



September 27, 2011

To all the Chairs, Presenters, Attendees, Exhibitors, and participants of the 2011 State of Lake Michigan and Great lakes Beach Association Joint Conference - Welcome to Michigan City, Indiana.

The Indiana Department of Environmental Management (IDEM) and the Indiana Department of Natural Resources Lake Michigan Coastal Program (LMCP) welcome you to our slice of the Great Lakes. Our programs work to protect, manage, and plan for our mutual coastal resources. Our agencies oversee a broad number of programs and policies involving the Great Lakes. This conference is an extension of efforts to broaden awareness of the resources in our backyard.

LaMP and GLBA Background:

As the LaMP process began to take shape in the 1990s, the Lake Michigan Forum suggested a lake basin specific conference. While there were other Great Lakes meetings, their topics were broad and bi-national. In 1999, Dr. Janet Vail and Grand Valley State University hosted the first "State of Lake Michigan" (SOLM) conference in Muskegon, Michigan as well as the next two. In 2000, the Lake Michigan LaMP put on a Great Lakes Beach Conference in Chicago, Illinois following the passage of the BEACH Act. Since Lake Michigan is home to the world's largest collection of fresh water sand dunes, a commitment was made to offer the Great Lakes Beach Association a venue every other year, when its annual conference aligns with the SOLM conference. The conference is held around the Lake Michigan basin, from Muskegon, Michigan to Green Bay, Wisconsin 2005; Traverse City, Michigan 2007; Milwaukee, Wisconsin 2009, and now Michigan City, Indiana 2011.

The goal of the conference is to provide up-to-date information about the status of the lake and highlight the actions and tools needed to restore and protect the lake ecosystem. The audience is made up of scientists, managers as well as stakeholders. It is our hope that all participants leave with more knowledge and how to find answers in the future.

Planning Team Acknowledgements:

We would like to thank individuals from the following agencies, non-profits, and corporations for their assistance in making this conference a reality. We couldn't have done this without their efforts, connections, and energy. Their commitment to the cause was inspiring and kept the ball rolling.

- Indiana Department of Environmental Management (IDEM)
- Indiana Department of Natural Resources Lake Michigan Coastal Program (LMCP)
- Northwestern Indiana Regional Planning Commission
- Northwestern Indiana Forum
- Illinois-Indiana Sea Grant Program
- Shirley Heinze Land Trust
- Save the Dunes
- Cardno JFNew
- LaPorte County Convention and Visitors Bureau
- Blue Chip Hotel and Conference Center
- US EPA – Great Lakes National Program Office
- United States Geological Survey?

Field Trip Acknowledgements

We would like to thank staff from the following groups for their assistance in developing and hosting the field trips on Monday. It is best to learn from the experts and we appreciate their knowledge and time in hosting the events.

- Northwest Indiana Paddlers Association
- Indiana Department of Natural Resources Division of State Parks and Reservoirs – Dunes State Park
- Indiana Department of Natural Resources Division of Fish and Wildlife
- City of Michigan City Parks and Recreation Department
- Shirley Heinze Land Trust

We thank you for attending this conference. We hope that you find the information useful, the facilities amenable, and the discussion lively. Remember to share your thoughts and experiences in the various sessions. We structured the conference in a way to encourage discussion and help move the cause forward. We have set the table - now it's up to the guests to talk over dinner!

Thank you again for all your efforts and enjoy the conference.

The 2011 State of the Lake Michigan and Great Lakes Beach Association Conference Co-Chairs

Michelle Caldwell

Michelle Caldwell

IDEM BEACH Coordinator



Colin Highlands

Colin Highlands

LMCP Nonpoint Coordinator

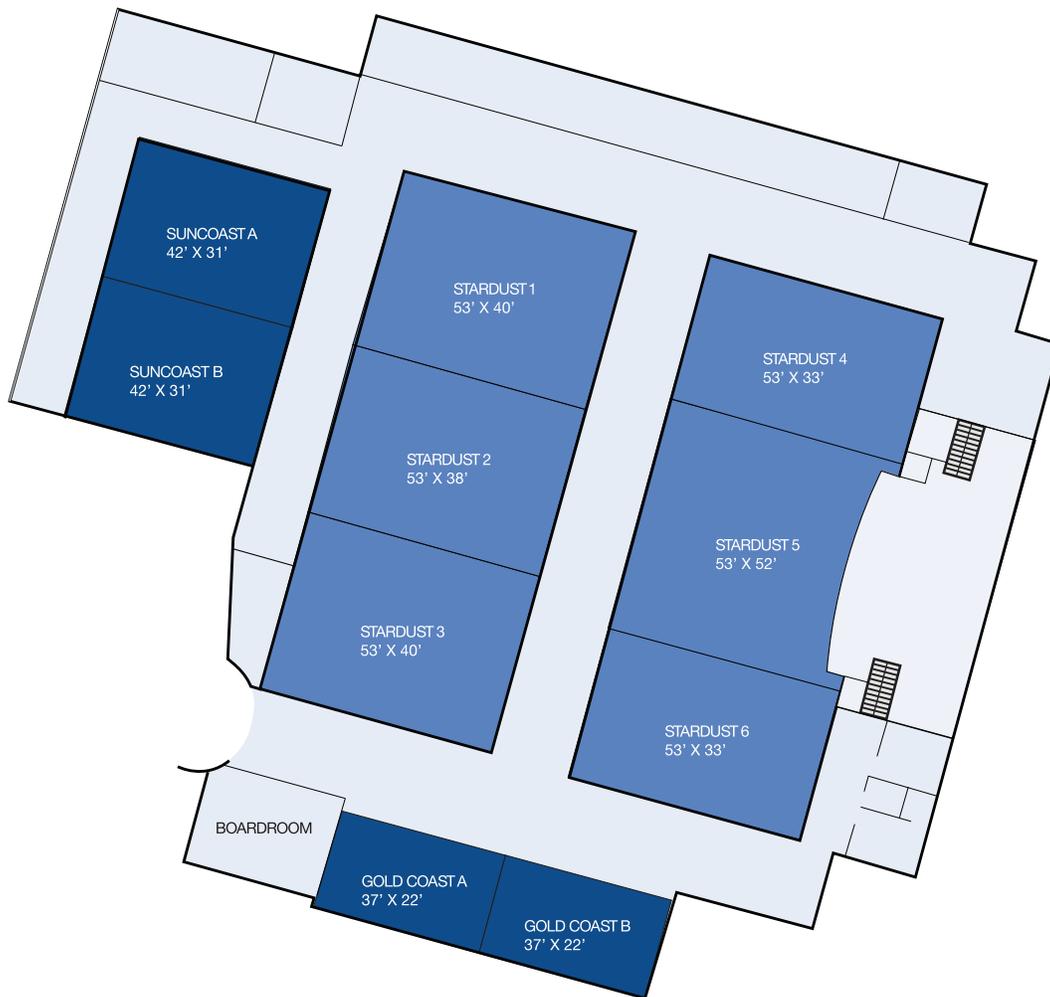


Mike Molnar

Mike Molnar

LMCP Program Manager





	TOTAL SQ. FT.	ROOM SIZE	BANQUET	THEATER	CLASSROOM 18 x 72	CLASSROOM 30 x 72	U-SHAPED	CONFERENCE
STARDUST EVENT CENTER BALLROOM	15,000	126' x 119'	870	1,300	831	663	156	x
STARDUST 1	2,055	53' x 40'	120	176	84	75	45	40
STARDUST 2	2,055	53' x 38'	120	176	84	75	42	40
STARDUST 3	2,055	53' x 40'	120	176	84	75	45	40
STARDUST 1, 2 or 2, 3	4,110	x	240	432	231	189	75	64
STARDUST 1, 2, 3	6,165	x	360	650	357	315	117	x
STARDUST 4	1,720	53' x 33'	80	132	96	72	39	40
STARDUST 5	2,375	53' x 52'	120	198	108	84	45	40
STARDUST 6	1,725	53' x 33'	80	132	96	72	39	40
STARDUST 4, 5 or 5, 6	4,100	x	240	306	216	198	75	64
STARDUST 4, 5, 6	5,820	x	340	540	285	267	x	x
SUNCOAST A	1,330	42' x 31'	60	96	36	36	27	28
SUNCOAST B	1,330	42' x 31'	60	96	36	36	27	28
GOLD COAST A	796	37' x 22'	40	63	24	24	18	22
GOLD COAST B	808	37' x 22'	40	63	24	24	18	22
SUNCOAST A, B	2,660	x	120	252	120	96	57	46
GOLD COAST A, B	1,604	x	80	108	48	48	54	64

Monday, September 26th

	Sam's Town A & B	Sam's Town C	Suncoast A & B	
Concurrent Workshops & Meetings	Beach 101 *8:00-9:00am*		Lake Michigan Monitoring Coordination Council *10:00am-12:00pm*	
	Sanitary Surveys 201 *9:00-11:00am*			
		Predictive Tools Overview *11:00am-12:00pm*		
	Lunch on your own (Deli and buffet options in the hotel) *12:00-1:00pm*			
	Special Symposium (invite only): *1:00-3:00pm*	Predictive Tools (hands-on) - space limited to first 15 registrants *1:00-4:00pm*	Lake Michigan Monitoring Coordination Council (continued) *1:00-4:30pm*	
	Special Symposium (public discussion): Occurrence, persistence, multiplication and public health implication of pathogens and indicator bacteria in beach sands *4:30-6:00pm*		Lake Michigan Forum Meeting *5:00-7:00pm*	
	Special Symposium (invite only): *7:00-9:00pm*			

	11:45am - 1:15pm CST (choose one)	2:30-4:30pm CST (choose one)
Field Tours	Kayak Trail Creek (Time slot 1) - space limited to 25	Kayak Trail Creek (Time slot 2) - space limited to 25
	Ambler Flatwoods Nature Walk -limited to 45	Washington Park Beach Tour - limited to 45
		IN Dunes State Park Dunes Creek Daylighting Project - limited to 45

Tuesday, September 27th

		SOLM/GLBA Joint Conference			
Time	Event				
7:30-8:30am	Registration & Breakfast	Gold Coast Area with Exhibitors			
8:30-10:00am	Plenary	Stardust Main Ballroom Opening Remarks and Welcome: Mike Molnar Welcome to Michigan City: Mayor Chuck Oberlie EPA Welcome and State of the Lake: Judy Beck GLBA Welcome: David Rockewell Carp Comments: John Goss, Carp Czar			
10:00-10:15am	Break	Gold Coast Area with Exhibitors			
<i>Concurrent Sessions</i>		Stardust 1 Toxics, Stressors, and Monitoring	Stardust 2 Habitat and Invasives	Stardust 3 Nearshore and Watersheds	Suncoast A & B Beaches
10:15-11:45am	Session 1	Resource Extraction - Impacts on Water Quality - Chair, Mike Ripley	The Lake Michigan Biodiversity Strategy - Chair, Doug Pearsall (Interactive session)	Dunes & Wetlands: Threats from Invasives - Chair, Jon Legge	Sources and sinks of fecal bacteria in the Great Lakes - Chair, Mike Sadowsky
12:00-1:00pm	Lunch	Stardust Main Ballroom			
1:15-2:45pm	Session 2	Models/GIS - Chair, Sara Katich	Carp - Chair, Jim Bredin	Watershed Education, Outreach, and Collaboration - Chair, Colin Highlands	Implementation of Rapid Analytical Methods for Fecal-Indicator Bacteria - Chair, Rebecca Bushon
2:45-3:00pm	Break	Gold Coast Area with Exhibitors			
3:30 - 5:00pm	Poster Setup	Stardust Main Ballroom			

Tuesday, September 27th

<i>Concurrent Sessions</i>		Stardust 1 Toxics, Stressors, and Monitoring	Stardust 2 Habitat and Invasives	Stardust 3 Nearshore and Watersheds	Suncoast A & B Beaches
3:00-4:30pm	Session 3	Pollution Prevention Actions for Toxics - Chair, John Hortness	Climate Change - Lake Levels, Green Infrastructure, and Adaptation - Chair, Heather Stirratt	Water conservation and the Great Lakes Compact - Chair, Kay Nelson	Predictive tools: Method advancements and expansion of application-- Chair, Steve Corsi
5:00-7:30pm	Poster Session & Demo	Stardust Main Ballroom: Poster Session Stardust 3: EPA Demo on Communicating Beach Conditions at the National Level: Modernized Beaches			

Wednesday, September 28th

Time	Event	SOLM/GLBA Joint Conference			
7:00-8:15am	Special GLBA Session				Physical and Hydrological Aspects of Beaches - Co-chairs, Clare Robinson/Allan Crowe
7:30-8:30am	Registration & Breakfast	Gold Coast Area with Exhibitors			
<i>Concurrent Sessions</i>		Stardust 1 Toxics, Stressors, and Monitoring	Stardust 2 Habitat and Invasives	Stardust 3 Nearshore and Watersheds	Suncoast A & B Beaches
8:30-10:00am	Session 4	Emerging and legacy chemicals in our fish: Ecological and Human Health - Chair, Beth Murphy	Wetland / Watershed Health and Collaboration - Chair, Patty O'Donnell	Nutrients/TMDLs (ex: cladophora, HABs) - Chair, Glenn Warren	Demonstrations of beach remediation and what we have learned from sanitary survey data - Co-chairs, Julie Kinzelman/Greg Kleinheinz
10:00-10:15am	Break	Gold Coast Area with Exhibitors			
10:15-11:45am	Session 5	Next steps in AOC Monitoring and Restoration - Chair, Anne Kominowski	Fish Species Health / Lk MI Food Web - Chair, Robert Elliott	Watershed Academy and Planning Commissions - Chair, Kathy Luther	Methods and Studies of Pathogens at Beaches - Chair, Donna Francy

Wednesday, September 28th

		SOLM/GLBA Joint Conference			
Time	Event				
12:00-1:30pm	Lunch	Stardust Main Ballroom			
Presentation by Cam Davis: Senior Advisor to the EPA Administrator					
<i>Concurrent Sessions</i>		Stardust 1 Toxics, Stressors, and Monitoring	Stardust 2 Habitat and Invasives	Stardust 3 Nearshore and Watersheds	Suncoast A & B Beaches
1:45-3:15pm	Session 6	Waterborne Toxins and Stressors - Chair, Chris Otto	National Ocean Policy - Chair, Mike Molnar	Harbors/Recreation: Clean & Green Marina Programs - Chair, Todd Parker	Communicating Beach Water Quality to the Public - Chair, Sonia Joseph Joshi

Tuesday, September 27th

8:30 – 10:00 a.m. | Stardust Main Ballroom

Opening Plenary

Opening remarks: Mike Molnar, IDNR

Welcome to Michigan City: Mayor Chuck Oberlie

EPA State of the Lake: Judy Beck

GLBA Welcome: David Rockwell

Carp Comments: John Goss, White House Carp Czar

10:15 – 11:45 a.m. | Stardust 1

Resource Extraction Impacts on Water Quality

Rick Henderson, Environmental Resource Management Division, *Michigan's Regulations for Natural Gas Development*

Grenetta Thomassey, Tip of the Mitt Watershed Council, *Natural Gas Drilling and Water*

Steve Roy, Geologist and Mining Team Leader US EPA Region 5, *The Federal Role in Metal Extraction in the Lake Michigan Basin*

Emily Whittaker, Yellow Dog Watershed Preserve, Inc., *Metal Resource Extraction in the Upper Peninsula*

10:15 – 11:45 a.m. | Stardust 2

The Lake Michigan Biodiversity Conservation Strategy

Douglas Pearsall, The Nature Conservancy, *Providing on-line access to results and supporting information*

10:15 – 11:45 a.m. | Stardust 3

Dunes and Wetlands: Threats from Invasives

Marcus H. Key, National Park Service, *National Park Service Combats Invasive Species with Education*

Laura Bourgeau-Chavez, Michigan Tech Research Institute, *Detecting and Mapping Invasive Phragmites australis in the Coastal Great Lakes*

D.M. Galbraith, U.S. Geological Survey, Great Lakes Science Center, *Invasive Phragmites in Great Lakes coastal corridors: combining a habitat suitability model with near-shore bathymetry for a vulnerability-based decision support tool*

Katherine Glassner Shwayder, Great Lakes Commission, *Building Capacity for the Management and Control of Phragmites australis*

Shaun Howard, The Nature Conservancy, *Controlling Invasive Plants Throughout Eastern Lake Michigan: Establishing effective, efficient, collaborative management of terrestrial invasives*

10:15 – 11:45 a.m. | Suncoast A & B

Sources and Sinks of Fecal Bacteria in the Great Lakes

Donna Ferguson, *Assessing Natural Sources and Regrowth of Enterococcus in Urban Runoff Impacting Coastal Beaches in San Diego*

Bin Chen, Purdue University Calumet, *E.coli Source Tracking Using Multispectral Laser Imaging*

Michael J. Sadowsky, BioTechnology Institute, University of Minnesota, *Development of a Practical Pyrosequencing-based Microbial Source Tracking Method (PyroMiST)*

Murulee N. Byappanahalli, USGS, *Environmental Sources of Fecal Indicator Bacteria*

Charles C. Tseng, Purdue University Calumet, *Generation of Mass Genome Sequencing Based E. coli DNA Markers for Microbial Source Tracking*

12:00 – 1:00 p.m. | **Lunch Stardust Main Ballroom**

For registered participants only

1:15 – 2:45 p.m. | Stardust 1

Models / GIS

Charlie Peters, USGS, Wisconsin Water Science Center, *Integration and Coordination of Multiple Tributary and Near-Shore Monitoring Efforts and the Use of Technology to Enhance these Efforts*

Colin Brooks, Michigan Tech Research Institute, *Mapping Cladophora Extent in Lake Michigan Using Multi-scale Satellite Imagery*

Robert Shuchman, Michigan Tech Research Institute, *Satellite Based Retrievals of Chlorophyll, Dissolved Organic Carbon and Suspended Minerals for Lake Michigan*

David T. Soong, U.S. Geological Survey, *Using a Hydrological Simulation Program-FORTRAN (HSPF) rainfall-runoff model to simulate streamflow and water-quality in the Kalamazoo River watershed*

Lacy Mason, University of Michigan, *Great Lakes GIS, the Lakebed Alteration Decision Support Tool and the Great Lakes Aquatic Habitat Framework: How spatial data is used to support assessment, classification and management of aquatic habitats.*

1:15 – 2:45 p.m. | Stardust 2

Carp

Dave Wethington, U.S. Army Corps of Engineers, *Great Lakes & Mississippi River Interbasin Study (GLMRIS)*

Sandra Morrison, USGS, *USGS Asian Carp Control Research*

Kate Glassner-Shwayder, Great Lakes Commission, *Envisioning a Chicago Area Waterway System for the 21st Century*

1:15 – 2:45 p.m. | Stardust 3

Watershed Education, Outreach, and Collaboration

Leslie Dorworth, Indiana/Illinois Sea Grant, *Calumet Higher Environmental Education Program: A regional dialogue among colleges to build a biodiversity literate workforce*

Erin Argyilan, Indiana University Northwest, *Collaborative Curriculum Development through The Great Lakes Innovative Stewardship Through Education Network (GLISTEN) of Northwest Indiana*

Jeff Martinka, Sweet Water: Southeastern Wisconsin Watersheds Trust, Inc., *Starting from Zero - Creating a Successful Regional Water Quality Collaborative*

1:15 – 2:45 p.m. | Suncoast A & B

Implementation of Rapid Analytical Methods for Fecal-Indicator Bacteria

Mark Citriglia, Northeast Ohio Regional Sewer District, *Molecular Madness, Implementation of Quantitative Polymerase Chain Reaction at a Wastewater Laboratory in Ohio*

Salvatore Cali, University of Illinois-Chicago, *Process Analysis for Four Swimming Water Quality Analytical Techniques*

Ember Vannoy, University of Illinois-Chicago, *Measures of Water Quality at Two Chicago Beaches: A Comparison of Three Rapid Methods*

Tamara Anan'eva, City of Racine, Wisconsin, *Investigation of qPCR inhibition occurrence across geographically-distributed recreational waters*

Richard Montagna, Rheonix, Inc., *Automatic and Rapid Molecular Detection of E. coli and Enterococci in Raw Recreational Water Samples Using the Fully Automated Rheonix CARD Technology Platform*

2:45 – 3:00 p.m. | Gold Coast Area with Exhibitors

Break

3:00 – 4:30 p.m. | Stardust 1

Pollution Prevention Actions for Toxics

Yakuta Bhagat, Grand Valley State University, *Factors influencing fish communities in drowned river mouth systems of Lake Michigan*

Peter C. Van Metre, USGS, Pavement Sealcoat, *Polycyclic Aromatic Hydrocarbons, and the Environment*

Lin Kaatz Chary, Great Lakes Green Chemistry Network, *The Great Lakes Green Chemistry Network: Innovative Collaborations to Restore and Protect the Great Lakes from Toxic Chemicals*

3:00 – 4:30 p.m. | Stardust 2

Climate Change – Lake Levels, Green Infrastructure, and Adaptation

Jia Wang, NOAA, *Temporal and spatial variability of Great Lakes ice cover, 1973-2010*

John F. Walker, USGS, *Estimating climate change impacts on streamflow in the Lake Michigan basin using the USGS PRMS watershed model*

Paul Schmid, Purdue University, *Severe weather climatology – A land-use based green solution possible?*

Dr. Abigail Derby Lewis, *The Field Museum, Conserving Coastal Habitats in Chicago Wilderness: A Regional Climate Change Adaptation Initiative*

3:00 – 4:30 p.m. | Stardust 3

Water Conservation and the Great Lakes Compact

Howard W. Reeves, USGS Michigan Water Science Center, *Assessment of Water Availability and Use for the U.S. Great Lakes Basin*

Ron McAhron, Indiana Department of Natural Resources, *Indiana Compact Update*

3:00 – 4:30 p.m. | Suncoast A & B

Predictive Tools: Method Advancements and Expansion of Application

John B. Wathen, U.S. EPA, Office of Water, *An Update on EPA's New or Revised Recreational Water Quality Criteria*

Michael Fienen, USGS, *New Statistical Techniques for Predictive Water Quality Modeling at Great Lakes Beaches*

Adam Mednick, Wisconsin DNR, *Implementing Predictive Models on a Broader Scale: Current Efforts in Wisconsin*

Cathy Breitenbach, Chicago Park District, *Implementing Predictive Models at Five Chicago Beaches*

2001 State of Lake Michigan and Great Lakes Beach Association Joint Conference – day by day Schedule

David Rockwell, University of Michigan & NOAA, *Beach Water Quality Management Decision Support Systems for Forecasting Probability of Exceeding E. coli Levels*

5:00 – 7:30 p.m. | Stardust Main Ballroom

Poster Session

5:00 – 7:30 | Stardust 3

EPA Demo on Communicating Beach Conditions at the National Level: Modernized Beaches

Wednesday, September 28th

7:00 – 8:15 a.m. | Suncoast A & B

Special GLBA Session: Physical and Hydrological Aspects of Beaches

Mary-Louise Byrne, *Winter Sand Transport at Great Lakes Locations: a Comparison of Point Pelee National Park and Sauble Beach, Ontario, Canada*

Zhongfu Ge, USGS, *Contributions of Hydrodynamic Processes to the Diel Pattern of Bacteria Concentration in the Beach Water*

Allan Crowe, *The Hydrogeology of Beaches in the Great Lakes*

Clare Robinson, *Importance of Dynamic Groundwater-Lake Interactions on Beach Water Quality*

7:30 – 8:30 a.m. | Gold Coast Area with Exhibitors

Registration and Breakfast

8:30 – 10:00 a.m. | Stardust 1

Emerging and Legacy Chemicals in our Fish: Ecological and Human Health

David Krabbenhoft, USGS, *Mercury and Methylmercury in the Water Column, Sediments and Biota across the Great Lakes*

Patrick Ferguson, Ball State University, *Pharmaceutical Abundance and Toxic Effects in Near-Shore Habitats of Lake Michigan*

Russell G. Kreis Jr., EPA, *Post Audit of Lake Michigan Lake Trout PCB Model Forecasts*

Elizabeth Murphy, EPA, *Status and Trends of Legacy and Emerging Contaminants Identified through the Great Lakes Fish Monitoring and Surveillance Program*

8:30 – 10:00 a.m. | Stardust 2

Wetland/Watershed Health and Collaboration

Dr. Peter Avis, Indiana University Northwest, *Predicting Restoration Success in Northwest Indiana*

Cherie LeBlanc Fisher, USDA, *Urban Waters: A New Partnership in Northwest Indiana*

Lisa R Fogarty, USGS, *Conceptual Model for Lake Michigan Nearshore Ecosystem and Relevance to Lake Michigan LaMP Goals.*

Judy Beck, EPA, Jeff Edstrom, *Environmental Consulting & Technology Inc., Enhancing Opportunities for Interactive Watershed Management Reporting*

8:30 – 10:00 a.m. | Stardust 3

Nutrients/TMDL's

Bopi Biddanda, Grand Valley State University, *Production and Respiration in a Changing Lake Michigan Watershed: Linking Historic Data to Real-time Observations*

Dale M. Robertson, USGS, *Allocation of Nutrient Inputs to Lake Michigan by Source and River Basin Using SPARROW Watershed Models*

Glenn J. Warren, EPA, *Significant Lake Michigan Open Lake Nutrient Changes*

Harvey A. Bootsma, *University of Wisconsin-Milwaukee, Nearshore phosphorus dynamics in Lake Michigan: Major sources, fluxes, and sinks*

8:30 – 10:00 a.m. | Suncoast A & B

Demonstrations of beach remediation and what we have learned from sanitary survey data

Shannon Briggs, Water Resources Division, Michigan Dept. of Environmental Quality, *An Update on Great Lakes Restoration Initiative Beach Projects in Michigan*

Sarah U'Ren, The Watershed Center Grand Traverse Bay, *The Grand Traverse Region's Healthy Beaches Program - Education, Monitoring and Restoration*

Melissa Soline, Great Lakes and St. Lawrence Cities Initiative, *Beach Remediation and the Triple Bottom Line for our Communities - Demonstrations of Beach Remediation*

Mike Gardner, Sigurd Olson Environmental Institute - Northland College, *Chequamegon Bay Clean Beach Challenge*

Peter G. Pittner, Miller Engineers & Scientists, *Improving Water Quality at Beaches by Reducing Stormwater Impacts with Naturalized Design*

10:00 – 10:15 a.m. | Gold Coast Area with Exhibitors

Break

2001 State of Lake Michigan and Great Lakes Beach Association Joint Conference – day by day Schedule

10:15 – 11:45 a.m. | Stardust 1

Next Steps in AOC Monitoring and Restoration

Anne Kominowski, Indiana Department of Environmental Management, *NRDA-GLLA Dredging of the Grand Calumet River, Indiana.*

Thomas P. Simon, Indiana State University, *Condition of the Grand Calumet River Area of Concern*

Jeff Edstrom, Environmental Consulting & Technology, Inc., *AOC Data Management System*

10:15 – 11:45 a.m. | Stardust 2

Fish Species Health / Lake Michigan Food Web

James G. Wiener, University of Wisconsin-La Crosse, *Mercury in the Great Lakes Region—A Multi-media Synthesis on Contamination, Bioaccumulation, Exposure, and Ecological Risks*

Mohamed Faisal, Michigan State University, *Fish Health Challenges in Lake Michigan*

Sergiusz Czesny, University of Illinois, *Does spatiotemporally variable prey base in the Great Lakes affect lake trout egg fatty acid signatures?*

P.W. Seelbach, USGS, *Characterization of Habitat and Food Webs in Great Lakes Rivermouth Ecosystems*

10:15 – 11:45 a.m. | Stardust 3

Watershed Academy and Planning Commissions

Martin Jaffe, University of Illinois at Chicago, *The Illinois Green Infrastructure Study*

Angela Pierce, Bay-Lake Regional Planning Commission, *Wisconsin Lake Michigan Water Trail*

Gary Korb, Southeastern Wisconsin Regional Planning Commission & UW-Extension, *Environmental Corridors, Buffer Enhancements and Adoption Challenges*

Joe Exl, Senior Water Resource Planner, *Northwest Indiana's Green Infrastructure Network*

10:15 – 11:45 a.m. | Suncoast A & B

Methods and Studies of Pathogens at Beaches

João Brandaõ, Portuguese National Institute of Health, Lisbon, Portugal, *Pathogenic Fungi: an unacknowledged risk at coastal resorts? New Insights on Microbiological Sand Quality in Portugal.*

Irene Xagorarakis, *Human and Animal Viruses at Saginaw Bay Beaches*

Erin Stelzer, *Comparison of Filtration Systems for Concentrating Pathogens and Pathogen Indicators in Recreational Waters*

Sheridan K. Haack, *Occurrence and Variability of Bacterial Pathogen Genes at Twelve Representative Great Lakes Beaches*

Lisa R. Fogarty, *Methicillin-Resistant Staphylococcus aureas (MRSA) Detected at Great Lakes Beaches*

12:00 – 1:30 p.m. | Stardust Main Ball Room

Lunch: Presentation by Cam Davis: Senior Advisor to the EPA Administrator

1:45 – 3:15 p.m. | Stardust 1

Waterborne Toxins and Stressors

Lyman C. Welch, Alliance for the Great Lakes, *Emerging Contaminant Threats and the Great Lakes*

Riley, S.C., Great Lakes Science Center, *Botulism Type E Toxin in Northern Lake Michigan*

Megan Hines, Nelson Institute of Environmental Studies, *Developing Data Management Tools for Volunteers and the General Public for Reporting Botulism and Algal Events around the Great Lakes*

Lauren E. Riga, M.S., Environment, Law & Economics Institute, *Key Policy Implications for Addressing Legacy and Emerging Water Resource Stressors*

1:45 – 3:15 p.m. | Stardust 2

National Ocean Policy: Panel

Representatives from: Council of Great Lakes Governors, Illinois Coastal Management Program, EPA, Council on Environmental Quality, NOAA, and Indiana DNR.

1:45 – 3:15 p.m. | Stardust 3

Harbors/Recreation: Clean and Green Marina Programs

Scudder D. Mackey, Ph.D. et al. , Habitat Solutions, *IJC International Upper Great Lakes Study – Water-Level Linkages between Lake Michigan/Huron Economic and Environmental Indicators*

Chuck Pistis, Michigan Sea Grant Extension, *Great Lakes Clean Marina Programs and the Green Marina Outreach and Education Project*

Cathy McGlynn et al., Northeast Illinois Invasive Plant Partnership, *Clean Boats, Clean Waters Pilot Program in Illinois and Indiana*

Vicky Harris et al., Wisconsin Sea Grant, *First Year Results of the Wisconsin Clean Marina Program*

1:45 – 3:15 p.m. | Suncoast A & B

Communicating Beach Water Quality to the Public

Bill Kramer, U.S. EPA, *Communication of Beach Conditions at the National Level: Modernized Beaches*

Christine Manninen, Great Lakes Commission, *myBeachCast: Publishing Beach Data to Smartphones*

Carl Lindquist, Superior Watershed Partnership and Land Trust, *Communicating Beach Water Quality: Engaging the Public by Providing Access to Data with User-friendly Online Tools*

Emelia McAuliff, Wisconsin DNR, *From Surveillance to Improved Decision Making: Improving Beach Quality Data and Information in Wisconsin*

Krystyn Tully, Lake Ontario Waterkeeper, Ontario's Swim Guide: *Getting Information to the Public*

State of Lake Michigan and Great Lakes Beach Association Joint Conference Session Chair Biographies

Session – Implementation of Rapid Analytical Methods for Fecal Indicator Bacteria

REBECCA BUSHON

Hydrologist

U.S. Geological Survey

Rebecca Bushon is a hydrologist with U.S. Geological Survey, Water Resources Discipline in Columbus, Ohio. She received her BS in biology from the Ohio State University in 1999 and has been with the Ohio Water Science Center for the past 14 years. She is the laboratory manager for the Ohio Water Microbiology Laboratory, which provides services to other USGS offices and their cooperators throughout the US. Her main research interests are in rapid detection methods including IMS/ATP and qPCR for fecal-indicator organisms and pathogens. She has been involved recently in projects testing rapid methods of beaches for recreational purposes, at drinking water facilities for homeland security applications and waste water facilities for treatment efficiency evaluations.

Session – Predictive Tools: Method Advancements and Expansion of Application

STEVE CORSI

Research Hydrologist

U.S. Geological Survey

Steve works with the U.S. Geological Survey as a Research Hydrologist based out of Middleton, Wisconsin. He has been with the USGS for 23 years focusing primarily on water quality investigations of surface water with emphasis in nonpoint source pollution. His current research includes investigations of waterborne pathogens and fecal indicator organisms in urban and agricultural areas, exploration of water quality properties that describe source influence on recreational water quality at Great Lakes beaches, advancing fecal indicator organism prediction techniques for recreational waters, investigation of biofilm growth in urban streams with substantial sources of dissolved organic carbon and sources of aquatic toxicity in urban streams.

Session – Physical and Hydrological Processes of Beaches

ALLAN S. CROWE

Hydrogeologist

National Water Research Institute, Burlington, Ontario

Dr. Allan S. Crowe is a Research Hydrogeologist with Environment Canada's National Water Research Institute, in Burlington, Ontario. His research interests focus on the role of groundwater in the deterioration of beaches and water quality. Currently, he is assessing the role of groundwater as a mechanism for *E. coli* transport and persistence along beaches and the causes and solution to the physical deterioration of beaches of the Great Lakes. Dr. Crowe is also an adjunct professor at McMaster University, where he supervises graduate students and lectures in hydrogeology. Allan Crowe received his Ph.D. in hydrogeology from the University of Alberta in 1987.

Session – Fish Species Health/Lake Michigan Food Web

ROBERT F. ELLIOTT

Great Lakes Fish Biologist

U.S. Fish & Wildlife Service, Green Bay Fish and Wildlife Conservation Office

Rob Elliott has been a Fishery Biologist with the U.S. Fish and Wildlife Service, Lake Michigan Fisheries Program since 1994. The focus of his work is on native fish species ecology, rehabilitation and restoration. Since 1997, he has led the Service's work with lake sturgeon on Lake Michigan as well as maintained involvement with lake trout restoration and with general fish community dynamics, including pacific salmon and forage species interaction.

Rob currently chairs the Lake Michigan Lake Sturgeon Task Group, is the project manager for a Lake Michigan wide lake sturgeon streamside rearing project, is a member of the Lake Michigan Salmonid and Lake Michigan Benthivore Workgroups of the Lake Michigan Technical Committee, serves on the Implementation Team for fish passage efforts on the Menominee River and participates in planning groups for the Menominee River and Fox River-Lower Green Bay AOCs, among other activities.

Session – Watershed Education, Outreach and Collaboration

COLIN HIGHLANDS

Lake Michigan Program Coordinator

Indiana Department of Natural Resources

Colin Highlands is the Indiana Lake Michigan Coastal Nonpoint Program Coordinator. The purpose of his position is to implement management measures for nonpoint source pollution as specified in the Coastal Zone Management Act. Colin also is the Great Lakes Restoration Initiative coordinator and the Lake Michigan Lakewide Management Plan coordinator for the Northwestern Indiana region. Colin received his B.S. in park and recreation management and his M.P.A. in environmental policy and natural resource management, both from Indiana University.

Session – Pollution Prevention Actions for Toxics

JON HORTNESS

Hydrologist

U. S. Geological Survey

Jon Hortness is the Surface Water Specialist for the Illinois Water Science Center of the U.S. Geological Survey. He is also the office chief for the Northern Illinois Field Office which handles field operations in northern Illinois, including the Chicago Metropolitan area. Jon received his bachelor's degree in Civil Engineering and Master's degree in Water Resources Engineering from the South Dakota School of Mines and Technology. Past projects include those related to river and watershed modeling, surface-water/ground-water interactions, flood and drought analyses, and in-stream flow criteria. He is also a Registered Professional Engineer in Illinois.

Session – Communicating Beach Water Quality to the Public

SONIA JOSEPH JOSHI

Outreach Coordinator

National Oceanic and Atmospheric Administration

As Outreach Coordinator for the NOAA Center of Excellence for Great Lakes and Human Health at the Great Lakes Environmental Laboratory, Sonia's primary role is to manage all stakeholder involvement with Center activities. This involves developing outreach products and materials on Center research in order to broaden community ties to include medical, drinking water, water treatment, and beach management constituencies. As well as working with multiple stakeholder groups to identify and assess user needs and research priorities, in order to promote environmental literacy and reduce water-quality related illness

Session – Demonstrations of Beach Remediation and What We Learned from Sanitary Survey Data

JULIE KINZELMAN, Ph.D., MT (ASCP)

Director

Health Department Laboratory, City of Racine, WI

Dr. Kinzelman is a research scientist and Health Department Laboratory Director for the City of Racine, WI. She is a Visiting Fellow at the University of Surrey, where she earned her Ph.D. in public health microbiology, and holds additional academic appointments at the University of Wisconsin-Milwaukee and University of Wisconsin-Parkside. Her research focuses on the validation/implementation of rapid methods for monitoring aqueous environments and developing applied science solutions to improve surface water quality. Ongoing projects include the use of sanitary surveys to identify pollution sources at Great Lakes beaches, conducting chemical/microbial/physical assessments in support of regional river restoration, developing mitigation strategies and increasing the capacity for rapid molecular methods at local public health laboratories. To date, she has authored more than 25 published works in relation to these efforts.

Session – Dunes and Wetlands: Threats from Invasives

JOHN LEGGE

Conservation Project Director

The Nature Conservancy

John Legge has served in several roles for The Nature Conservancy in Michigan, where he currently directs several conservation projects. His current responsibilities include developing a collaborative invasive species strategy for the Eastern Lake Michigan shoreline, working with corporate partners on watershed protection strategies, and coordinating the Conservancy's agricultural strategies throughout the Great Lakes Basin. From 2001 – 2011 he served as TNC's West Michigan Conservation Director, leading a small staff in conserving critical landscapes for biodiversity throughout the western Lower Peninsula. John has been with the Conservancy since 1997. He began working on Michigan conservation issues in 1993, serving as a zoologist with the Michigan Natural Features Inventory, where he conducted surveys for a wide variety of rare animals. John holds a Masters of Science in entomology from Cornell University and a B.S. in biology from Westminster College. As a naturalist, he is involved in a

long-term monitoring study of prairie voles (*Microtus ochrogaster*), and is also an avid observer of beetles, butterflies, birds, and native plants.

Session – Models/GIS
SARA MAPLES (KATICH)
Program Coordinator
Great Lakes Observing System

Sara Maples has over four years experience facilitating collaborative processes in high-pressure, client-focused environments. Her recent Great Lakes work includes the development of climate adaptation educational materials that provide guidance on selection and instructions for use to coastal community decision-makers. She recently earned her Master's degree from the University of Michigan School of Natural Resources and Environment and her undergraduate degree is from the University of Kansas. As Program Coordinator, Ms. Maples leads GLOS modeling, communications and outreach activities.

Session – National Ocean Plan and Lake Michigan
MIKE MOLNAR
Program Manager of the Indiana Lake Michigan Coastal Program
Indiana Department of Natural Resources

Mike Molnar has lead the Indiana Lake Michigan Coastal Program (LMCP) for the past 8 ½ years. The LMCP is a networked program with 5 dedicated program staff. The program works to provide financial and technical assistance to partners to ensure wise management and use of coastal resources. He previously worked as a legislative policy analyst for the Office of Program Policy Analysis and Government Accountability with the state of Florida, data and information manager for IDNR Division of Soil Conservation and as a Fiscal Analyst for Indiana Legislative Services Agency.

Born and raised along the shores of Lake Erie, he learned first-hand the environmental impacts of pollution on the Great Lakes and how combined efforts can result in success. Mike holds a Bachelor of Science in Education – Biological Sciences from Miami University, Oxford, Ohio and a Master of Public Affairs – Environmental Policy, Science and Law from the School of Public and Environmental Affairs at Indiana University, Bloomington, Indiana.

Session - Water conservation and the Great Lakes Compact
KAY L. NELSON
Environmental Affairs Director; Northwest Indiana Forum, Inc.

Kay Nelson is a 1977 graduate of Purdue University in West Lafayette, Indiana. She received a Bachelor of Science Degree from the School of Agriculture in Natural Resources and Environmental Science. In the pursuit of her degree, Ms. Nelson focused upon water quality issues.

Ms. Nelson joined the Northwest Indiana Forum in 1998. The Northwest Indiana Forum is a non-profit regional economic development organization. Currently, the Forum has 123 members representing a diverse base of small business, municipalities, health care, financial institutions, legal firms, local universities and large industry within Lake, Porter, LaPorte, Starke, Newton, Jasper and Pulaski counties in Indiana. In total, the Forum members reflect

over \$40 Billion in commerce annually on behalf of the state of Indiana. Recognizing the integral relationship between economic development and environmental protection, Ms. Nelson's role with the Northwest Indiana Forum is diverse. She is an active participant during the new and/or expanding business process – working to assist understanding by the community at large of the impact and importance of economic development. Working on environmental issues affecting existing members, Ms. Nelson provides a forum whereby regional position papers are developed. In this process, Ms. Nelson represents the business community in discussions with environmental and community stakeholders to develop understanding and often consensus on important issues. The successful passage of Indiana Senate Enrolled Act 45 as signed by Governor Mitch Daniels on February 20, 2008 reflects this unique collaboration Ms. Nelson works to affect.

In recognition of her Great Lakes Compact work, Ms. Nelson was awarded the Sagamore of the Wabash from Governor Mitch Daniels.

Session – Lake Michigan Biodiversity Conservation Strategy: Proving On-line Access to Results and Supporting Information

DOUGLAS R. PEARSALL, PhD

Senior Conservation Scientist

The Nature Conservancy

Since joining The Nature Conservancy in 1995, Doug Pearsall has spent most of his time developing Conservation Action Plans and has played a lead role in conservation planning at ecoregional and local scales. He is project manager for the Lake Erie and Lake Michigan Biodiversity Conservation Strategies project, and also develops CAPs for priority areas in Michigan. Doug received his Ph.D. in Natural Resources in 1995 from the University of Michigan School of Natural Resources and Environment (SNRE) in Ann Arbor. Doug also has a MS from SNRE, focusing on Arboretum Management, and a BS in Forest Biology from the State University of New York College of Environmental Science and Forestry.

Session – Wetland/Watershed Health and Collaboration

PATTY O'DONNELL

Regional Planner

Northwest Michigan Council of Governments

Patty O'Donnell is the Regional Planner for the Northwest Michigan Council of Governments, the ten county regional planning agency where she develops and implements planning programs and projects such as watershed management planning, solid waste, energy efficiency, sustainable business practices, with specific projects such as the Finding Common Ground: Joint Planning for Lake Michigan, Stormwater Ordinance and Enforcement Assessment for Lake Michigan coastal counties, three Michigan Scenic Heritage Routes, Green Energy Teams, the Northwest Michigan Sustainable Business Forum, etc. She was formerly the Environmental Stewardship Director of the Grand Traverse Band of Ottawa and Chippewa Indians and the President of Great Lakes United. Presently, a member of the Lake Michigan Lakewide Management Planning Team, Lake Michigan Watershed Academy, State of Michigan Solid Waste Advisory Committee and watershed protection committees, to name a few. Patty has a Bachelor of Science Degree in Biology and Conservation from Central Michigan University.

Session – Resource Extraction – Impacts on Water Quality

MICHAEL RIPLEY, CPG

Environmental Coordinator

Chippewa Ottawa Resource Authority (CORA)

Mike Ripley has worked as Environmental Coordinator for the Inter-tribal Fisheries and Assessment Program (ITFAP) under the Chippewa Ottawa Resource Authority (CORA) since 1996. ITFAP is the biological and environmental division of CORA. CORA represents five tribes in Michigan with regard to the tribes' commercial and subsistence fisheries in the 1836 treaty ceded waters of Lakes Huron, Michigan and Superior.

He represents the fishery interests of CORA on the Lake Superior Binational Program, the Lake Michigan Lakewide Management Plan, the Binational Public Advisory Council (BPAC) for the St. Mary's River Area of Concern and various other environmental and aquatic nuisance species prevention programs primarily in the Great Lakes Region. Mike is a Certified Professional Geologist (CPG) under the American Institute for Professional Geologists and is the U.S. chair of the Lake Superior Binational Program's Mining Committee which is looking at ways of avoiding environmental impacts of hard rock mining in the Lake Superior basin.

Session – Physical and Hydrological Processes of Beaches

CLARE ROBINSON, Ph.D

Assistant Professor

Department of Civil and Environment Engineering, University of Western Ontario

Clare Robinson is an Assistant Professor in the Department of Civil and Environmental Engineering at The University of Western Ontario. She received her Ph.D from the University of Queensland, Australia in 2007 and completed a Post-Doctorate at Ecole Polytechnique du Lausanne, Switzerland from 2007 – 2009. Her research focuses on beach groundwater processes, including both the physical flow and geochemical processes occurring within beaches and understanding how they are influenced by dynamic coastal forcing. She has conducted significant research on the transport and fate of groundwater contaminants discharging to nearshore waters. Her research involves field work and the development of numerical groundwater-surface water and reactive contaminant transport models.

Session – Sources and Sinks of Fecal Bacteria in the Great Lakes

MICHAEL SADOWSKY

Director

BioTechnology Institute & Minnesota Mississippi Metagenome Project

Dr. Sadowsky, a fellow in the prestigious American Academy of Microbiology and the American Association for the Advancement of Science, is internationally known and respected for his research work in the area of environmental microbiology. He currently director of the BioTechnology Institute and the Minnesota Mississippi Metagenome Project. His research interests include molecular plant-microbe interactions in nitrogen-fixing symbiotic systems, investigations of the use of microorganisms for biodegradation and bioremediation; molecular methods to determine sources and kinds of bacteria in the environment; and metagenomics of soil, water, and intestinal environments.

Session – Climate Change, Lake Levels, Green Infrastructure and Adaptation

HEATHER STIRRATT

**Great Lakes Regional Coordinator for NOAA's National Ocean Service
NOAA's Coastal Services Center**

Heather Stirratt is working to better integrate NOS programs and enhance connections with customers and partners in the Great Lakes region. Currently, she is focusing on the following programmatic areas of concern for the Great Lakes: coastal management, marine spatial planning and mapping, commerce and transportation, community resiliency and climate change. She serves as Chair of the NOAA Great Lakes Climate Working Group, as the NOS representative to the NOAA Great Lakes Regional Team, as NOAA representative to the International Joint Commission's Adaptive Management Working Group, as NOAA representative to the Lake Superior Lakewide Management Working Group and the Lake Superior Sustainability Working Group.

Ms. Stirratt has a broad portfolio of non-governmental, county, state and federal work experience. Having served previously as the Policy Analyst for NOS' Assistant Administrator (AA), she was responsible for daily operational support to the AA, building professional relationships among NOS' executive leadership and fostering collaborative partnerships on projects of national interest. In total, Ms. Stirratt has served over 10 years as a Fisheries Management Specialist involved with some of America's most valuable state and federal fisheries. Her contributions to U.S. management of highly migratory species have been nationally recognized by the Department of Commerce and NOAA's General Counsel.

Ms. Stirratt holds a Masters degree in Marine Affairs, with specialties in fisheries management and ocean and coastal law, from the University of Rhode Island and a B.A. in Marine Affairs from the University of Miami. Beyond her academic and professional careers, Ms. Stirratt enjoys recreational scuba diving, fishing, and spending time with family.

Session – Waterborne Toxins and Stressors

CHRIS OTTO

**Biological Science Technician (Water Quality)
National Park Service, Sleeping Bear Dunes National Lakeshore**

Chris Otto started with the National Park Service at Sleeping Bear Dunes National Lakeshore in April 2008. His areas of expertise and work include: E. coli Beach Monitoring, Inland Lake Water Quality Monitoring, Lake Michigan Nearshore Ecosystem Research and Type E Botulism Research.

Chris has a Master of Science in Natural Resource Management (2009), from Michigan State University. He also holds a Professional Certificate in Watershed Management (2006), from Michigan State University.

NOAA's only Cooperative Institute in the Great Lakes

The **Cooperative Institute for Limnology and Ecosystems Research (CILER)**, a Center of Excellence housed at the University of Michigan's School of Natural Resources and Environment, collaborates with the NOAA-GLERL and the NWS to provide decision support systems for forecasting beach water quality.

If you are interested in developing decision support systems for forecasting bacterial contamination risk at your beach, contact CILER for more information and requirements.



Cooperative Institute for Limnology
and Ecosystem Research
University of Michigan

ciler.snre.umich.edu

How important is swimming in clean water to you?

