	COFFEE BREAK
11:15 (1)	<p align="center">BLOOM PREDICTION, FORECASTING AND MODELING</p> <p align="center">MODERATOR: MINDY RICHLIN</p> <p>11:15 - EXAMINING AND FORECASTING CHARACTERISTICS OF THE ANNUAL CYANOBACTERIAL BLOOM IN LAKE ERIE - RICHARD STUMPF</p> <p>11:30 - USING PREDICTIVE LAKE MODELING TO ASSESS THE DEVELOPMENT OF CYANOBACTERIA BLOOMS: LAKE ECOSYSTEM RESPONSES TO NUTRIENT STRESSOR GRADIENTS - ERIK SMITH</p>

<p>11:15 (2)</p>	<p>11:45 - INFLUENCE OF WIND FORCING ON DURATION AND SAMPLING OF FLORIDA RED TIDE, <i>KARENIA BREVIS</i> - YIZHEN LI</p> <p>12:00 - DEVELOPMENT OF A MECHANISTIC ROMS-RCA-HAB MODEL FOR PREDICTING <i>PROROCENTRUM MINIMUM</i> AND <i>KARLODINIUM VENEFICUM</i> BLOOMS IN CHESAPEAKE BAY - PAT GLIBERT</p> <p>12:15 - SEASONAL TEMPERATURE CONDITIONING MEDIATES DORMANCY IN TAMPA BAY POPULATIONS OF <i>PYRODINIUM BAHAMESE</i> - CARY LOPEZ</p>
<p>12:30</p>	<p style="text-align: center;">LUNCH</p>
<p>13:30 (1)</p>	<p style="text-align: center;">EMERGING USE OF 'OMICS APPROACHES TO UNDERSTAND FRESHWATER AND MARINE HABS</p> <p style="text-align: center;">MODERATOR: KATHY COYNE</p> <p>13:30 - GENOME SEQUENCES OF PLANKTONIC BLOOM-FORMING <i>ANABAENA/DOLICHOSPERMUM/APHANIZOMENON</i> BELONG TO A DISTINCT GENUS-LEVEL CLADE AND REVEAL PATTERNS OF GENOME EVOLUTION - THEO DREHER</p> <p>13:45 - ABUNDANCE AND EXPRESSION OF NITROGEN UPTAKE AND METABOLIC GENES IN A LAKE ERIE <i>MICROCYSTIS</i> BLOOM DEMONSTRATE A DIVERSE AND ACTIVE NITROGEN METABOLISM IN THE <i>MICROCYSTIS</i> COMMUNITY - KEVIN MEYER</p> <p>14:00 - GENOME-RESOLVED METAGENOMICS REVEALS THE MICROBIAL DIVERSITY AND METABOLIC POTENTIAL OF TOXIC BENTHIC FRESHWATER <i>PHORMIDIUM</i> MATS - KEITH BOUMA-GREGSON</p> <p>14:15 - METABOLOMICS OF CYANOBACTERIAL HARMFUL ALGAL BLOOMS: RAPID ACCESS TO METABOLITE PROFILES AND IDENTIFICATION OF NOVEL CHEMISTRY - ALLISON STEWART</p> <p>14:30 - EUKARYOTIC PHYTOPLANKTON COMMUNITY SPATIOTEMPORAL DYNAMICS AS IDENTIFIED THROUGH GENE EXPRESSION WITHIN A EUTROPHIC ESTUARY - WEIDA GONG</p> <p>14:45 - EFFECTS OF NUTRIENT ENRICHMENT AND ELEVATED TEMPERATURE ON CYANOBACTERIA BLOOM DIVERSITY AND TOXICITY IN TEMPERATE FRESHWATER LAKES - JENNIFER JANKOWIAK</p> <p>15:00 - STRUCTURE AND FUNCTION OF THE MICROBIOME OF THE TOXIC DINOFLAGELLATE <i>ALEXANDRIUM TAMARENSE</i> - DEANA ERDNER</p> <p>15:15 - BOTH MODULAR AND SINGLE-DOMAIN TYPE I POLYKETIDE SYNTHASES ARE EXPRESSED IN THE BREVETOXIN-PRODUCING DINOFLAGELLATE, <i>KARENIA BREVIS</i> - FRANCES VAN DOLAH</p> <p>15:30 - (S) USE OF HIGH THROUGHPUT SEQUENCING TO ASSESS DIFFERENTIAL GRAZING ON HARMFUL ALGAL BLOOMS BY ZOOPLANKTON - MEGAN LADDS</p> <p>15:35 - (S) SCALING RIBOSOMAL RNA DIFFERENCES WITHIN DINOFLAGELLATES FOR SPECIES IDENTIFICATION - TSVETAN R BACHVAROFF</p> <p>15:40 - (S) ACETYL-COA CARBOXYLASES IN DINOFLAGELLATES: FUELING THE POLYKETIDE SYNTHASE PATHWAYS - SADDEF HAQ</p>

<p>13:30 (2)</p>	<p>15:45 - (S) PHOSPHOPANTETHEINYL TRANSFERASES IN DINOFLAGELLATES: FAT VERSUS TOXIN SYNTHESIS - ERNEST P. WILLIAMS</p> <p>15:50 - (S) STABLE ISOTOPES AS TOOL TO LINK NITROGEN SOURCE TO BLOOM AND TOXICITY - TAYLOR ARMSTRONG</p> <p>15:55 - (S) SPATIO-TEMPORAL DYNAMICS OF PLANKTONIC EUKARYOTES IN A HAB-PRONE MULTIPURPOSE RESERVOIR - AABIR BANERJI</p>
<p>16:30</p>	<p style="text-align: center;">POSTER SESSION</p>
<p>19:00</p>	<p style="text-align: center;">CONFERENCE BANQUET</p> <p>19:15 - NOAA PERSPECTIVES ON HABS: PARTNERSHIPS AND OPPORTUNITIES - NICOLE LEBOEUF DEPUTY ASSISTANT ADMINISTRATOR, NATIONAL OCEAN SERVICE, NOAA</p> <p>19:30 - VENUE CANDIDATE ONE: GULF SHORES- ORANGE BEACH, ALABAMA - ALAN WILSON (AUBURN UNIVERSITY), ALISON ROBERTSON (DAUPHIN ISLAND), MATT WATERS (AUBURN UNIVERSITY), AND DAVID HAMBRIGHT (UNIVERSITY OF OKLAHOMA)</p> <p>19:45 - VENUE CANDIDATE TWO: TOLEDO, OH - TIMOTHY DAVIS, MIKE MCKAY, GEORGE BULLERJAHN (BOWLING GREEN STATE UNIVERSITY), TOM BRIDGEMAN (UNIVERSITY OF TOLEDO)</p> <p>20:00 - NATIONAL HARMFUL ALGAL BLOOM COMMITTEE LIFETIME RESEARCH AND SERVICE AWARD THIS AWARD RECOGNIZES AND HONORS INDIVIDUALS WHO, THROUGHOUT THEIR CAREERS, HAVE SIGNIFICANTLY ADVANCED THE SCIENCE AND AWARENESS OF HARMFUL ALGAL BLOOMS IN THE UNITED STATES THROUGH THEIR RESEARCH ACHIEVEMENTS OR THEIR SERVICE, EDUCATION AND OUTREACH EFFORTS TO STUDENTS, FEDERAL AND STATE LEADERS AND THE GENERAL PUBLIC.</p> <p>20:15 - CARMELO R. TOMAS IN MEMORIAM: TED SMAYDA</p> <p>20:30 - VOTING FOR NEXT HAB CONFERENCE</p> <p>20:45 - STUDENT AWARDS</p> <p>21:00 - ACKNOWLEDGEMENT OF ROB MAGNIEN</p>

TIME	FRIDAY, 17TH NOVEMBER 2017
07:30	COFFEE
08:30	<p>PLENARY 5: THE US NATIONAL HAB PROGRAM - A RETROSPECTIVE AND LOOK TO THE FUTURE</p> <p>SPEAKER: DON ANDERSON</p>
09:30	<p>EMERGING TECHNOLOGIES AND ADVANCES IN REMOTE SENSING</p> <p>MODERATORS: KIMBERLY REECE AND JULIETTE SMITH</p> <p>9:30 - THE 3RD GENERATION ENVIRONMENTAL SAMPLE PROCESSOR (ESP) – TOWARDS MULTIPLEXED, WAVEGUIDE-BASED HAB SPECIES & TOXIN DETECTION ON A LONG-RANGE AUTONOMOUS UNDERWATER VEHICLE - GREGORY J DOUCETTE</p> <p>9:45 - DYNAMICS OF PSP TOXIN PRODUCTION BY AN INSHORE BLOOM OF <i>A. CATENELLA</i> OBSERVED THROUGH CO-DEPLOYMENT OF COMPLEMENTARY, AUTOMATED IN SITU PHYTOPLANKTON SENSORS - MICHAEL L BROSNAN</p> <p>10:00 - DEVELOPMENT OF A RAMAN SPECTROSCOPIC LIBRARY FOR RAPID DETECTION AND CLASSIFICATION OF HAB SPECIES AND THEIR TOXINS - SCOTT M. GALLAGER</p> <p>10:15 - HABSCOPE: AUTOMATED CLASSIFICATION OF <i>KARENIA BREVIS</i> USING A LOW-COST FIELD KIT, OPEN SOURCE COMPUTER VISION LIBRARIES AND CONVOLUTIONAL NEURAL NETWORKS - ROBERT D. CURRIER</p> <p>10:30 - RAPID AND LOW-COST FIELD DETECTION OF MARINE TOXINS - AVNI A. ARGUN</p> <p>10:45 - (S) SIMULTANEOUS EXTRACTION AND SEPARATION OF CHLOROPHYLL AND PHYCOCYANINE FROM CYANOBACTERIA WITH OCTANOL-WATER - J. E. SCHNEIDER, JR.</p> <p>10:50 - (S) DEVELOPMENT OF A SANDWICH HYBRIDIZATION ASSAY FOR DETECTING THE HARMFUL CYANOBACTERIA <i>MICROCYSTIS</i> - NICOLE DEARTH</p> <p>10:55 - (S) PRIMARY STRUCTURE ELUCIDATION OF HEMOLYTIC TOXINS FROM DINOFLAGELLATES PRESUMED RESPONSIBLE FOR FISH KILLS BY ACCURATE TANDEM MASS SPECTROMETRY - BENJAMIN L. OYLER</p> <p>11:00 - (S) MONITORING HABS BY ISOTHERMAL RNA AMPLIFICATION USING HANDHELD GENETIC SENSORS (AKA "TRICORDERS") - JOHN H. PAUL</p>
11:05	COFFEE BREAK
11:30 (1)	<p>11:30 - IMPROVING STANDARDS FOR MOLECULAR QUANTIFICATION OF THE FLORIDA RED TIDE DINOFLAGELLATE - DANA M. NIEUWKERK</p>

<p>11:30 (2)</p>	<p>11:45 - PORTABLE SYSTEM FOR EARLY DETECTION OF HARMFUL ALGAL BLOOM TOXINS - SARAH BICKMAN</p> <p>12:00 - SPATIAL VARIABILITY OF HARMFUL ALGAL BLOOMS IN MILFORD LAKE, KANSAS - GUY FOSTER</p> <p>12:15 - DETECTING HARMFUL ALGAL BLOOMS IN THE CHESAPEAKE BAY USING SENTINEL-2 EARTH OBSERVATIONS - SARA LUBKIN</p> <p>12:30 - (S) CHARACTERIZING CYANOBACTERIA BLOOMS USING REMOTE SENSING AND NON-TRADITIONAL METHODS - KATHERINE V HOOKER</p> <p>12:35 - (S) EXAMINING TEMPORAL CHANGES IN CYANOBACTERIA HARMFUL ALGAE BLOOM SPATIAL EXTENT IN THE CONTINENTAL UNITED STATES USING SATELLITE REMOTE SENSING - ERIN URQUHART</p> <p>12:40 - (S) ESTIMATING ALGAL BLOOM SEVERITY IN EAST FLORIDA INLAND LAKES FROM 10 YEARS OF <i>MERIS</i> OBSERVATION - SACHIDANANDA MISHRA</p> <p>12:45 - (S) HYPERSPECTRAL IMAGING FOR THE LOW-LEVEL DETECTION OF CYANOBACTERIA - KAYTEE POKRZYWINSKI</p>
<p>12:30</p>	<p>POSTER SESSION</p>
<p>15:00</p>	<p>CLOSING</p>

POSTERS (*DISPLAY ORDER BY DATE & TOPIC*)

The following is to serve as a quick guide for poster presenters to know where to place their posters, as well as for other attendees to easily find a specific poster or presenter they are looking for. Detailed abstracts can be found in the digital abstract book online.

Nayani L. Vidyanantha	HOW DOES CLIMATE CHANGE AFFECT THE PHYSIOLOGICAL ECOLOGY OF KARLODINIUM VENEFICUM AND ITS CONSEQUENCES ON TROPHIC TRANSFER?	Physiology and Physiological Ecology	M1
Catharina Alves-de Souza	GENERALIST VS SPECIALIST PARASITIC CONTROL OF DINOFLAGELLATE BLOOMS: INSIGHTS FROM NUMERIC SIMULATIONS	Physiology and Physiological Ecology	M2
Judith M. O'Neil	SALINITY TOLERANCE AND TOXIN CONCENTRATION IN MICROCYSTIS AERGINOSA IN THE CHESAPEAKE BAY REGION	Physiology and Physiological Ecology	M3
Yida Gao	INSIGHTS INTO THE CELL DEATH OF DINOFLAGELLATE KARENIA BREVIS TRIGGERED BY ENVIRONMENTAL STRESS	Physiology and Physiological Ecology	M4
Chieh-Lun Liu	USE OF ANTIBIOTICS FOR MAINTENANCE OF AXENIC CULTURES OF AMPHIDIINIUM CARTERAE FOR THE ANALYSIS OF TRANSLATION	Physiology and Physiological Ecology	M5
Jason Adolf	A LESS-TOXIC CROSS-LINKER FOR USE IN SEM STUDIES OF PHYTOPLANKTON, INCLUDING HAB SPECIES	Physiology and Physiological Ecology	M6
Yuechen Shi	GENETIC DIVERSITY WITHIN THE HARMFUL ALGAL SPECIES, HETEROSIGMA AKASHIWO: ENVIRONMENTAL DRIVERS AND STRAIN TOXICITY	Physiology and Physiological Ecology	M7
Vincent J Lovko	SPEEDTALK: EFFECT OF THE DINOFLAGELLATE PARASITE AMOEBOPHYRA ON KARENIA BREVIS	Physiology and Physiological Ecology	M8
Elise Van Meerssche	SPEEDTALK: THE INFLUENCE OF THE ENVIRONMENTAL FACTORS ON THE ALLELOPATHIC EFFECT OF DOMOIC ACID ON NATURAL PHYTOPLANKTON COMMUNITIES	Physiology and Physiological Ecology	M9
Hans Dam	SPEEDTALK: BENEFIT AND COST OF GRAZER-INDUCED TOXIN PRODUCTION IN THE DINOFLAGELLATE ALEXANDRIUM TAMARENSE COMPLEX	Physiology and Physiological Ecology	M10
Rosemary Jagus	SPEEDTALK: DRAMATIC CHANGES IN PROTEIN SYNTHETIC RATE OF AXENIC AMPHIDIINIUM CARTERAE IN RESPONSE TO INCREASING TEMPERATURES, DENSITY OF CULTURE, AND OVER THE DIEL CYCLE	Physiology and Physiological Ecology	M11
Erik Broemsen	SPEEDTALK: IMAGE CYTOMETRY (ICM) AS A METHOD FOR CELL CYCLE ANALYSIS OF MIXOTROPHIC CULTURES AND FIELD BLOOM SAMPLES OF KARLODINIUM VENEFICUM	Physiology and Physiological Ecology	M12
Benjamin J. Kramer	SPEEDTALK: THE INTERACTIVE ROLES OF NITROGEN LOADING AND WARMING IN CONTROLLING MICROCYSTIN PRODUCTION IN MICROCYSTIS	Physiology and Physiological Ecology	M13
Natalie Flores	CYANOTOXINS IN FISH: A GLOBAL ANALYSIS	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M14
Israel Marquez	METHOD DEVELOPMENT FOR ASSESSING TROPHIC TRANSFER OF DOMOIC ACID FROM PSEUDO-NITZSCHIA TO ACARTIA TONSA	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M15
Clayton Bennett	UNDERSTANDING THE PREVALENCE AND DISTRIBUTION OF CARIBBEAN CIGUATOXINS (C-CTXS) IN GRAYSBY GROUPER, CEPHALOPHOLIS CRUENTATA, FROM THE U.S. VIRGIN ISLANDS	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M16
Christopher Loeffler	CIGUATOXIN ACCUMULATION IN A HYBRID FISH BETWEEN SPECIES OF LOW AND MEDIUM RISK FOR CIGUATERA FISH POISONING	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M17
Harold Flores Quintana	DEVELOPMENT OF AN ULTRA-HIGH-THROUGHPUT EXTRACTION METHOD FOR THE ANALYSIS OF CARIBBEAN CIGUATOXIN-1 (C-CTX-1) BY LIQUID CHROMATOGRAPHY-TANDEM MASS SPECTROMETRY (LC-MS/MS)	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M18
Carlos Eduardo Tibirica	TOXIC BLOOM OF OSTREOPSIS CF. RHODESAE IN A SUBTROPICAL BRAZILIAN COASTAL ISLAND	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M19
Sarah Karafas	AN EVALUATION OF THE GENUS AMPHIDIINIUM (DINOPHYCEAE) COMBINING EVIDENCE FROM MORPHOLOGY, PHYLOGENETICS, AND TOXIN PRODUCTION WITH THE INTRODUCTION OF SIX NOVEL SPECIES	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M20

Clara Robison	IMPACTS OF ENVIRONMENTAL STRESSORS INCLUDING TWO HARMFUL ALGAL SPECIES ON OYSTERS CULTURED IN LOWER CHESAPEAKE BAY	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M21
Anita Freudenthal	FIRST REPORT OF JUBILEE INVERTEBRATE/FISH KILLS IN A HEMPSTEAD HARBOR COVE JOINS TOKYO BAY AND MOBILE BAY AS ONLY 3rd LOCATION IN WORLD	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M22
David Senn	ALGAL TOXINS IN MUSSELS AS INDICATORS OF PHYCOTOXIN OCCURRENCE IN SAN FRANCISCO BAY	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M23
Richard Pierce	SPEEDTALK: TROPHIC TRANSFER OF BREVETOXINS AND NEUROTOXIC SHELLFISH POISONING (NSP) IN CARNIVOROUS MOLLUSKS	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M24
Laura Smith	CLIMATE-MEDIATED IMPACTS ON TROPHIC TRANSFER BETWEEN KARLODINIUM VENEFICUM AND ACARTIA TONSA	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M25
Danelle Downs	SPEEDTALK: PINFISH CIGUATOXICITY IN RELATION TO VARYING GAMBIERDISCUS DENSITIES IN THE FLORIDA KEYS	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M26
Amanda Foss	SPEEDTALK: NODULARIN FROM BENTHIC FRESHWATER PERIPHYTON AND IMPLICATIONS FOR TROPHIC TRANSFER	Fisheries and Foodwebs and Benthic HABS with a Focus on Ciguatera	M27
Steve Morton	THE USE OF TECHNOLOGY TO ASSIST CITIZEN SCIENTISTS MONITORING FRESHWATER HABS AND CHANGES IN ENVIRONMENTAL CONDITIONS	Monitoring, Mitigation and Management of HABS Part 1	T1
Tracy Fanara	SPEEDTALK: INNOVATION THROUGH CITIZEN SCIENCE AND OUTREACH	Monitoring, Mitigation and Management of HABS Part 1	T2
Fitz-Edward Otis IV	CITIZEN SCIENCE INFORMATION COLLABORATION: THE SHIFTING TIDES OF CROWD SOURCED RESEARCH	Monitoring, Mitigation and Management of HABS Part 1	T3
Devin Burris	UTILIZING CITIZEN SCIENCE TO ESTABLISH A MONITORING PROGRAM FOR PUBLIC HEALTH PROTECTION	Monitoring, Mitigation and Management of HABS Part 1	T4
Rosa Hunter	HARMFUL ALGAL BLOOMS AND CULTURAL TIES	Monitoring, Mitigation and Management of HABS Part 1	T5
Christopher Grasso	EFFECTS OF THE BACTERIAL ALGICIDE IRI-160AA ON MICROBIAL COMMUNITY COMPOSITION OF THE DELAWARE INLAND BAYS	Monitoring, Mitigation and Management of HABS Part 1	T6
Yanfei Wang	SPEEDTALK: EFFECTS OF POTENTIAL ALGICIDAL COMPOUNDS PRODUCED BY SHEWANELLA SP. IRI-160 ON HARMFUL DINOFLAGELLATES	Monitoring, Mitigation and Management of HABS Part 1	T7
Mark Lusty	SPEEDTALK: USE OF HYDROGEN PEROXIDE TO MITIGATE TOXIC CYANOBACTERIAL BLOOMS: REFINING APPROACHES AND DIFFERENTIAL EFFECTS ON PROKARYOTES	Monitoring, Mitigation and Management of HABS Part 1	T8
Dominique Derminio	HYDROGEN PEROXIDE USED AS A REMEDIATION METHOD: A TARGETED APPROACH TO TACKLE CYANOBACTERIAL BLOOMS?	Monitoring, Mitigation and Management of HABS Part 1	T9
Neil Harrington	SPEEDTALK: FIRST RECORDS OF THE GENUS AZADINIUM (DINOPHYCEAE) FROM PUGET SOUND, WASHINGTON STATE	Emerging HABS and Toxins	T10
Theo Dreher	SPEEDTALK: GENOME SEQUENCES OF PLANKTONIC BLOOM-FORMING ANABAENA/DOLICHOSPERMUM/ APHANIZOMENON BELONG TO A DISTINCT GENUS-LEVEL CLADE AND REVEAL PATTERNS OF GENOME EVOLUTION	Emerging HABS and Toxins	T11
Sarah Pease	SPEEDTALK: EMERGENCE OF ALEXANDRIUM MONILATUM IN SOUTHWESTERN CHESAPEAKE BAY: SEDIMENT CYST DISTRIBUTION AND HEALTH IMPACTS ON ADULT OYSTERS	Emerging HABS and Toxins	T12
Cheryl Rafuse	SPEEDTALK: : PHYLOGENETICS, GROWTH AND TOXICITY ASSESSMENT OF COOLIA MONOTIS MEUNIER (DINOPHYCEAE) FROM NOVA SCOTIA, CANADA	Emerging HABS and Toxins	T13
Cheryl Rafuse	TOXIN PROFILES IN SPECIES OF ALEXANDRIUM NATIVE TO NOVA SCOTIA, CANADA	Emerging HABS and Toxins	T14
Caroline Dirks	A COMBINATORIAL APPROACH TO MAP TOXIC CYANOBACTERIAL BLOOMS IN SWEDISH SURFACE WATER USED FOR DRINKING WATER WITH LC-MS/MS AND 16S RRNA AMPLICON SEQUENCING	Emerging HABS and Toxins	T15
Bofan Wei	DETECTION OF PHOTOTRANSFORMATION PRODUCT OF CYANOBACTERIAL HEPATOTOXIN MICROCYSTIN-LR BY NMR AND LC/MS	Emerging HABS and Toxins	T16

Amanda Foss	NODULARIN FROM BENTHIC FRESHWATER PERIPHYTON AND IMPLICATIONS FOR TROPHIC TRANSFER	Emerging HABS and Toxins	T17
Jayne Smith	SPEEDTALK: A DECADE AND A HALF OF PSEUDO-NITZSCHIA SPP. AND DOMOIC ACID ALONG THE COAST OF SOUTHERN CALIFORNIA	Emerging HABS and Toxins	T18
Charlie Poukish	SPEEDTALK: UNUSUAL "COLD WEATHER" FISH KILLS IN MARYLAND CAUSED BY KARLOTOXIN	Emerging HABS and Toxins	T19
Dail Laughinghouse	DISTRIBUTION OF CYANOBACTERIA IN LAKES AND RIVERS ON THE WEST COAST OF SOUTH AMERICA	Human & Natural Drivers for Watershed & Coastal HABS	W1
Meredith Lassiter	CONSIDERATION OF HARMFUL ALGAL BLOOMS IN THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S REVIEW OF THE NATIONAL AMBIENT AIR QUALITY STANDARD FOR OXIDES OF NITROGEN-ECOLOGICAL CRITERIA	Human & Natural Drivers for Watershed & Coastal HABS	W2
Alexandra Bausch	ENHANCED SEDIMENT TOXICITY ON GROWTH OF THE HARMFUL DINOFLAGELLATE COCHLODINIUM POLYKRIKOIDES UNDER SIMULATED OCEAN ACIDIFICATION	Human & Natural Drivers for Watershed & Coastal HABS	W3
Detbra Rosales	DETECTION OF VIBRIO PARAHAEMOLYTICUS AND HARMFUL ALGAL SPECIES IN CRASSOTREA VIRGINIA IN THE DELAWARE INLAND BAYS	Human & Natural Drivers for Watershed & Coastal HABS	W4
Tod Leighfield	COMMUNITY-BASED APPROACH TO MITIGATION OF PSF RISK IN SOUTHEAST ALASKA	Human & Natural Drivers for Watershed & Coastal HABS	W5
Rosa Hunter	HARMFUL ALGAL BLOOMS AND CULTURAL TIES	Human & Natural Drivers for Watershed & Coastal HABS	W6
Arthur Zastepa	HARMFUL ALGAL BLOOM AND CYANOTOXIN RISK MANAGEMENT IN HAMILTON HARBOUR AND ASSOCIATED BEACHES	Human & Natural Drivers for Watershed & Coastal HABS	W7
Kristen Slodysko	ASSESSING MICROCYSTINS IN LAKE CHAMPLAIN FISH: A POTENTIAL RISK TO CONSUMERS?	Human & Natural Drivers for Watershed & Coastal HABS	W8
Nche-Fambo Fru Azinwi	DINOFLAGELLATE DIVERSITY ALONG A SUBTROPICAL PERMANENTLY OPEN ESTUARY: EMPHASIS ON POTENTIAL HARMFUL SPECIES	Monitoring, Mitigation and Management of HABS Part 2	W9
Mark Vandersea	DISTRIBUTION AND ABUNDANCE OF ALEXANDRIUM CATENELLA IN KACHEMAK BAY AND LOWER COOK INLET, ALASKA	Monitoring, Mitigation and Management of HABS Part 2	W10
Jennifer Wolny	MORPHOLOGICAL, MOLECULAR, AND TOXIN ANALYSIS OF MID-ATLANTIC DINOPHYSIS	Monitoring, Mitigation and Management of HABS Part 2	W11
Todd Egerton	EXPANDING ALGAL BLOOM MONITORING IN VIRGINIA: COLLABORATIVE RESPONSES TO FRESHWATER AND COASTAL HABS IN RECREATIONAL AND SHELLFISH WATERS	Monitoring, Mitigation and Management of HABS Part 2	W12
Dianne Greenfield	SPEEDTALK: A 15-YEAR SUMMARY OF SOUTH CAROLINA HARMFUL ALGAL BLOOMS AND FISH KILLS: MONITORING, RESPONSE, AND OUTREACH	Monitoring, Mitigation and Management of HABS Part 2	W13
Melissa Peacock	SPEEDTALK: MULTIPLE FRESHWATER AND MARINE ALGAL TOXINS AT THE LAND-SEA INTERFACE: IS BROADER MONITORING OF ALGAL TOXINS NECESSARY TO PROTECT NON-COMMERCIAL SHELLFISH HARVESTERS?	Monitoring, Mitigation and Management of HABS Part 2	W14
Tracy Ziegler	HARMFUL ALGAL BLOOMS: ROLE OF THE NATIONAL PARK SERVICE IN PROTECTING RESOURCES	Monitoring, Mitigation and Management of HABS Part 2	W15
Heath Mash	SPEEDTALK: OVERVIEW OF US EPA OFFICE OF RESEARCH AND DEVELOPMENT'S RESEARCH ON ANALYSIS AND MONITORING OF FRESH WATER AND COASTAL/ESTUARINE ENVIRONMENTS	Monitoring, Mitigation and Management of HABS Part 2	W16
Jennifer Graham	CYANOBACTERIAL HARMFUL ALGAL BLOOMS AND US GEOLOGICAL SURVEY SCIENCE CAPABILITIES	Monitoring, Mitigation and Management of HABS Part 2	W17
Edna Fernandez-Figuero	CAN TASTE AND ODOR COMPOUNDS PREDICT HARMFUL ALGAL BLOOMS IN SURFACE DRINKING WATER SOURCES?	Monitoring, Mitigation and Management of HABS Part 2	W18

Kathryn Coyne	COMPARISON BETWEEN QUANTITATIVE REAL TIME PCR (QPCR) AND SANDWICH HYBRIDIZATION ASSAY (SHA) FOR DETECTION AND QUANTIFICATION OF HETEROSIGMA AKASHIWO IN FIELD SAMPLES	Monitoring, Mitigation and Management of HABS Part 2	W19
Alicia Hoeglund	INTEGRATING TOOLS FOR IN SITU DETECTION OF THE RED TIDE ALGA KARENIA BREVIS INTO A STATE MONITORING PROGRAM	Monitoring, Mitigation and Management of HABS Part 2	W20
Lisa Campbell	SPEEDTALK: EXPANDING THE NETWORK OF IMAGING FLOW CYTOBOTS FOR EARLY WARNING OF HABS	Monitoring, Mitigation and Management of HABS Part 2	W21
Xiuning Du	COMPARISONS OF PSEUDO-NITZSCHIA BLOOM INITIATION AND TOXICITY IN RELATION TO SPRING TRANSITION ENVIRONMENTS OFF THE OREGON COAST DURING 2015-17	Hot Topic Session: Recent East and West Coast ASP Events	H1
Bryant Lewis	SPEEDTALK: THE GULF OF MAINE DOMOIC ACID EVENT OF 2016: AN EMERGING PUBLIC HEALTH CONCERN	Hot Topic Session: Recent East and West Coast ASP Events	H2
Laura Castellon	REPEATED LOW LEVEL DIETARY EXPOSURE TO DOMOIC ACID CAUSES PROBLEMS IN EVERYDAY MEMORY	Hot Topic Session: Recent East and West Coast ASP Events	H3
Ling Ren	PSEUDO-NITZSCHIA SPECIES DETECTED IN BARNEGAT BAY-LITTLE EGG HARBOR, NEW JERSEY DURING 2012-2014	Hot Topic Session: Recent East and West Coast ASP Events	H4
Steffaney Wood	VARIABILITY OF PSEUDO-NITZSCHIA AND DOMOIC ACID ALONG THE U.S. WEST COAST	Hot Topic Session: Recent East and West Coast ASP Events	H5
Zach Forster	SPEEDTALK: WASHINGTON DEPARTMENT OF FISH AND WILDLIFE: MONITORING AND MANAGEMENT ACTIONS IN RESPONSE TO RECENT DOMOIC ACID EVENTS ALONG WASHINGTON'S COAST	Hot Topic Session: Recent East and West Coast ASP Events	H6
Clarissa Anderson	THE COMPLEX SEASCAPE OF HARMFUL ALGAL BLOOMS IN CALIFORNIA BEFORE, DURING AND AFTER THE "BLOB TO EL NINO TRANSITION	Hot Topic Session: Recent East and West Coast ASP Events	H7
David Borkman	NOVEL TOXIGENIC PSEUDO-NITZSCHIA BLOOMS IN NARRAGANSETT BAY, RHODE ISLAND	Hot Topic Session: Recent East and West Coast ASP Events	H8
Karen Kavanaugh	ACROSS THE RESEARCH 'VALLEY OF DEATH' TO OPERATIONS: NOAA'S LAKE ERIE HARMFUL ALGAL BLOOM FORECAST SYSTEM	Bloom Prediction, Forecasting and Modeling	H9
Shiqi Fang	SPACE-TIME GEOSTATISTICAL MODELING OF HARMFUL ALGAL BLOOMS DYNAMICS IN WESTERN LAKE ERIE	Bloom Prediction, Forecasting and Modeling	H10
Claudie Ratte-Fortin	MODELING SPATIO-TEMPORAL VARIABILITY OF ALGAL BLOOM USING MODIS IMAGERY OF INLAND WATERS	Bloom Prediction, Forecasting and Modeling	H11
Analise Keeney	FORECASTING HARMFUL ALGAL BLOOMS USING ARCGIS TOOLS	Bloom Prediction, Forecasting and Modeling	H12
Claire Buchanan	WHAT THREE WATER QUALITY PARAMETERS MAY TELL US ABOUT HABS AND BLOOM FREQUENCY IN CHESAPEAKE BAY	Bloom Prediction, Forecasting and Modeling	H13
Darren Henrichs	PREDICTING THE BLOOM: CAN TIME SERIES DATA AND MACHINE LEARNING PRODUCE INFORMATIVE FORECASTS OF HARMFUL ALGAL BLOOM ABUNDANCE?	Bloom Prediction, Forecasting and Modeling	H14
Edward Davis	FORECASTING ABOVE REPLACEMENT: A SABERMETRIC APPROACH TO ENSURING HARMFUL ALGAL BLOOM FORECASTS MEET USER NEEDS	Bloom Prediction, Forecasting and Modeling	H15
Mia Varner	USING HIGH FREQUENCY MONITORING OF ENVIRONMENTAL FACTORS TO PREDICT THE MICROCYSTIN CONCENTRATIONS IN A MULTI-USE, INLAND RESERVOIR	Bloom Prediction, Forecasting and Modeling	H16
Kendra Hayashi	COMPARISON OF LOCAL AND REGIONAL (C-HARM SYSTEM) PREDICTIVE BLOOM MODELS FOR TOXIGENIC PSEUDO-NITZSCHIA IN MONTEREY BAY, CALIFORNIA	Bloom Prediction, Forecasting and Modeling	H17
Katie Collins	HIGH RESOLUTION MODELING AND FORECASTING OF KARENIA BREVIS RESPIRATORY IRRITATION USING HABS SCOPE AND HIGH RESOLUTION WEATHER FORECAST (NATIONAL DIGITAL FORECAST DATABASE)	Bloom Prediction, Forecasting and Modeling	H18

Allen Place	SOME ASSEMBLY REQUIRED - BEYOND THE TYPE I, II AND III POLYKETIDE SYNTHASE PARADIGMS IN DINOFLAGELLATES	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H19
Aabir Banerji	SPEEDTALK: SPATIO-TEMPORAL DYNAMICS OF PLANKTONIC EUKARYOTES IN A HAB-PRONE MULTIPURPOSE RESERVOIR	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H20
Kevin Meyer	IMPACT OF SYNECHOCOCCUS SP. ON NUTRIENT AND REACTIVE OXYGEN SPECIES DYNAMICS SURROUNDING BLOOMS OF MICROCYSTIS IN LAKE ERIE	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H21
Megan Ladds	SPEEDTALK: USE OF HIGH THROUGHPUT SEQUENCING TO ASSESS DIFFERENTIAL GRAZING ON HARMFUL ALGAL BLOOMS BY ZOOPLANKTON	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H22
Tsvetan R Bachvaroff	Speedtalk: SCALING RIBOSOMAL RNA DIFFERENCES WITHIN DINOFLAGELLATES FOR SPECIES IDENTIFICATION	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H23
Saddef Haq	Speedtalk: ACETYL-COA CARBOXYLASES IN DINOFLAGELLATES: FUELING THE POLYKETIDE SYNTHASE PATHWAYS	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H24
Ernest P. Williams	Speedtalk: PHOSPHOPANTHETHEINYL TRANSFERASES IN DINOFLAGELLATES: FAT VERSUS TOXIN SYNTHESIS	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H25
Taylor Armstrong	SPEEDTALK: STABLE ISOTOPES AS TOOL TO LINK NITROGEN SOURCE TO BLOOM AND TOXICITY	Emerging Use of 'Omics' Approaches to Understand Freshwater and Marine HABS	H26
Kathleen R. El Said	ASSESSMENT OF AN LC-MS METHOD FOR MONITORING NSP TOXINS IN KARENIA BREVIS EXPOSED SHELLFISH	Emerging Technologies and Advances in Remote Sensing	F1
William C. Holland	HABSCOPE: A TOOL FOR USE BY CITIZEN SCIENTISTS TO FACILITATE NEAR REAL-TIME WARNING OF RESPIRATORY IRRITATION CAUSED BY TOXIC BLOOMS OF KARENIA BREVIS	Emerging Technologies and Advances in Remote Sensing	F2
Sarah Goubet	DEVELOPMENT OF OPTICAL DETECTION TOOLS OF HARMFUL ALGAL BLOOMS ON LAKES	Emerging Technologies and Advances in Remote Sensing	F3
Michelle Tomlinson	APPLICATION OF OPTICAL REMOTE SENSING AND ECOLOGICAL ASSOCIATIONS FOR NEAR REAL-TIME MONITORING OF HARMFUL ALGAL BLOOMS IN CHESAPEAKE BAY	Emerging Technologies and Advances in Remote Sensing	F4
Richard P. Stumpf	AN ASSESSMENT OF ANNUAL SEVERITY OF FLORIDA RED TIDE, KARENIA BREVIS	Emerging Technologies and Advances in Remote Sensing	F5
Timothy Wynne	DESCRIMINATION OF CYANOBACTERIA FROM MIXED BLOOM ASSEMBLAGES IN GREEN BAY, WISCONSIN	Emerging Technologies and Advances in Remote Sensing	F6
Elizabeth Hilborn	HUMAN HEALTH EFFECTS AND REMOTELY SENSED CYANOBACTERIA	Emerging Technologies and Advances in Remote Sensing	F7
Danielle Dupuy	EFFORTS TO OPTICALLY SEPARATE HARMFUL BLOOMS SPECIES IN THE CHESAPEAKE BAY	Emerging Technologies and Advances in Remote Sensing	F8
Bridget Seegers	IDENTIFYING CYANOBACTERIA BLOOMS FROM SPACE WITH SENTINEL-3 OLCI	Emerging Technologies and Advances in Remote Sensing	F9
J. E. Schneider, Jr.	SPEEDTALK: SIMULTANEOUS EXTRACTION AND SEPARATION OF CHLOROPHYLL AND PHYCOCYANINE FROM CYANOBACTERIA WITH OCTANOL-WATER	Emerging Technologies and Advances in Remote Sensing	F10
Nicole Dearth	SPEEDTALK: DEVELOPMENT OF A SANDWICH HYBRIDIZATION ASSAY FOR DETECTING THE HARMFUL CYANOBACTERIA MICROCYSTIS	Emerging Technologies and Advances in Remote Sensing	F11
Benjamin L. Oyler	SPEEDTALK: PRIMARY STRUCTURE ELUCIDATION OF HEMOLYTIC TOXINS FROM DINOFLAGELLATES PRESUMED RESPONSIBLE FOR FISH KILLS BY ACCURATE TANDEM MASS SPECTROMETRY	Emerging Technologies and Advances in Remote Sensing	F12

John H. Paul	SPEEDTALK: MONITORING HABS BY ISOTHERMAL RNA AMPLIFICATION USING HANDHELD GENETIC SENSORS (AKA "TRICORDERS")	Emerging Technologies and Advances in Remote Sensing	F13
Sam Ahmed	SPEEDTALK: EFFECTIVE RETRIEVAL OF KARENIA BREVIS HARMFUL ALGAL BLOOMS IN THE WEST FLORIDA SHELF FROM THE VIIRS SATELLITE USING RECENTLY DEVELOPED NEURAL NETWORK ALGORITHMS HIGHLIGHTING THE IMPACT OF TEMPORAL VARIABILITIES	Emerging Technologies and Advances in Remote Sensing	F14
Katherine V Hooker	SPEEDTALK: CHARACTERIZING CYANOBACTERIA BLOOMS USING REMOTE SENSING AND NON-TRADITIONAL METHODS	Emerging Technologies and Advances in Remote Sensing	F15
Erin Urquhart	SPEEDTALK: EXAMINING TEMPORAL CHANGES IN CYANOBACTERIA HARMFUL ALGAE BLOOM SPATIAL EXTENT IN THE CONTINENTAL UNITED STATES USING SATELLITE REMOTE SENSING	Emerging Technologies and Advances in Remote Sensing	F16
Sachidananda Mishra	SPEEDTALK: ESTIMATING ALGAL BLOOM SEVERITY IN EAST FLORIDA INLAND LAKES FROM 10 YEARS OF MERIS OBSERVATION	Emerging Technologies and Advances in Remote Sensing	F17
Kaytee Pokrzywinski	Speedtalk: HYPERSPECTRAL IMAGING FOR THE LOW-LEVEL DETECTION OF CYANOBACTERIA	Emerging Technologies and Advances in Remote Sensing	F18

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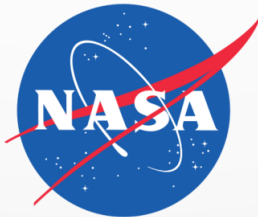
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