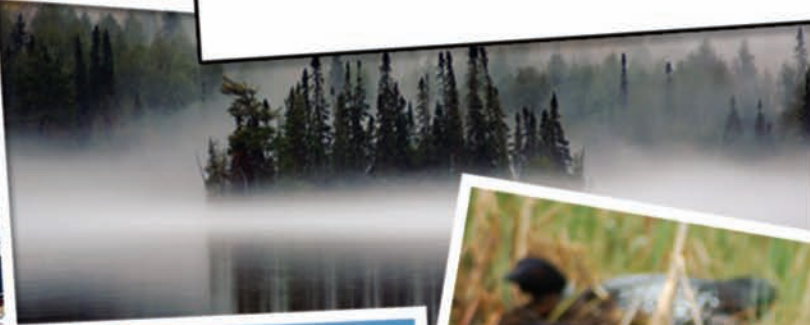




IAGLR 2011

PROGRAM BOOK

54th Annual Conference on Great Lakes Research
International Association for Great Lakes Research



Duluth, Minnesota
Monday, May 30 - Friday, June 3, 2011

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54th Annual Conference

International Association for Great Lakes Research
(IAGLR)

Big Lakes – Big World



May 30 – June 3, 2011
Duluth, Minnesota, USA

Held at the Duluth Entertainment Convention Center
350 Harbor Drive, Duluth, MN 55802
www.decc.org

Published by:
International Association for Great Lakes Research
4840 South State Road
Ann Arbor, Michigan 48108
Phone: (734) 665-5303
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Lake Superior is called *Gichigami* in the Ojibwe language, meaning “big water.” The 2011 International Association for Great Lakes Research (IAGLR) annual conference is taking place next to *Gichigami*, the largest freshwater lake in the world (by surface area), so the theme of “Big Lakes – Big World” is apropos. Many topics that are important to IAGLR members and the world (e.g., global climate change, invasive species, ballast water issues, water diversions, etc.) fit under this theme, which also emphasizes the international nature of IAGLR and the scope of aquatic research being conducted by IAGLR members.



Logo Design

Kate Whittaker, an artist from Duluth, Minnesota, designed the conference logo with an enlarged Lake Superior projected onto a globe to indicate the location of the 2011 IAGLR Conference on the shores of this lake in Duluth, Minnesota, while also emphasizing the international nature and scope of the professional association. On her website (katewhittaker.com), Whittaker states, “I credit my training in the geological sciences for the appreciation I have for everything from earth’s dynamic processes, to nature’s exquisite forms, to an in-depth understanding of the origins of my paints. The beauty of science has greatly expanded my relationship to art and has liberated and grounded me as a process painter.”

Front Cover Design and Photographs

Chris J. Benson, outdoor photographer, has explored hundreds of different lakes, rivers, and streams throughout Minnesota. Photography has given Benson the opportunity to capture and share these explorations. He has created an online gallery, chrisjbenson.com, to allow a glimpse into his love of the outdoors and the beautiful views Minnesota offers. Benson says the more time he spends out on the waters, the more he appreciates how fortunate we are to have them. Benson also works for Minnesota Sea Grant, providing Web development, graphic design, and photography support to the program. He says he is grateful that he can apply his skills to a program that encompasses his passion for Minnesota and its waters.

Inside Program Design

The inside of the program book was designed by Karen Hoeft of Hoeft Design. Hoeft has lived and worked on the North Shore for the past 20 years. She has been a graphic designer for over 30 years. Her work has revolved closely around Lake Superior, its residents and visitors. A few of her logo designs are the Gitchigami State Trail logo, the Great Lakes Coastal Program logo, and the Minnesota State Parks logo. You can view her portfolio at www.hoeftdesign.net. Karen has worked on specific projects for the University of Minnesota Sea Grant Program over the last 15 years, including the flavorful Lamprey Taste Test. When not designing, Hoeft’s hobby is searching out ancient rock art forms, specifically pictographs and petroglyphs.

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Welcome Conference Exhibitors!

ASL Environmental Sciences Inc.
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Sea Grant Institute
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Exhibits will be open daily from 9 a.m. to 5 p.m. with refreshments served in the Edmund Fitzgerald Hall during each break and the poster session. Please make the exhibitors feel welcome by visiting their displays! In addition, select exhibitors will be demonstrating appropriate instrumentation on short cruises of the University of Minnesota Duluth's Large Lakes Observatory research vessel, the *R/V Blue Heron*. These demonstrations will take place on Thursday afternoon. Visit the exhibitors to learn more.

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appreciation
is extended
to our annual
IAGLR
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members**

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Ann Arbor, Michigan 48108

U.S. Environmental Protection Agency

Great Lakes National Program Office

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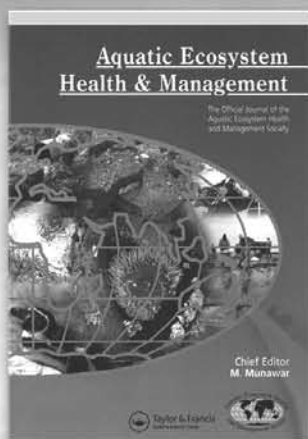
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The International Association for Great Lakes Research is a member-run organization. If you are interested in supporting the scientific community in its work in the exploration, discussion and resolution of Great Lakes issues, please consider joining IAGLR! Individual or sustaining memberships are available. Further information may be found on our website www.iaglr.org or pick up our brochure in the registration area.

IAGLR member benefits include:

- Quarterly *Journal of Great Lakes Research* subscription
- Journal of Great Lakes Research* special issues
- Access to *Journal of Great Lakes Research* archives from 1975-present
- Annual Conference on Great Lakes Research registration discount
- IAGLR Notes*, a biweekly e-mail news service
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- Additional discounts available from Elsevier
- Eligibility for election to serve on the IAGLR Board of Directors
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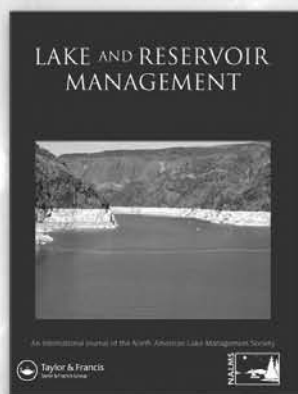
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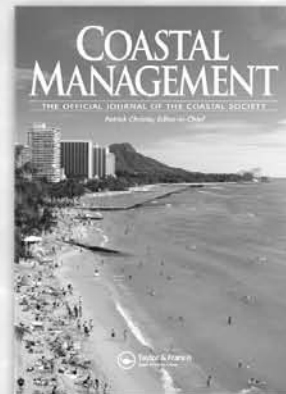
Editor-in-Chief: M. Munawar
Fisheries & Oceans Canada
Canada Centre for Inland Waters
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Notes

Conference Overview

Conference Co-Chairs:

Dr. Randall Hicks, Director, Center for Freshwater Research and Policy, University of Minnesota Duluth
Dr. Stephanie Guildford, Associate Professor, Large Lakes Observatory, University of Minnesota Duluth

Conference Coordinator:

Mary Ginnebaugh

Program Co-Chairs:

Dr. Anett Trebitz, Scientist, Mid-Continent Ecology Division, U.S. Environmental Protection Agency
Dr. Jay Austin, Associate Professor, Large Lakes Observatory, University of Minnesota Duluth

Local Arrangements Co-Chairs:

Dr. Valerie Brady, Research Coordinator, University of Minnesota Sea Grant College Program
Dr. Patrick Schoff, Research Associate, Natural Resources Research Institute, University of Minnesota Duluth

Business Manager, IAGLR:

Wendy Foster

Conference Chair, IAGLR Board:

Robert J. Letcher, Environment Canada

Student Judging Coordinator:

Theresa Qualls, University of Wisconsin Sea Grant Program

Organizing Committee Members:

Pat Collins, Jeff Gunderson, Julie Johnson, Sue Ellen Moore, Don Schreiner, Laura Solem, Carol Wolosz, Prosper Zigah

Media Relations:

June Kallestad, Natural Resources Research Institute, University of Minnesota Duluth
Sharon Moen, University of Minnesota Sea Grant College Program

Our gratitude to the following individuals/groups for their contributions:

Chris Benson, Deborah Bowen, Connie Post, Jesse Schomberg, Judy Zomerfelt, graduate student volunteers

IAGLR Officers and Board Members:

Robert Heath, President
Robert J. Letcher, Vice President
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Prosper Zigah, Student Member

Lake Superior Binational Program**20th
Anniversary**

Learn about ecosystem research,
monitoring and restoration in
Lake Superior from 1991-2011 and
into the future.

Attend the Special Session on Thursday or Friday in the French River Room
Learn more online at: www.epa.gov/glnpo or www.ec.gc.ca/greatlakes

Overview of conference activities

All activities take place at the DECC unless otherwise noted.

Monday, May 30

8:00 a.m. – 5:00 p.m.	Workshop: Introduction to R (pre-registration required), Horizon 204
9:00 a.m. – 4:00 p.m.	IAGLR Board of Directors meeting, Board Room
1:00 p.m. – 5:00 p.m.	VEMCO Acoustic Telemetry Workshop (pre-registration required), Horizon 202
1:00 p.m. – 3:00 p.m.	Student volunteer training, Split Rock Room
3:00 p.m. – 6:00 p.m.	Exhibitor and poster set-up, Edmund Fitzgerald Hall
3:00 p.m. – 8:00 p.m.	Registration open, Registration Area
4:00 p.m. – 8:00 p.m.	Speaker ready room and presentation loading, St. Louis River Room
5:30 p.m. – 7:00 p.m.	Defy Hockey Cup Challenge, Duluth Heritage Sports Center, 120 South 30th Avenue West, Duluth, Minnesota Meet at registration area at 4:30 p.m. to carpool to venue.
6:30 p.m. – 9:30 p.m.	Welcome mixer, Harborside Ballroom

Tuesday, May 31

7:30 a.m. – 6:00 p.m.	Speaker ready room and presentation loading, St. Louis River Room
7:30 a.m. – 5:00 p.m.	Registration open, Registration Area
7:30 a.m. – 9:00 a.m.	Coffee and tea available, Edmund Fitzgerald Hall and Harborside Area
8:00 a.m. – 10:20 a.m.	Concurrent sessions, Cityside and Harborside areas
9:00 a.m. – 5:00 p.m.	Exhibitor and poster set-up, Edmund Fitzgerald Hall
9:00 a.m. – 5:00 p.m.	Exhibitor trade show open, Edmund Fitzgerald Hall
9:00 a.m. – 4:00 p.m.	Press room available, Board Room
10:20 a.m. – 10:40 a.m.	Morning break, Edmund Fitzgerald Hall and Harborside Area
10:40 a.m. – 11:10 a.m.	Opening ceremonies, Lake Superior Ballroom
11:10 a.m. – 12:10 p.m.	Plenary by Dr. Marianne Moore, Lake Superior Ballroom
12:20 p.m. – 1:30 p.m.	Lunch on your own (pre-ordered box lunches, Harborside Ballroom)
12:20 p.m. – 1:30 p.m.	COSEE Great Lakes Teacher-Researcher Lunch (pre-registration required), Gooseberry Falls 3
1:40 p.m. – 5:00 p.m.	Concurrent sessions, Cityside and Harborside areas
3:20 p.m. – 3:40 p.m.	Afternoon break, Edmund Fitzgerald Hall and Harborside area
5:00 p.m. – 7:00 p.m.	Poster reception and judging and exhibitor reception, Edmund Fitzgerald Hall
7:30 p.m. – 9:30 p.m.	Student-only pizza cruise and mixer, <i>Vista Star</i> cruise boat (board immediately behind the DECC on the Duluth Harbor)

Wednesday, June 1

7:30 a.m. – 6:00 p.m.	Speaker ready room and presentation loading, St. Louis River Room
7:30 a.m. – 5:00 p.m.	Registration open, Registration Area
7:30 a.m. – 9:00 a.m.	Coffee and tea available, Edmund Fitzgerald Hall and Harborside area
8:00 a.m. – 11:00 a.m.	Concurrent sessions, Cityside and Harborside areas
9:00 a.m. – 4:00 p.m.	Press room available, Board Room
9:00 a.m. – 5:00 p.m.	Exhibitor trade show open, Edmund Fitzgerald Hall
9:20 a.m. – 9:40 a.m.	Morning break, Edmund Fitzgerald Hall and Harborside area
11:10 a.m. – 12:10 p.m.	Plenary by Dr. Sally MacIntyre, Lake Superior Ballroom
12:20 p.m. – 1:30 p.m.	IAGLR Business Lunch, Lake Superior Ballroom
1:40 p.m. – 5:20 p.m.	Concurrent sessions, Cityside and Harborside areas
3:20 p.m. – 3:40 p.m.	Afternoon break, Edmund Fitzgerald Hall and Harborside area
6:00 p.m. – 6:30 p.m.	Pre-banquet mixer, Lake Superior Ballroom
6:30 p.m. – 9:00 p.m.	Banquet, Lake Superior Ballroom

Thursday, June 2

7:45 a.m. – 5:00 p.m. Speaker presentation loading, Registration Area (note location change)
 7:45 a.m. – 5:00 p.m. Registration open, Registration Area
 7:45 a.m. – 9:00 a.m. Coffee and tea available, Edmund Fitzgerald Hall and Harborside area
 8:00 a.m. – 11:00 a.m. Concurrent sessions, Cityside and Harborside areas
 9:00 a.m. – 4:00 p.m. Press room available, Board Room
 9:00 a.m. – 5:00 p.m. Exhibitor trade show open, Edmund Fitzgerald Hall
 9:20 a.m. – 9:40 a.m. Morning break, Edmund Fitzgerald Hall and Harborside area
 11:10 a.m. – 12:10 p.m. Plenary by Mr. John Goss, Lake Superior Ballroom
 12:20 p.m. – 1:30 p.m. Lunch on your own (pre-ordered box lunches, Harborside Ballroom)
 1:40 p.m. – 5:20 p.m. Concurrent sessions, Cityside and Harborside areas
 2:00 p.m. – 4:00 p.m. Shipboard equipment demonstrations, *R/V Blue Heron*
 (pre-registration with exhibitors is required)
 3:20 p.m. – 3:40 p.m. Afternoon break, Edmund Fitzgerald Hall and Harborside area
 5:30 p.m. Dinner on your own. Enjoy the many fine restaurants in Canal Park
 and on Superior Street.
 6:00 p.m. – 8:00 p.m. Research vessel tours, *R/V Blue Heron* (UMD), *R/V Lake Explorer II* (US EPA),
R/V L.L. Smith, Jr. (UWS); (board immediately behind the DECC on the
 Duluth harbor)

Friday, June 3

7:45 a.m. – 10:30 a.m. Speaker presentation loading, Registration Area (note location change)
 7:45 a.m. – 12:00 p.m. Registration open, Registration Area
 7:45 a.m. – 9:00 a.m. Coffee and tea available, Edmund Fitzgerald Hall and Harborside area
 8:00 a.m. – 12:00 p.m. Concurrent sessions, Cityside and Harborside areas
 9:00 a.m. – 12:00 p.m. Exhibitor trade show open, Edmund Fitzgerald Hall
 10:00 a.m. – 10:20 a.m. Morning break, Edmund Fitzgerald Hall and Harborside Area
 12:00 p.m. IAGLR Conference ends

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Special Events Information

Welcome Reception

Music provided by Stone Circle: Georgiane Hunter, Celtic harp, and Katherine Elmer, hammer dulcimer, of Knife River, Minnesota (www.huntermusic.com).

Opening Ceremonies

Tuesday, May, 10:40 a.m., Lake Superior Ballroom

University of Minnesota Duluth Chancellor Lendley Black, Duluth Mayor Don Ness, and U.S. EPA Mid-Continent Ecology Division Director Dr. Carl Richards will welcome attendees to Duluth and to the 54th Annual Conference on Great Lakes Research. Their remarks will be immediately followed by the first plenary, presented by Dr. Marianne Moore, Wellesley College: **Big Lakes and Environmental Change: A View from Lake Baikal.**

IAGLR Business Lunch

Wednesday, June 1, 12:20 p.m., Lake Superior Ballroom. Introduction of new IAGLR board members and updates on IAGLR activities. All attendees welcome.

IAGLR Banquet and Awards Ceremony

Wednesday, June 1, 6:30 p.m., Lake Superior Ballroom. Mixer and cash bar beginning at 6:00 p.m. Invited guest speaker, Senator Amy Klobuchar (Minnesota), along with the presentation of IAGLR awards and scholarships.

IAGLR Awards

IAGLR Lifetime Achievement Award for important and continued contributions to Great Lakes research

Jack R. Vallentyne Award for outreach and education

Anderson-Everett Award for outstanding contributions to the Association

Chandler-Misener Award for outstanding article in the *Journal of Great Lakes Research*

Editor's Award

Elsevier Best Reviewer Award for the *Journal of Great Lakes Research*

Elsevier Young Scientist Award

Elsevier Young Student Award

IAGLR-HYDROLAB Best Student Paper

IAGLR-HYDROLAB Best Student Poster

IAGLR Appreciation Awards

IAGLR Scholarships*

IAGLR-OMNR Student Travel Award

IAGLR Scholarship

Norman S. Baldwin Fishery Science Scholarship

Paul W. Rodgers Scholarship

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Tour Lake Superior Research Vessels

Thursday, June 2 from 6-8 p.m. local research vessels will be moored immediately behind the DECC and available for tours for registered IAGLR attendees and their guests.

The University of Minnesota Duluth's Large Lakes Observatory operates the largest university-owned research vessel in the Great Lakes, the *R/V Blue Heron*. Built in 1985 for fishing on the Grand Banks, the *Blue Heron* was purchased by the University of Minnesota in 1997, sailed from Portland, Maine, up the St. Lawrence Seaway to Duluth, and converted into a limnological research vessel during the winter of 1997-98. She is outfitted with state-of-the-art research equipment. The *Blue Heron* has berthing for 11 crew and scientists, and can operate 24 hours per day for up to 21 days between port calls. The *Blue Heron* is part of the University National Oceanographic Laboratory System (UNOLS), and is available for charter by research scientists on any of North America's Great Lakes.



The *R/V Lake Explorer II*, operated by the U.S. EPA Mid-Continent Ecology Division, Duluth, Minnesota, has just completed its outfitting for Great Lakes research. The vessel will specialize in developing a comprehensive environmental assessment of coastal conditions in the Great Lakes. This research is conducted using cutting-edge technologies for sampling aquatic life, water quality and sediments, including state-of-the-art *in situ* environmental sensing systems. There are 11 bunks (four double staterooms and one triple stateroom) aboard the *R/V Lake Explorer II*. The vessel accommodates four crew (boat captain, first mate, chief and first engineers) and up to seven scientists.



The *R/V L.L. Smith, Jr.*, is a 58-foot research tug equipped with a full array of navigational electronics. Operated by the University of Wisconsin-Superior's Lake Superior Research Institute (LSRI), the *Smith* is used primarily for day excursions focused on aquatic science education and sometimes research. The vessel's crew has connected the communities of western Lake Superior with the lake and its science for 30 years. Educators continue to collect water, plankton, and sediment samples with multiple audiences in cooperation with state and federal agencies. About 30 passengers can experience hands-on science aboard the *L.L. Smith* at one time.



Plenary Speaker – Tuesday, May 31



Big Lakes and Environmental Change: A View from Lake Baikal Plenary featuring Marianne Moore

Aquatic Ecologist
Wellesley College
Wellesley, MA

Dr. Marianne Moore, an aquatic ecologist at Wellesley College, has been conducting research and teaching a course at Lake Baikal, Siberia for the past 10 years. Her interdisciplinary field course led her to Dr. Lyubov Izmet'eva, the director of a biological station on Baikal's southern shore, where Dr. Izmet'eva and her colleagues are collecting long-term data on the biological and physical characteristics of the lake. Dr. Izmet'eva is the third generation of a single family of Siberian scientists who have monitored the lake since 1946.

Dr. Moore's research collaboration expanded with funding from the U.S. National Center for Ecological Analysis and Synthesis, and the Russian-American team discovered recently that Lake Baikal has warmed rapidly. In addition, the base of the pelagic food web has reconfigured in a way that is consistent with this warming. Ice characteristics of Lake Baikal are also changing, and are projected to strongly affect the lake's endemic diatoms and top predator, the Baikal seal, by the end of the 21st century. Current research examines how the spatial distribution and abundance of certain plankton (warm-water, cosmopolitan species, cold-water, and endemic species) are shifting as the lake warms.

About Dr. Moore

Marianne Moore is a Professor in the Department of Biological Sciences at Wellesley College. Her research focuses on freshwater plankton communities and how physical (temperature, light) and biological (predation) factors structure these communities. She is currently co-leading a team of Russian and American scientists who are analyzing a 60-year data set for Lake Baikal, the world's oldest, deepest, largest (by volume), and most biotically diverse lake.

Plenary Speaker – Wednesday, June 1



Climate Related Variations in Mixing Dynamics in the African Great Lakes Plenary featuring Sally MacIntyre

Physical Limnologist/Oceanographer
University of California Santa Barbara
Santa Barbara, CA

Time series data from multiple Great African Lakes indicate a warming trend with consequences for the biota within the lakes. Climate change, however, also causes changes in temperatures on land and adjacent oceans, with resulting changes in wind and rainfall patterns which have the potential to affect thermal structure and mixing dynamics in the African Great Lakes.

Using examples particularly from Lakes Victoria and Tanganyika, Dr. MacIntyre will discuss historical trends, and illustrate the importance of cooling and wind events for moderating thermal structure and depth of mixing within the lakes. She will review climate data with respect to the larger scale controls on mixing dynamics and to address future variability in thermal structure and vertical exchange, which are important for regulating nutrient fluxes and the persistence of anoxic conditions.

About Dr. MacIntyre

Sally MacIntyre is a Professor in the Department of Ecology, Evolution and Marine Biology at the University of California Santa Barbara. She is a physical limnologist/oceanographer with a particular interest in turbulence and its implications for aquatic ecosystem function. She studies lakes from the tropics to the Arctic, and currently also has projects on kelp forests, coral reefs, and vegetated embayments.



**The Asian Carp Control Strategy
Plenary featuring John Goss**

Asian Carp Director
Council on Environmental Quality
Executive Office of the President
Washington, DC

John Goss serves as the principal advisor to Council on Environmental Quality (CEQ) Chair Nancy Sutley on Asian carp issues, and oversees the coordination of federal, state, and local efforts to keep Asian carp from establishing populations in the Great Lakes ecosystem. As chair of the Asian Carp Regional Coordinating

Committee, Mr. Goss's work continues the Obama Administration's proactive response to the threat that Asian carp pose to the Great Lakes.

The Asian Carp Control Strategy Framework, released in February 2010 and updated in May 2010, unifies federal, state and local action in an unparalleled effort to combat invasive species. Mr. Goss's talk will describe the elements of this control strategy and the plans and progress for implementation.

About Mr. Goss

John Goss was recently appointed as Asian carp director for the presidential Council on Environmental Quality. Prior to that, he served for four years as executive director of the Indiana Wildlife Federation, where he worked with conservation, business and industry groups to support the Great Lakes Compact. Other positions Mr. Goss has held include director of the Indiana Department of Natural Resources, vice-chair of the Great Lakes Commission, director of tourism for the State of Indiana, and chair for the Great Lakes International Marketing Initiative. Mr. Goss has also served as chief of staff for Indiana Lt. Governor Frank O'Bannon, as district director for Indiana Congressman Frank McCloskey, and as deputy mayor for the City of Bloomington, Indiana. Mr. Goss received his Master of Public Affairs and his B.A. in Economics from Indiana University.

Help us help you
protect and restore
the Great Lakes ecosystem.

The Lakes are healthier because of your work.
Help us shape their future.

Please visit www.glpf.org/iaglrsurvey

or scan the QR code with your smart phone for a direct link to the survey.



Great Lakes
Protection Fund



General Information

Internet Access

Open wireless Internet has been provided throughout the DECC by IAGLR for your convenience.

Speaker Ready Room

The speaker ready room (St. Louis River Room) will be available from 4:00 to 8:00 p.m. Monday night and 7:30 a.m. to 6:00 p.m. Tuesday and Wednesday. On Thursday, speakers can load and check their presentations at the registration desk between 7:45 a.m. and 5:00 p.m.; on Friday the same can be done between 7:45 and 10:30 a.m.

Presentation and Poster Guidelines

Oral Presentation

Each speaker has 20 minutes (15 min for the presentation, followed by 5 min for Q & A and transition to next speaker). Time limits will be enforced.

An LCD projector and dedicated computer will be available in each room, as will a laser pointer. Presenters may not use their own laptop.

Bring your presentation on a USB flash drive or CD to the speaker ready room for uploading at least 4 hours prior to the start of your session (Monday evening for those speaking Tuesday morning). Verify that your presentation works properly on the conference computer system before leaving the speaker ready room.

Name your presentation file in the format "Sess#_PresenterLastName_DayTime". For example, presenter Jane Doe, speaking in Session 6: Large Asian and African Lakes on Tuesday at 9:40 a.m. would name her talk "Sess6_Doe_Tue940". Use 12-hr rather than 24-hr time and omit the colon between hours and minutes. Verify your session number and presentation time by visiting the program page on the conference website (www.iaglr.org/conference/program.php).

Presentations should be in PowerPoint format. Conference computers will be running MS Office 2010 in a Windows operating system, and will be able to handle any version of PowerPoint back to 1997. If you have concerns about compatibility (e.g., coming from a Mac operating system), bring a PDF-file version of your talk as a backup. Computers will have wireless Internet access, but such connections can occasionally be problematic. If your talk involves an Internet demonstration, incorporate screen shots into your PowerPoint rather than relying on a live Internet session.

Consider packaging your presentation for playing on ANY computer. This will prevent problems with symbols and fonts changing, graphics not appearing, video files not playing, etc., when moving from a Mac or switching between PowerPoint versions. Depending on the version of PowerPoint, this option may be called "save to CD", "package for CD", or "pack and go". On PowerPoint 2007, the option is under the Publish choice from the main drop-down menu (the Office symbol in the upper left corner).

Poster Presentation

The poster social will be Tuesday, May 31, from 5:00 to 7:00 p.m. Authors of odd-numbered posters should stand by their posters from 5:00 to 6:00 p.m.; authors of even-numbered posters should do the same from 6:00 to 7:00 p.m. This will provide an opportunity for interested viewers to discuss your poster with you. Students being judged should stand by their poster for the entire two hours to ensure that judges have time to conduct interviews.

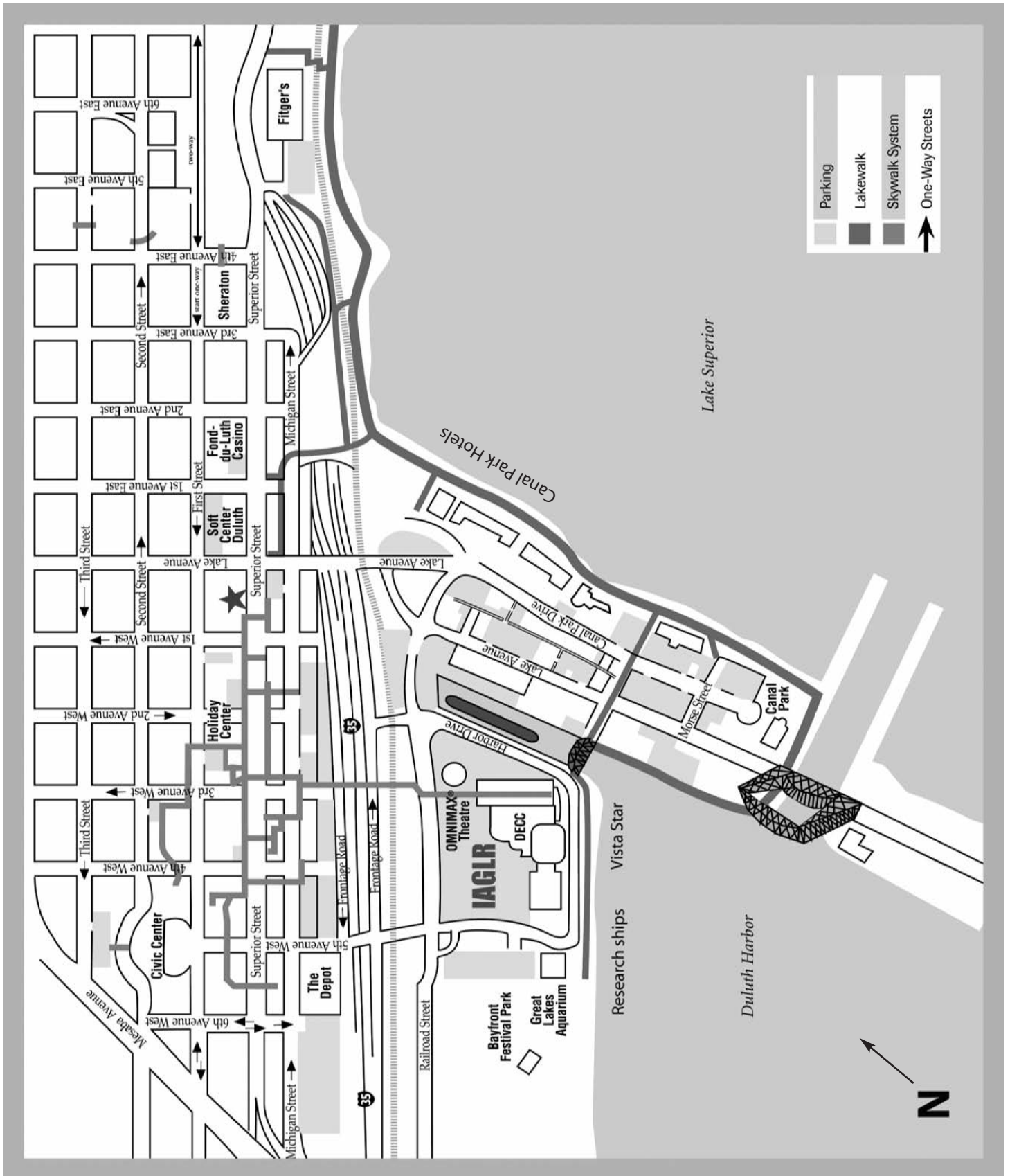
The poster exhibit hall will be open for the duration of the conference, so you will be able to hang your poster as soon as you arrive, and have it displayed for several days. Posters need to be put up before 5:00 p.m., Tuesday, and taken down no later than noon on Friday. To find where your poster is to be hung, cross-reference the poster board ID number with the number listed by your poster at the end of this program book.

Please see the poster volunteer if you forgot to bring your own pins.

Presentations and posters are the property of the presenters. Audio recording, copying, videotaping, or photographing of a presentation or poster without the express permission of the presenter is prohibited.

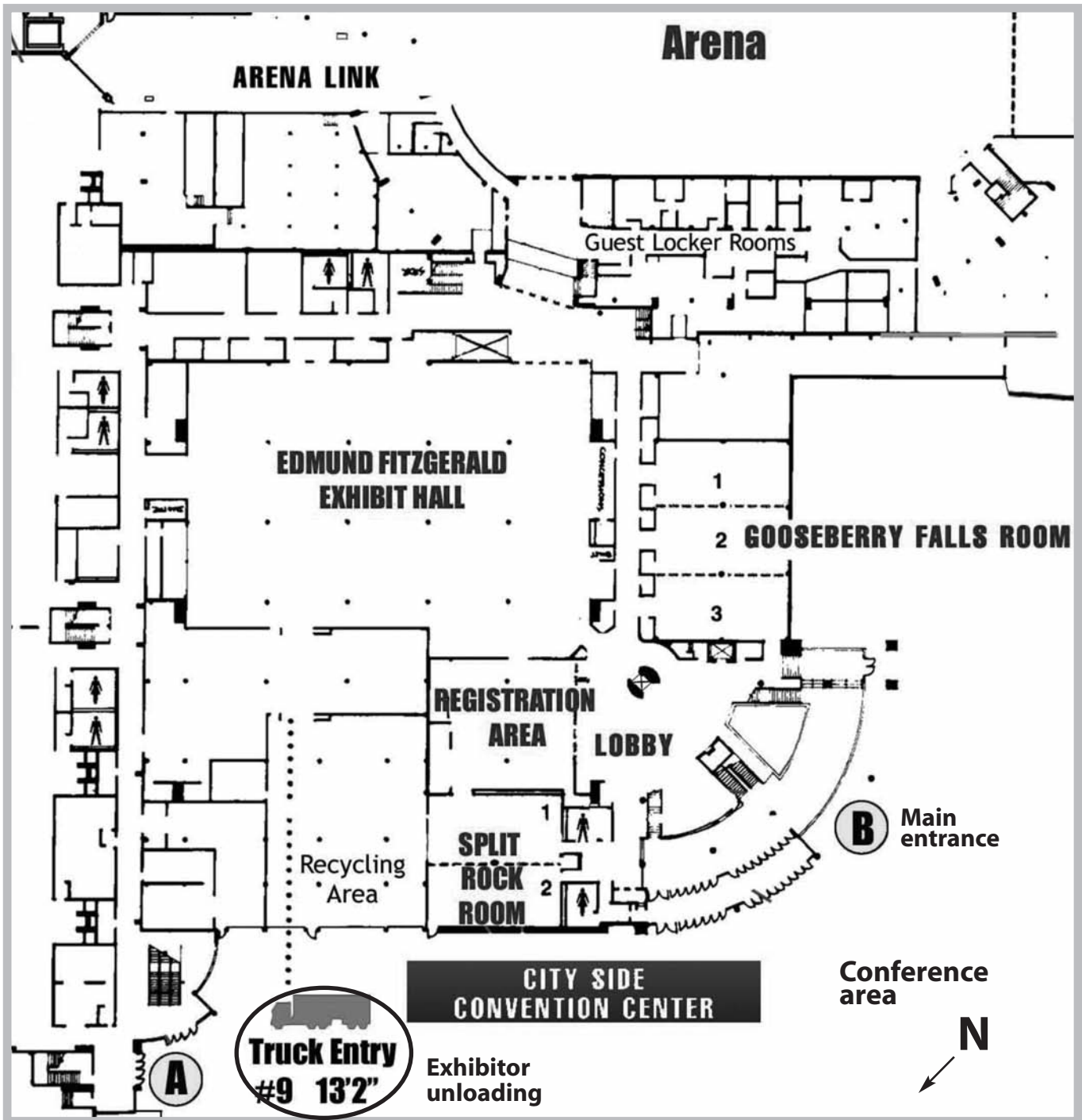


Downtown Map



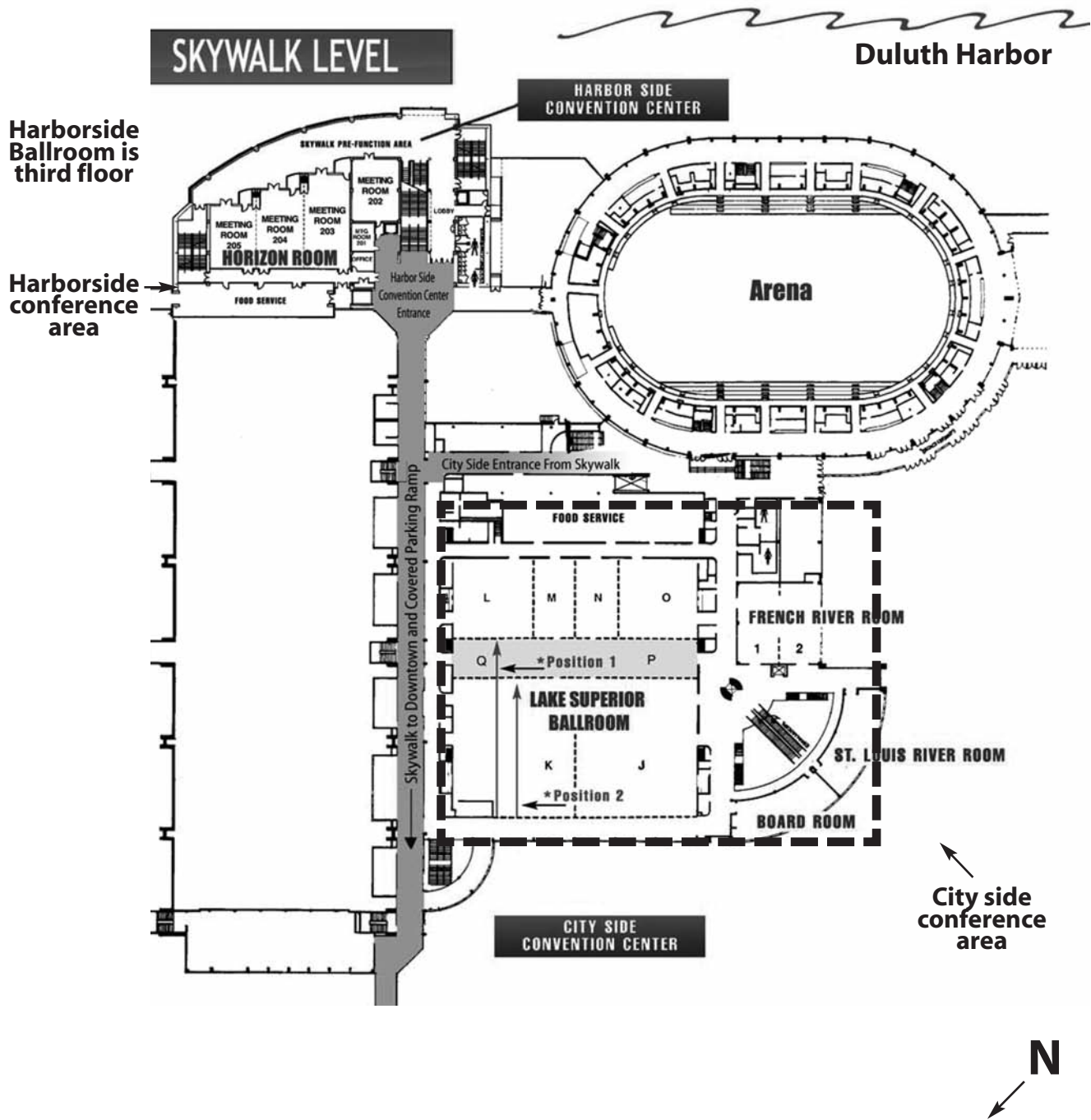
DECC Facility Map

GROUND LEVEL CLOSE UP



DECC Facility Map

SKYWALK LEVEL



The following meals are included with your registration

- Coffee and tea in the morning
- Coffee, tea, lemonade, and snacks at the morning and afternoon breaks
- Monday Welcome Reception (finger foods, 1 free drink ticket, then cash bar)
- Tuesday Poster and Exhibitors Reception (finger foods, 1 free drink ticket, then cash bar)
- Wednesday Business Lunch (lunch provided)
- Wednesday IAGLR Dinner Banquet (dinner provided, 1 free drink ticket, then cash bar)

Graduate students (only) are encouraged to attend the Graduate Student Mixer and Pizza Cruise aboard the *Vista Star* on Tuesday evening following the poster reception. Pizza and 1 free drink provided; cash bar.

Box lunches for Tuesday and Thursday purchased during registration will be available for pick-up in the Harborside Ballroom. Local restaurants serve lunch, but not always speedily. Consider your time constraints before ordering.

Local Restaurants by Cuisine

Restaurants in Canal Park, Downtown, or Fitger's area are within comfortable walking distance of the DECC and the conference hotels.

American

- Fitger's Brewhouse & Grille, 600 E. Superior St., 218-279-2739 (Fitger's)
- Grandma's Saloon & Grill, 522 Lake Avenue S., 218-722-4724 (Canal Park)
- Green Mill, 340 Lake Avenue, 218-727-7000 (Canal Park)
- Lake Avenue Café, Dewitt-Seitz Bldg., 394 Lake Avenue S., 218-722-2355 (Canal Park)
- Northern Waters Smokehaus, Dewitt-Seitz Bldg., 394 Lake Avenue S., 218-724-7307 (Canal Park)
- Pickwick, 508 E. Superior St., 218-727-8901 (Fitger's)
- Red Lobster, 301 S. Lake Avenue, 218-722-7390 (Canal Park)
- Sir Benedicts Tavern on the Lake, 805 E. Superior St., 218-728-1192 (Fitger's area)
- Top of the Harbor, Radisson Harborview Restaurant, 505 W. Superior St., 218-727-8981 (Downtown)
- Zeitgeist Arts Café, 222 E. Superior St., 218-722-9100 (Downtown)

Barbeque

- Famous Dave's Restaurant, 355 Lake Ave. S., 218-740-3180 (Canal Park)

Italian

- Bellisio's Restaurant, 405 Lake Ave. S., 218-727-4921 (Canal Park)
- Va Bene, 734 E. Superior St., 218-722-1518 (Fitger's area)

Miscellaneous

- Hanabi Japanese Cuisine, 110 N. 1st Ave. W., 218-464-4412 (Downtown)
- India Palace, 319 W. Superior St., 218-727-8767 (Downtown)
- Takk for Maten Cafe, Tech Village, 11 E. Superior St., 218-464-1260 (Downtown)
- Amazing Grace Bakery, 394 S. Lake Ave., 218-723-0075 (Canal Park)

Pizza

- Old Chicago, 327 Lake Ave. S., 218-720-2066 (Canal Park)
- Pizza Luce, 11 E. Superior St., 218-727-7400 (Downtown)
- Sammy's, 301 W. First St., 218-727-8551 (Downtown)

Southwestern

- Hacienda Del Sol, 319 E. Superior St., 218-722-7296 (Downtown)
- Little Angie's Cantina & Grill, Dewitt-Seitz Bldg., 11 E. Buchanan St., 218-727-6117 (Canal Park)
- Mexico Lindo, 600 E. Superior St., 218-740-2300 (Fitger's)

Thai

- Thai Krathong Restaurant and Bar, 308 Lake Ave. S., 218-733-9774 (Canal Park)

Vietnamese

- Taste of Saigon, Dewitt-Seitz Bldg., 394 Lake Ave. S., 218-727-1598 (Canal Park)

Downtown and Canal Park

Duluth Lakewalk

Extending along the Lake Superior waterfront from Canal Park beyond 26th Ave E.

www.duluthmn.gov/parks/lakewalk.cfm

This 4.2 mile pedestrian and bicycle path starts in Canal Park by the Aerial Lift Bridge, and takes you north and east along the Lake Superior shoreline past the Vietnam Veterans and Korean War Memorials, the Fitger's area restaurants and shops, and through Leif Erickson Park and the Rose Garden.

Duluth 10 Theatre

300 Harbor Drive, Duluth, MN 55802

(218) 729-0335

www.marcustheatres.com/Theatre/TheatreDetail/172/

The Depot

506 West Michigan Street, Duluth, MN 55802

www.duluthdepot.org Open 9:30 a.m. - 6:00 p.m.

Cost: Adults 13 and over - \$12; Children - \$6; Under 2 - free. AAA and AARP - 10% discount.

Home to Duluth Art Institute, Lake Superior Railroad Museum.

North Shore Scenic Railroad

(218) 722-1273

www.northshorescenicrailroad.org

Trains depart from behind The Depot; cost varies. Riding in vintage open and air-conditioned coaches, you'll cross over North Shore rivers that splash and tumble towards Lake Superior while your narrator explains the history of our region and the role that railroads played in its development. Excursions run daily during the summer.

Glensheen Historic Estate

3300 London Road, Duluth, MN 55804

(218) 726-8910

www.glensheen.org

Built in 1905 and 1908 as the home for Chester and Clara Congdon, Glensheen is an architectural and decorative arts masterpiece. With original furnishings, artwork, and family treasures, this magnificent 39-room mansion offers a dramatic slice of opulent life at the turn of the last century. The 7.6-acre estate includes a museum shop, a carriage house, a boat house, formal gardens, and meandering pathways—all on the shores of Lake Superior. There is an entrance fee.

Great Lakes Aquarium

353 Harbor Drive, Duluth, MN 55802

(218) 740-FISH (3474)

www.glaquarium.org

Located on the waterfront in Duluth next door to the DECC. Visitors experience the geologic forces that shaped Lake Superior, watch as divers feed fish in a massive two-story tank, raise and lower locks on a scale model of the Great Lakes, pilot a virtual ore boat under the Aerial Lift Bridge, and pet young sturgeon and freshwater stingrays. **Special rates for**

IAGLR attendees and guests at the reduced group admission rate (\$9/adult, \$5/child) by showing their IAGLR badges.

Lake Superior Maritime Visitor Center

(US Army Corps of Engineers)

600 Canal Park Drive, Duluth, MN 55802

(218) 720-5260

www.lsmma.com

Film shows, model ships and exhibits featuring commercial shipping activities on Lake Superior and in the Duluth-Superior Harbor. At Canal Park you are within yards of giant lake carriers and foreign ships as they pass under the world-famous Aerial Lift Bridge. No admission fee.

Park Point Beach

www.mnbeaches.org/beaches/lksuperior/B003.shtml

Walk over the Aerial Lift Bridge and you'll be on Minnesota Point, the second longest freshwater sand bar in the world. It's about 7 miles long and includes 59 acres of land. Its only connection to the mainland is the Aerial Lift Bridge at its entrance.

S.S. William A. Irvin Ore Boat Museum

350 Harbor Drive, Duluth, MN 55802

(218) 722-7876; (218) 727-0022

www.duluthfloatingmuseum.com

The *William A. Irvin* was the proud flagship of the U.S. Steel's Great Lakes Fleet. The Irvin provided elegance and comfort to the dignitaries and guests it carried. From the millions of tons of iron ore loaded, to its magnificently appointed wood-paneled staterooms and fine dining, the *Irvin* was the pride of the fleet. Open daily, guided tours only. Kids 10 and under FREE with paid adult.

Adventure Zone & Vertical Endeavors

329 Lake Ave S., Duluth, MN

(218) 740-4000 and (218) 279-9980

adventurezoneduluth.com/ and

www.verticalendeavors.com/duluth/index

There is something for everyone at the Adventure Zone of Canal Park! The Northland's newest family attraction boasts over 50,000 square feet of fun featuring multi-level Laser Tag, Batting Cages, Mini Golf, the largest video/redemption arcade in the area, Vertical Endeavors rock climbing walls, a kid's playground, an 18' inflatable fire truck slide and more! Open Sun 10 a.m.-10 p.m., Mon-Thur 2 p.m. to 10 p.m., and Fri-Sat 10 a.m. to midnight.

Vista Fleet

(218) 722-6218

vistafleet.com

Located next to the DECC. Enjoy the refreshing experience of cruising on Lake Superior and the Duluth-Superior Harbor in Minnesota and Wisconsin, while discovering what makes it America's great inland world port. Two-hour sightseeing cruises start at \$16 for adults and \$8 for children.

Great options to consider for accompanying guests, or before or after the conference!

North Shore Attractions

Fishing the North Shore and Lake Superior

There are many fishing opportunities in the Duluth/Superior area, and fishing during the conference should be excellent. If you want to get out on the big lake for lake trout, salmon, or walleye fishing there are many excellent charter fishermen in Duluth and Superior (www.fishduluth.com). They can also take you into the St. Louis River estuary for walleye, where you may also catch northern pike and musky. If you prefer stream fishing or shore casting, there are several excellent trout streams both along Minnesota's north shore and along Wisconsin's south shore. Bring your own fishing equipment and check out this Lake Superior and North Shore Trout Stream Fishing Guide:

files.dnr.state.mn.us/maps/trout_streams/ns_fishing_guide02.pdf. You are only a short drive from the famous Wisconsin Brule River. Check out this Web site for more information about fishing this classic trout stream and other fly fishing opportunities in the area: www.arrowheadflyangler.com.

Gooseberry Falls State Park

30 miles north from Duluth on Highway 61
www.dnr.state.mn.us/state_parks/gooseberry_falls/index
This gateway to the North Shore is known for its spectacular waterfalls, river gorge, Lake Superior shoreline, Civilian Conservation Corps log and stone structures, and north woods wildlife. With miles of hiking trails, handicap-accessible trails to the falls, a beautiful visitor's center, and numerous geologic formations, this park has something for everyone. Hike to the Fifth Falls through a forest of evergreens, aspen, and birch, and enjoy camping, picnicking, and relaxing along the Lake Superior shoreline or the Gooseberry River.

Split Rock Lighthouse State Park

48 miles north from Duluth on Highway 61
northshorevisitor.com/state-parks/split-rock
The horrific shipwrecks of 1905 fueled the demand for a lighthouse along Superior's North Shore. The amazing construction process was completed in 1910, and the light at Split Rock shone until 1969. The history center's superb displays, exhibits, and video presentations showcase the evolution of the lighthouse. The path leading southwest down to Lake Superior presents a distinctive view of the lighthouse and remnants of the lift that was used to haul supplies up from the lake. Climb the short, steep circular stairs to the top of the lighthouse.

Lake Superior Hiking Trail

www.shta.org
The Superior Hiking Trail is a 277-mile footpath that largely follows the rocky ridgeline above Lake Superior on Minnesota's North Shore from Duluth to the Canadian border. Spectacular views wait those who take the time to get out and hike. There are trailhead parking lots every 5-10 miles making it ideal for both day hikes and backpack camping. There

are 82 backcountry campsites with no fees, reservations or permits required to hike or camp on the trail. Dogs are allowed on leash only.

Lake Superior Zoo

Off of 72nd Avenue West and Grand Avenue,
7210 Fremont Street, Duluth, MN 55807
(218) 730-4900

www.lszoo.org

You'll find hundreds of animals at the Lake Superior Zoo. Located just 10 minutes from Downtown Duluth, the zoo offers year-round recreational opportunities for animal lovers of all ages. The Lake Superior Zoo is situated on 16 acres of rocky hills, majestic pines and the beautiful Kingsbury Creek in West Duluth's Spirit Valley. Summer Hours: 10:00 a.m. to 5:00 p.m. Cost: Adults 13 and over- \$9; Children-\$4; Under 2-free.

Waterfall Hiking

Nearly every stream that flows into Lake Superior along the North Shore does so in style and enters with a splash. Starting in Duluth with Chester Creek and continuing all the way up the north shore, many streams have hiking trails that guide you to their waterfalls. Many are short, easy hikes, but there are more challenging hikes available for those who are interested. Visit northshorevisitor.com/activities/waterfalls for a waterfall list and directions.

South Shore Attractions

Amnicon Falls State Park

25 miles east from Duluth (15 miles east of Superior) on Highway 2

dnr.wi.gov/org/land/parks/specific/amnicon/

This park features a series of delightful waterfalls and rapids along the Amnicon River. You can view them from a covered foot bridge or trails along the river or from the rocky shore of the river. The park is a place to picnic, camp, walk in the woods, and learn about the Douglas Fault, the geological formation that created the falls.

Pattison State Park

13 miles south of Superior on Highway 35 (Tower Ave. in Superior)

www.dnr.state.wi.us/org/land/parks/specific/pattison/
Pattison State Park features the highest waterfalls in Wisconsin and the fourth highest waterfall east of the Rocky Mountains. Big Manitou Falls is 165 high, and Little Manitou Falls is 31 feet high. The 1,436-acre park also has a lake with a beach, nature programs and guided hikes, a nature center, camping, 9 miles of hiking trails, and abundant wildlife.

Program Sessions

Program overview for Tuesday, May 31 through Friday, June 2

8:00 a.m. - 10:20 a.m.	2. Extreme or Catastrophic Events in Lakes and Rivers <i>Horizon Room 202</i>
8:00 a.m. - 10:20 a.m.	39. Fish and Fisheries in Large Lakes <i>Horizon Room 203</i>
8:00 a.m. - 10:00 a.m.	6. Large Asian and African Lakes <i>Horizon Room 204</i>
8:00 a.m. - 10:20 a.m.	18. Recent Impacts of Invasive Species on the Great Lakes Ecosystem <i>Gooseberry Falls Room</i>
8:00 a.m. - 10:20 a.m.	21. Assessing Effects of Toxic Substances in the Great Lakes <i>Split Rock Room</i>
8:00 a.m. - 10:00 a.m.	26. Data and Model Uncertainty in the Study of Lake Watersheds <i>Horizon Room 205</i>
8:00 a.m. - 10:00 a.m.	33. Science, Civic Engagement, and Undergraduate Education Initiatives <i>French River Room</i>
10:40 a.m. - 11:10 a.m.	Opening Ceremonies <i>Lake Superior Ballroom</i>
11:10 a.m. - 12:10 p.m.	Plenary, Dr. Marianne Moore <i>Lake Superior Ballroom</i>
1:40 p.m. - 3:20 p.m.	29. Paleoclimate Records of Large Lakes <i>Horizon Room 202</i>
1:40 p.m. - 3:00 p.m.	39. Fish and Fisheries in Large Lakes <i>Horizon Room 203</i>
1:40 p.m. - 5:20 p.m.	10. Exploring Food Web Linkages and Dynamics in the Upper Great Lakes: Past, Present and Future <i>Horizon Room 204</i>
1:40 p.m. - 5:00 p.m.	18. Recent Impacts of Invasive Species on the Great Lakes Ecosystem <i>Gooseberry Falls Room</i>
1:40 p.m. - 5:00 p.m.	16. Linkages Between the Landscape and Great Lakes Coastal Ecosystems <i>Split Rock Room</i>
1:40 p.m. - 4:20 p.m.	25. Web-based Tools for Managing Aquatic Resources in Great Lakes <i>Horizon Room 205</i>
1:40 p.m. - 4:40 p.m.	36. Large Lakes Science Solutions - Research Leading to Management Tools and Development of Policy <i>French River Room</i>
3:40 p.m. - 5:20 p.m.	1. Physical Processes in Lakes <i>Horizon Room 202</i>
3:40 p.m. - 5:00 p.m.	7. Molecular and Isotopic Insights into Biogeochemical Cycling of Organic Matter in Aquatic Systems <i>Horizon Room 203</i>
5:00 p.m. - 7:00 p.m.	Poster Reception and Judging, and Exhibitor Reception <i>Edmund Fitzgerald Hall</i>


Wednesday, June 1

8:00 a.m. - 11:00 a.m.	1. Physical Processes in Lakes <i>Horizon Room 202</i>
8:00 a.m. - 11:00 a.m.	14. Coastal Wetlands of North American Great Lakes <i>Horizon Room 203</i>
8:00 a.m. - 11:00 a.m.	23. Microbial Issues in Great Lakes <i>Horizon Room 204</i>
8:00 a.m. - 11:00 a.m.	22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Gooseberry Falls Room</i>
8:00 a.m. - 11:00 a.m.	16. Linkages Between the Landscape and Great Lakes Coastal Ecosystems <i>Split Rock Room</i>
8:00 a.m. - 11:00 a.m.	24. Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes <i>Horizon Room 205</i>
8:20 a.m. - 10:40 a.m.	36. Large Lakes Science Solutions - Research Leading to Management Tools and Development of Policy <i>French River Room</i>
11:10 a.m. - 12:10 p.m.	Plenary, Dr. Sally MacIntyre <i>Lake Superior Ballroom</i>
1:40 p.m. - 5:20 p.m.	3. Climate Variability in Large Lakes Mediated by Continental-to-Global Scale Forcing <i>Horizon Room 202</i>
1:40 p.m. - 5:20 p.m.	11. Gobies in the Great Lakes and Their Watersheds <i>Horizon Room 203</i>
1:40 p.m. - 5:20 p.m.	10. Exploring Food Web Linkages and Dynamics in the Upper Great Lakes: Past, Present and Future <i>Horizon Room 204</i>
1:40 p.m. - 5:20 p.m.	22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Gooseberry Falls Room</i>
1:40 p.m. - 3:20 p.m.	16. Linkages Between the Landscape and Great Lakes Coastal Ecosystems <i>Split Rock Room</i>
1:40 p.m. - 3:20 p.m.	24. Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes <i>Horizon Room 205</i>
1:40 p.m. - 5:20 p.m.	31. Coordinated Nearshore Monitoring and Research in Lake Michigan <i>French River Room</i>
3:40 p.m. - 5:20 p.m.	35. Great Lakes Adaptive Management and Climate Change <i>Split Rock Room</i>
3:40 p.m. - 5:20 p.m.	8. Genetics, Genomics and Metagenomics in Great Lakes Microbial Communities <i>Horizon Room 205</i>
6:00 p.m. - 9:00 p.m.	Banquet and Mixer <i>Lake Superior Ballroom</i>

8:00 a.m. - 9:20 a.m.	3. Climate Variability in Large Lakes Mediated by Continental-to-Global Scale Forcing <i>Horizon Room 202</i>
8:00 a.m. - 11:00 a.m.	13. History, Ecology, and Management of Aquatic Communities in Great Lakes Connecting Channels <i>Horizon Room 203</i>
8:00 a.m. - 11:00 a.m.	19. Great Lakes and Global Invasions <i>Horizon Room 204</i>
8:00 a.m. - 11:00 a.m.	22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Gooseberry Falls Room</i>
8:00 a.m. - 10:40 a.m.	27. Great Lakes Observation Networks <i>Horizon Room 205</i>
8:00 a.m. - 10:40 a.m.	30. Making a Great Lake Superior: Past, Present and Future <i>French River Room</i>
8:20 a.m. - 10:40 a.m.	37. Science to Management in the St. Louis River Area of Concern <i>Split Rock Room</i>
9:40 a.m. - 11:00 a.m.	5. Assessing Dynamics of the Great Lakes Water Budget <i>Horizon Room 202</i>
11:10 a.m. - 12:10 p.m.	Plenary, Mr. John Goss <i>Lake Superior Ballroom</i>
1:40 p.m. - 5:20 p.m.	5. Assessing Dynamics of the Great Lakes Water Budget <i>Horizon Room 202</i>
1:40 p.m. - 5:20 p.m.	13. History, Ecology, and Management of Aquatic Communities in Great Lakes Connecting Channels <i>Horizon Room 203</i>
1:40 p.m. - 5:20 p.m.	19. Great Lakes and Global Invasions <i>Horizon Room 204</i>
1:40 p.m. - 3:00 p.m.	22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Gooseberry Falls Room</i>
1:40 p.m. - 5:20 p.m.	32. Education and Outreach: Applying Science to Problem Solving <i>Split Rock Room</i>
1:40 p.m. - 5:00 p.m.	15. Ecosystem Effects of Changing Water Level Regimes <i>Horizon Room 205</i>
1:40 p.m. - 5:20 p.m.	30. Making a Great Lake Superior: Past, Present and Future <i>French River Room</i>
3:40 p.m. - 5:20 p.m.	17. Contaminants of Concern: How Far Have We Come and Where Are We Going? <i>Gooseberry Falls Room</i>

Friday, June 3


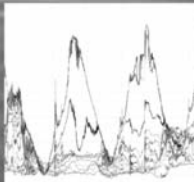

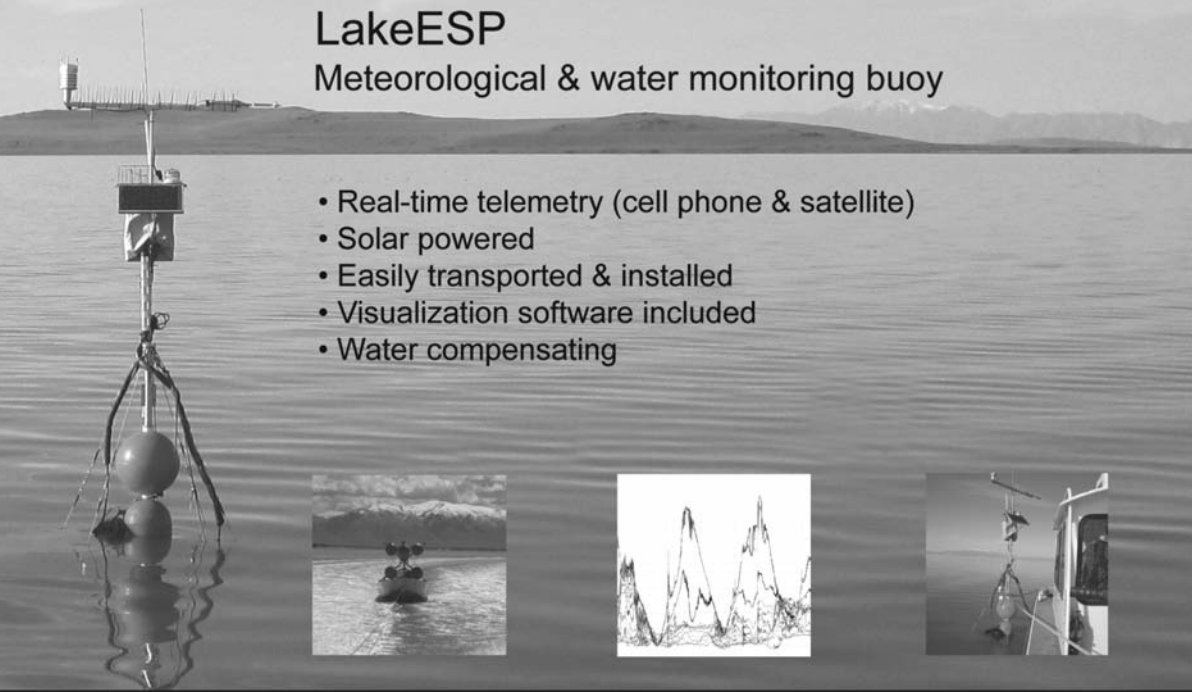
8:00 a.m. - 12:00 p.m.	4. Global Trends in Lake Temperature and Associated Impacts on Lacustrine Systems <i>Horizon Room 202</i>
8:00 a.m. - 11:20 a.m.	12. Restoration and Management of Native Deep-water Fish Communities in the Great Lakes <i>Horizon Room 203</i>
8:00 a.m. - 10:00 a.m.	9. Changes in Lower Food-Webs: Among-Lake Comparisons from Biological Monitoring Programs <i>Horizon Room 204</i>
8:00 a.m. - 12:00 p.m.	17. Contaminants of Concern: How Far Have We Come and Where Are We Going? <i>Gooseberry Falls Room</i>
8:00 a.m. - 11:40 a.m.	32. Education and Outreach: Applying Science to Problem Solving <i>Split Rock Room</i>
8:00 a.m. - 11:00 a.m.	28. Ballast Water Treatment and the Great Lakes <i>Horizon Room 205</i>
8:00 a.m. - 11:40 a.m.	30. Making a Great Lake Superior: Past, Present and Future <i>French River Room</i>
12:00 p.m.	IAGLR Conference Ends



LakeESP

Meteorological & water monitoring buoy

- Real-time telemetry (cell phone & satellite)
- Solar powered
- Easily transported & installed
- Visualization software included
- Water compensating



Tel.: +1 760 727 0300 • info@pme.com • www.pme.com



Prairie Ocean Technologies

On display will be the just released FASTocean

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	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>2. Extreme or Catastrophic Events in Lakes and Rivers <i>Co-Chairs: Eric Anderson and Chin Wu</i></p>	<p>39. Fish and Fisheries in Large Lakes <i>Chair: Timothy Johnson</i></p>	<p>6. Large Asian and African Lakes <i>Co-Chairs: Kenton Stewart and Barry Lesht</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
8:00	<p><u>D.J. Schwab</u> Winds and Waves on Lake Superior Associated with the Wreck of the <i>Edmund Fitzgerald</i></p>	<p><u>M.J. Catalano and J.R. Bence</u> The Effects of Ageing Error on Stock Assessments for Lake Whitefish in Lake Huron</p>	<p><u>L.M. Korytny</u> Anthropogenic Impacts on Baikal's Biota</p>
8:20	<p><u>P.C. Liu</u> Contemplating Freaque Waves in the Great Lakes</p>	<p><u>R.T. Andvik et al.</u> Proportional Stock Harvest of the Lake Whitefish Commercial Fishery in Lake Michigan</p>	<p><u>K.M. Stewart</u> Lake Baikal</p>
8:40	<p><u>A.J. Bechle et al.</u> Monitoring and Characterization of Freak Waves in Lake Superior</p>	<p><u>X. Zhu et al.</u> Modeling Time-varying Growth Pattern of Lake Whitefish (<i>Coregonus clupeaformis</i>) using Hierarchical Bayesian Growth Models</p>	<p><u>M.A. Stapanian et al.</u> Changes in Benthic Community Biomass and Energy Budgets in Lake Sevan, 1928-2004</p>
9:00	<p><u>J.D. Anderson and C.H. Wu</u> Extreme Wave Modeling Around the Apostle Islands, Lake Superior</p>	<p><u>D.A. Lichti and S.J. Czesny</u> Naturally Occurring Thermal Variation in Southwestern Lake Michigan May Greatly Affect Yellow Perch Growth During Embryonic and Larval Stages</p>	<p><u>T.D. Ahrenstorff et al.</u> Abundance, Spatial Distribution, and Diet of the Endangered Hovsgol Grayling (<i>Thymallus nigrescens</i>) in Lake Hovsgol, Mongolia</p>

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Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>18. Recent Impacts of Invasive Species on the Great Lakes Ecosystem <i>Co-Chairs: Henry Vanderploeg, Gary Fahnenstiel, and Craig Stow</i></p>	<p>21. Assessing Effects of Toxic Substances in the Great Lakes <i>Co-Chairs: Joe Tietge and Mark McMaster</i></p>	<p>26. Data and Model Uncertainty in the Study of Lake Watersheds <i>Co-Chairs: Janel Hanrahan, Nir Krakauer, and Boris Shmagin</i></p>	<p>33. Science, Civic Engagement, and Undergraduate Education Initiatives <i>Co-Chairs: Joseph Koonce and Douglas Kane</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p><u>G. Fahnenstiel et al.</u> Dreissenids and the Accidental Oligotrophication of Lake Michigan</p>	<p><u>J.E. Tietge et al.</u> A Strategy to Assess the Effects of Potentially Toxic Substances in the Great Lakes</p>	<p><u>L.J. Blume et al.</u> Uncertainty Analysis for the U.S. EPA's Great Lakes Fish Monitoring and Surveillance Program</p>	<p><u>J.F. Koonce et al.</u> Civic Engagement of Students through Analysis of Effects of Urbanization on Watershed Processes</p>	8:00
<p><u>M.A. Evans et al.</u> Inadvertent Oligotrophication of North American Great Lakes</p>	<p><u>W.E. Johnson et al.</u> NOAA's Enhanced Great Lakes Mussel Watch Program: Monitoring Contaminant Levels in Mussels and Sediment</p>	<p><u>S.C. Abou</u> Assessment of the Safety of Marine Environment Incorporating Waste Heterogeneity and Data Uncertainty</p>	<p><u>S. Petersen et al.</u> Wetland Lab Module with a Civic Engagement Component: Pedagogical Challenges and Student Learning Gains</p>	8:20
<p><u>W.C. Kerfoot et al.</u> Approaching Storm: Update on Disappearing <i>Chl a</i> in Lake Michigan and Food Web Responses</p>	<p><u>J.J. Ridal et al.</u> Mercury Bioaccumulation at Nearshore Areas in the St. Lawrence River (Cornwall) AOC</p>	<p><u>L.H. Weintraub et al.</u> Evaluation of Blanchard River Watershed Sediment and Nutrient Loading Under Baseline and Improved Management Conditions</p>	<p><u>A.C. Dorobek et al.</u> Stewardship Liaisons Provide Service Learning Opportunities through Unique Academic and Community Partnerships</p>	8:40
<p><u>H.A. Vanderploeg et al.</u> Response of the Zooplankton Community to the Newly Re-engineered, Spatially Complex Lake Michigan Ecosystem</p>	<p><u>X. Zhang et al.</u> Global and Local Contributions to Mercury Concentrations in Lake Michigan and Impact on Fish Consumption Advisories</p>	<p><u>M. Hondzo and S. Missaghi</u> Lake Minnetonka ELCOM-CAEDYM Ecological Modeling: Parameter Estimation, Sensitivity, and Uncertainty Analysis</p>	<p><u>E.P. Argyilan et al.</u> Collaborations in Watershed Studies in Northwest Indiana Created through The Great Lakes Innovative Stewardship Through Education Network (GLISTEN)</p>	9:00

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	<p>2. Extreme or Catastrophic Events in Lakes and Rivers <i>Co-Chairs: Eric Anderson and Chin Wu</i></p>	<p>39. Fish and Fisheries in Large Lakes <i>Chair: Timothy Johnson</i></p>	<p>6. Large Asian and African Lakes <i>Co-Chairs: Kenton Stewart and Barry Lesht</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
9:20	<p><u>K. Hu and Q.J. Chen</u> Directional Spectra of Extreme Waves</p>	<p><u>L.N. Ivan et al.</u> Factors Influencing Yellow Perch Recruitment in Saginaw Bay, Lake Huron</p>	<p><u>Y.Y. Wang et al.</u> Food Web Dynamics in Lake Poyang Related to Water-level Fluctuation</p>
9:40	<p><u>J. Austin and P. Cheng</u> An Extraordinary Upwelling Event in Lake Superior During Summer 2010</p>	<p><u>T.J. Sullivan et al.</u> Fine-scale Population Genetic Structure of Lake Erie Yellow Perch <i>Perca flavescens</i></p>	<p><u>L.M. Campbell et al.</u> Mercury Biomagnification in Selected Chinese Lakes</p>
10:00	<p><u>J.R. Reimer et al.</u> Meteo-tsunami in Lake Michigan</p>	<p><u>A.E. Haponski et al.</u> Temporal and Spatial Genetic Patterns of Lake Erie Walleye Spawning Groups</p>	
10:20	BREAK		
10:40	Opening Ceremonies and Plenary, Lake Superior Ballroom		
12:20	Lunch on your own (Pre-ordered box lunches, Harborside Ballroom)		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>18. Recent Impacts of Invasive Species on the Great Lakes Ecosystem <i>Co-Chairs: Henry Vanderploeg, Gary Fahnenstiel, and Craig Stow</i></p>	<p>21. Assessing Effects of Toxic Substances in the Great Lakes <i>Co-Chairs: Joe Tietge and Mark McMaster</i></p>	<p>26. Data and Model Uncertainty in the Study of Lake Watersheds <i>Co-Chairs: Janel Hanrahan, Nir Krakauer, and Boris Shmagin</i></p>	<p>33. Science, Civic Engagement, and Undergraduate Education Initiatives <i>Co-Chairs: Joseph Koonce and Douglas Kane</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p><u>E.S. Rutherford et al.</u> Fish Recruitment Dynamics in the Newly Illuminated, Spatially Complex Food Web of Lake Michigan</p>	<p><u>J.L. Newsted and J.P. Giesy</u> Toxicological Perspectives of Perfluorooctane Sulfonate (PFOS) to Mink and Otters</p>	<p><u>N.Y. Krakauer</u> Seasonal Forecasting in the Great Lakes Region: Assessing Uncertainty</p>	<p><u>M. Jahnke et al.</u> Research and Restoration on Wisconsin Point Dune Plant Communities by Undergraduates at the University of Wisconsin-Superior</p>	9:20
<p><u>P.E. Bourdeau et al.</u> Non-consumptive Effects on Lesser-preferred Prey: Does <i>Bythotrephes</i> Affect Native Copepods?</p>	<p><u>D.H. Miller et al.</u> Assessment of Population Status for a White Sucker (<i>Catostomus commersoni</i>) Population Exposed to Bleached Kraft Pulp Mill Effluent</p>	<p><u>B. Shmagin</u> The Issue of Uncertainty for the River Watershed: Data Analysis of Scaled Space and Time Variability</p>	<p><u>J.B. Jacoby</u> Art and Civic Engagement in Service to Water</p>	9:40
<p><u>M.M. Hobmeier et al.</u> Inland Spiny Water Flea (<i>Bythotrephes longimanus</i>) Dispersal and Impacts on Zooplankton Communities</p>	<p><u>W.W. Bowerman et al.</u> How 50 Years of Bald Eagle Population Monitoring Helps Us Understand the Great Lakes</p>			10:00
BREAK				10:20
Opening Ceremonies and Plenary, Lake Superior Ballroom				10:40
Lunch on your own (Pre-ordered box lunches, Harborside Ballroom)				12:20

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>29. Paleoclimate Records of Large Lakes <i>Chair: Erik Brown</i></p>	<p>39. Fish and Fisheries in Large Lakes <i>Chair: Timothy Johnson</i></p>	<p>10. Exploring Food Web Linkages and Dynamics in the Upper Great Lakes: Past, Present, and Future <i>Co-Chairs: Mohi Munawar, Thomas Nalepa, John Kelly, and Owen Gorman</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
1:40	<p>R.D. Ricketts <i>et al.</i> Late Quaternary Asian Climate: Peiku Co and Geophysical, Biogeochemical and Sedimentological Proxies</p>	<p>D. Goto <i>et al.</i> Elucidating Indirect Impacts of Seasonal Hypoxia Development on Fish Populations in Lake Erie Using a Spatially Explicit Individual-based Model</p>	<p>J.M. Van Der Werff <i>et al.</i> Nutrient Status of Phytoplankton in the Deep Chlorophyll Layer (DCL) of Lake Superior During the Summer of 2010</p>
2:00	<p>M.L. Woltering <i>et al.</i> Present Day Distribution of Crenarchaeota and Their Membrane Lipids in Large Lake Systems Providing New Insights into the Interpretation of TEX86 Temperature Records</p>	<p>J.E. Marsden <i>et al.</i> Changes in Egg Thiamine Concentrations in Lake Trout and Atlantic Salmon after Alewife Invasion of Lake Champlain</p>	<p>G.L. House <i>et al.</i> Phytoplankton Photosynthetic Efficiency in the Deep Chlorophyll Layer (DCL) of Lake Superior During the Summer of 2010</p>
2:20	<p>A.N. Abbott <i>et al.</i> Temperature and Aridity in Tropical East Africa Over the Past 600,000 Years: Reconstructions from the Lake Malawi Drill Core</p>	<p>R.C. Préfontaine <i>et al.</i> Detecting Change in Lake Huron Fish Communities Using Probability of Detection</p>	<p>O.T. Gorman <i>et al.</i> Diel Migration and Habitat Coupling in the Lake Superior Fish Community: Consequences for Ecosystem Health and Function</p>
2:40	<p>J.P. Werne <i>et al.</i> A Sedimentary Geochemical Record of Productivity and Nutrient Trends in Lake Superior</p>	<p>M.T. Negus and R.A. Bergstedt Rates of Intra-peritoneal Temperature Change in Lake Trout Implanted with Archival Tags</p>	<p>M. Fitzpatrick <i>et al.</i> Assessing the Lake Huron and Georgian Bay Lower Trophic Levels: Structure, Function and Linkages</p>
3:00	<p>J.L. Ash <i>et al.</i> Ostracode Trace Metal Geochemistry from Lake Tanganyika, Africa: The Application of HR-ICP-MS in Paleotemperature Analysis</p>		<p>E.T. Howell <i>et al.</i> Where Did All the Algae Come From: the Unexplained <i>Chara</i> Fouling on the SE Shores of Lake Huron</p>
3:20	Break		

Gooseberry Falls Room	Split Rock Room	Horizon Room 205	French River Room	
<p>18. Recent Impacts of Invasive Species on the Great Lakes Ecosystem <i>Co-Chairs: Henry Vanderploeg, Gary Fahnenstiel, and Craig Stow</i></p>	<p>16. Linkages Between the Landscape and Great Lakes Coastal Ecosystems <i>Co-Chairs: Joel Hoffman, Peder Yurista, John Morrice, Jeff Schaeffer, and Paul Seelbach</i></p>	<p>25. Web-based Tools for Managing Aquatic Resources in Great Lakes <i>Co-Chairs: Norine Dobiesz and Clelia Luisa Marti</i></p>	<p>36. Large Lakes Science Solutions - Research Leading to Management Tools and Development of Policy <i>Co-Chairs: Eugene Braig IV and Cornelia Schlenk</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>T.G. Zorn and P.J. Schneeberger Walleye Movement and Sport Fishery Responses to Habitat Changes in Little Bay de Noc, Lake Michigan</p>	<p>G.J. Niemi The Influence of Landscapes on Great Lakes Coastal Ecosystems</p>	<p>N.E. Dobiesz and R.E. Hecky A Web-based Tool to Aid Fisheries Management in the Great Lakes</p>	<p>I. Lee et al. Lidar and Sub-meter Satellite Imagery for Lake Erie Shoreline Mapping</p>	1:40
<p>E.S. Dunlop and M.D. Rennie Changes in Depth Distribution of Lake Whitefish Coincident with the Dreissenid Invasion</p>	<p>G.E. Host et al. A High-resolution, Scalable Index of Anthropogenic Stress for Great Lakes Watersheds</p>	<p>M.C. Peppler and C.M. Rachol USGS Lake Management Plan Support: Web Mapping of Existing Lake Metadata</p>	<p>K.A. Ali et al. Monitoring Cyanobacteria in the Western Basin of Lake Erie Using MERIS Satellite Data</p>	2:00
<p>W.W. Fetzer et al. Evaluating Relationships between Water Clarity Changes and Foraging by Yellow Perch and White Perch</p>	<p>L.B. Johnson et al. Quantifying Environmental Condition in Great Lakes Coastal Areas: A Multi-taxa Approach</p>	<p>C.L. Marti and J. Imberger Implementation of a Real-time Management System in the Swan Canning River Basin and its Receiving Waters (Western Australia, Australia)</p>	<p>M.H. Harke et al. Molecular Analysis of <i>Microcystis aeruginosa</i>: Dynamics of Toxic and Non-toxic Strains and Response to Phosphorus Limitation</p>	2:20
<p>K.M. DeVanna et al. Scale-dependent Effects of Soft-sediment <i>Dreissena</i> Druses on <i>Hexagenia</i></p>	<p>J.D. Allan et al. Project GLEAM: Mapping Individual Stressors Across the Great Lakes</p>	<p>C.N. Brooks et al. The Lake Superior Water Monitoring and Information System: A Web Service with Real-time Wave Dynamics, Water Quality, and Meteorology Data</p>	<p>D.E. Smith and M.R. Twiss Insight into the Seasonal Dynamics of Lake Erie: Nutrient and Phytoplankton Distribution in Lake Erie with a Focus on Winter</p>	2:40
<p>D.R. Barton and E.T. Howell Is Benthic Algal Accumulation in SE Lake Huron Facilitated by <i>Dreissena</i> or Lack of Grazers?</p>	<p>P.B. McIntyre et al. Project GLEAM: Cumulative Mapping of Stressors Across the Great Lakes</p>	<p>R.P. Axler et al. Weather, Water, and People: Water Quality Data Animations to Protect Lake Superior Streams and Coastal Zones</p>	<p>R.M.L. McKay et al. Credible Data Collection in the Great Lakes by the US Coast Guard</p>	3:00
			Break	3:20

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>1. Physical Processes in Lakes <i>Co-Chairs: Dmitry Beletsky, Chin Wu, and Cary Troy</i></p>	<p>7. Molecular and Isotopic Insights into Biogeochemical Cycling of Organic Matter in Aquatic Systems <i>Co-Chairs: Elizabeth Minor, Josef Werne, and Prosper Zigah</i></p>	<p>10. Exploring Food Web Linkages and Dynamics in the Upper Great Lakes: Past, Present, and Future <i>Co-Chairs: Mohi Munawar, Thomas Nalepa, John Kelly, and Owen Gorman</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
3:40	<p>D. Beletsky et al. Interannual Variability of Circulation in Saginaw Bay</p>	<p>E. Welsh et al. The Effect of Photodegradation on Dissolved Organic Matter (DOM) in Amity Creek</p>	<p>D.B. Bunnell et al. Determining the Impact of <i>Bythotrephes</i> on the Lake Huron Zooplankton Community</p>
4:00	<p>S. Ahmed and C.D. Troy Analysis of Internal Poincare Wave Structure in Lake Michigan</p>	<p>H. Li and E.C. Minor Diagenetic Changes in Organic Matter in Lake Superior Sediments as Seen by FT-IR and 2D IR Correlation Spectroscopy</p>	<p>B.A. Turschak et al. Spatial and Seasonal Patterns in the Crustacean Zooplankton Community of the St. Marys River</p>
4:20	<p>P. Thupaki and M.S. Phanikumar Flow Reversals and Transport in the Nearshore Region of Lake Michigan: Observations and Numerical Modeling</p>	<p>P.K. Zigah et al. $\Delta^{14}\text{C}$ of Biochemical Compound Classes in High Molecular Weight Dissolved Organic Carbon Isolated from Lake Superior</p>	<p>E. Bright et al. Diets of Angler-caught Predators in Lake Huron, 2009-2010</p>
4:40	<p>E.J. Anderson and D.J. Schwab Development of a Real-time Hydrodynamic Model of the Upper St. Lawrence River</p>	<p>E.C. Minor et al. Radiocarbon Evidence that Mesozooplankton Biomass in Lake Superior Incorporates Mainly Fresh Autochthonous Organic Matter</p>	<p>S.R. Stein et al. Distributions, Diets and Growth of Young Walleye in Saginaw Bay, Lake Huron</p>
5:00	<p>P. Verburg et al. Differential Cooling Drives Large-scale Convective Circulation in Lake Tanganyika</p>		<p>C.M. Jovanovic et al. Population Characteristics of a Recovering Walleye Population, <i>Sander vitreus</i>, in Saginaw Bay, Lake Huron</p>
5:00	Poster Reception and Judging, and Exhibitor Reception; Edmund Fitzgerald Hall		
7:30	Student pizza cruise and mixer; Vista Star cruise boat		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
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Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>Y. Kao et al. Identifying Causal Links among Recent Changes in the Lake Huron Food Web</p>	<p>S.D.P. Smith et al. Project GLEAM: Quantifying Expert Opinion on the Relative Impact of Stressors in the Great Lakes</p>	<p>C.A. LaLone et al. Molecular Target Homology as a Basis for Species Extrapolation to Assess the Ecological Risk of Pharmaceuticals</p>	<p>P.J. Sullivan and L.G. Rudstam Accounting for Uncertainty in Acoustic Estimates in the Great Lakes</p>	3:40
<p>C.A. Stow et al. Dreissenid Mussel Influences on Phosphorus Export from Saginaw Bay to Lake Huron</p>	<p>T.P. Hollenhorst and M. Hudson Modeling Peak Discharge within the Marengo River Watershed — Developing Priorities for Restoration</p>	<p>D.A. Hart and S.J. Ventura The Wisconsin Coastal Atlas: Building the Coastal Spatial Data Infrastructure to Promote Sustainable Management of the Great Lakes</p>	<p>R.J. Snyder and T.B. Duval Evaluating Indicators of Condition in Freshwater Alewives</p>	4:00
<p>S.A. Bocaniov et al. Can we Model the Impact of Invasive Dreissenid Mussels on Large Lake Ecosystems? A Study of Lakes Erie and Simcoe</p>	<p>J.A. Morrice et al. Hydrologic Factors Determining Linkages of Great Lakes Coastal Wetlands to Watershed and Lake</p>		<p>L. Pierce et al. A Rapid Genetic Test for the VHS Fish Virus and Viral Load from Laboratory Challenge Experiments</p>	4:20
<p>H. Zhang et al. Potential Impacts of Asian Carps on the Food Web and Fisheries in a Lake Michigan Estuary</p>	<p>E.M. Ruzycki et al. Sediment, Phosphorus and Mercury Loads from Four Western Lake Superior Watersheds</p>			4:40
				5:00
Poster Reception and Judging, and Exhibitor Reception; Edmund Fitzgerald Hall				5:00
Student pizza cruise and mixer; Vista Star cruise boat				7:30

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	<p>1. Physical Processes in Lakes <i>Co-Chairs: Dmitry Beletsky, Chin Wu, and Cary Troy</i></p>	<p>14. Coastal Wetlands of North American Great Lakes <i>Co-Chairs: Gordon Goldsborough and Dale Wrubleski</i></p>	<p>23. Microbial Issues in Great Lakes <i>Chair: Randall Hicks</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
8:00	<p>J.S. Doucette et al. Development of a Cohesive Shoreline Recession Model to Determine the Effects of Water Level Fluctuations in the Upper Great Lakes</p>	<p>G.P. Grabas and D.B. Rokitnicki-Wojcik The Condition of Coastal Wetlands in the Lower Great Lakes: Coastal Habitat Assessment and Monitoring Project</p>	<p>D.W. Bowman et al. Accelerated Corrosion in the Duluth-Superior Harbor</p>
8:20	<p>K.A. McLean et al. Erodibility and Transport Behavior of Dreissenid Mussel Deposits in the Nearshore Zone</p>	<p>W.C. Webster and D.G. Uzarski Impacts of Great Lakes Water Level Fluctuations and Anthropogenic Disturbance on the Macrophyte Flora of Coastal Wetlands</p>	<p>J.R. Bostrom et al. Microbiological and Chemical Aspects of Corrosion of Steel in the Duluth-Superior Harbor</p>
8:40	<p>V. Bennington et al. Spatial Heterogeneity in Lake Superior Carbon Biogeochemistry</p>	<p>N.P. Danz Linkages Between Vegetation and Anthropogenic Stress in Tributary Mouth Wetlands of the St. Louis River Estuary</p>	<p>R.J. Oster and R.E. Hicks Using Chemical and Microbiological Factors to Assess the Risk of Accelerated Corrosion in the Duluth-Superior Harbor</p>
9:00	<p>T.M. Redder et al. Calibration and Application of a Fine-scale Model to Evaluate Sediment Dynamics in Toledo Harbor and the Western Basin of Lake Erie</p>	<p>C.A. Johnston Water Chemistry Fingerprints of Coastal Emergent Plant Communities</p>	<p>S.K. Haack et al. Occurrence and Variability of Bacterial Pathogen Genes at Twelve Representative Great Lakes Beaches</p>
9:20	Break		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Co-Chairs: Mark Rowe, James Pauer, and David Miller</i></p>	<p>16. Linkages Between the Landscape and Great Lakes Coastal Ecosystems <i>Co-Chairs: Joel Hoffman, Peder Yurista, John Morrice, Jeff Schaeffer, and Paul Seelbach</i></p>	<p>24. Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes <i>Co-Chairs: George Leshkevich and Robert Shuchman</i></p>	<p>36. Large Lakes Science Solutions - Research Leading to Management Tools and Development of Policy <i>Co-Chairs: Eugene Braig IV and Cornelia Schlenk</i></p>	
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<p>D.M. Dolan et al. Updating Great Lakes Total Phosphorus Loadings</p>	<p>M.J. Wiley The Simplification of Complex River Mouth Channel Systems: What do we Know and What do we Wish we Knew?</p>	<p>C.E. Binding et al. An Analysis of MODIS-derived Algal and Mineral Turbidity in the Optically Complex Waters of Lake Erie</p>		8:00
<p>S.C. Chapra and D.M. Dolan Great Lakes Total Phosphorus Model: Post-audit</p>	<p>Y. Bhagat and C.R. Ruetz III Determinants of Fish Community Assemblages in Drowned River Mouth Systems of Lake Michigan</p>	<p>C.B. Mouw et al. Evaluation and Optimization of Bio-optical Inversion Algorithms for Remote Sensing of Lake Superior's Optical and Biogeochemical Properties</p>	<p>D.J. Sass Hilbrich et al. Review of the State of the Great Lakes Ecosystem Conference (SOLEC) Suite of Great Lakes Indicators</p>	8:20
<p>A.M. Anstead et al. Phosphorus Loading Trends in Lake Michigan: A Historic Surprise</p>	<p>J.C. Hoffman et al. Forging the Link: Using a Conservative Mixing Framework to Characterize Connections between Rivers and Great Lakes in Transition Zones</p>	<p>R.A. Shuchman et al. Satellite Based Retrievals of Chlorophyll, Dissolved Organic Carbon and Suspended Minerals for each of the Great Lakes</p>	<p>G. Walker et al. Water Conservation and Pricing in Canadian Great Lakes Municipalities (Municipal Water and Wastewater Survey Data)</p>	8:40
<p>H.S. Schmitt Marquez et al. Chloride and Total Phosphorus Interlake Load Estimates in the Upper Great Lakes System, 1994-2008</p>	<p>D.B. Baker et al. A Comparison of Mixing Zones between Storm and Base Flows for Major Ions and Dissolved and Particulate Nutrients: A Case Study in the Western Basin of Lake Erie</p>	<p>A.D. Gerace and J.R. Schott Demonstrating Landsat's New Potential to Monitor Case 2 Waters</p>	<p>M.C. Carambas Assessing the Economic Value of Investing in Great Lakes Protection: Implications for Environmental Policy and Management Decisions</p>	9:00
Break				9:20

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	<p>1. Physical Processes in Lakes <i>Co-Chairs: Dmitry Beletsky, Chin Wu, and Cary Troy</i></p>	<p>14. Coastal Wetlands of North American Great Lakes <i>Co-Chairs: Gordon Goldsborough and Dale Wrubleski</i></p>	<p>23. Microbial Issues in Great Lakes <i>Chair: Randall Hicks</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
9:40	<p><u>N.F. Manning et al.</u> Use of Individual Based Models to Explore the Effects of Turbidity on Early Life History Traits of Yellow Perch (<i>Perca flavescens</i>)</p>	<p><u>J.J. Sherman et al.</u> What Defines a Refuge for Unionids from Dreissenid Mussels (<i>Dreissena polymorpha</i> and <i>D. bugensis</i>) in Great Lakes Coastal Wetlands?</p>	<p><u>J.J. Eichmiller et al.</u> Short Term Frequency and Distribution of Fecal Bacteria Sources and Virulence Genes at Lake Superior Beaches</p>
10:00	<p><u>B.L. Potter et al.</u> Seasonal and Interannual Variability in the Summer-time Energy Balance of a Thermokarst Lake on the Arctic Coastal Plain of Northern Alaska</p>	<p><u>K.P. Kowalski et al.</u> Coastal Wetland Ecosystem Rehabilitation Through Hydrologic Reconnection: Diked Wetlands in Western Lake Erie</p>	<p><u>J.B. Welch et al.</u> Molecular Analysis of Bacterial Communities in Ship Ballast Water and the Duluth-Superior Harbor</p>
10:20	<p><u>S. MacIntyre et al.</u> Comparative Mixing Dynamics in Arctic Lakes of Diverse Sizes</p>	<p><u>L.G. Goldsborough et al.</u> Carp and Culverts: Preparing to Restore Delta Marsh, One of the Largest Coastal Wetlands in North America</p>	<p><u>N.L. Belkova et al.</u> Viable but Unculturable Bacteria from Lake Baikal: New Results on Cultivation</p>
10:40	<p><u>E.S. Troitskaya et al.</u> Upwellings in the Nearshore and Offshore Areas of Lake Baikal</p>	<p><u>D.A. Wrubleski et al.</u> Restoration of Delta Marsh, Manitoba: Exclusion of Common Carp</p>	<p><u>N.A. Dsouza et al.</u> Detection of Ice Nucleating Active Components in a Winter Phytoplankton Assemblage in Lake Erie</p>
11:10	Plenary, Lake Superior Ballroom		
12:20	IAGLR Business Lunch, Lake Superior Ballroom		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Co-Chairs: Mark Rowe, James Pauer, and David Miller</i></p>	<p>16. Linkages Between the Landscape and Great Lakes Coastal Ecosystems <i>Co-Chairs: Joel Hoffman, Peder Yurista, John Morrice, Jeff Schaeffer, and Paul Seelbach</i></p>	<p>24. Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes <i>Co-Chairs: George Leshkevich and Robert Shuchman</i></p>	<p>36. Large Lakes Science Solutions - Research Leading to Management Tools and Development of Policy <i>Co-Chairs: Eugene Braig IV and Cornelia Schlenk</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>R.P. Richards Recent Trends in N and P in the Maumee and Sandusky Rivers, Lake Erie Tributaries</p>	<p>D.K. Dila and B.A. Biddanda Microbes and Carbon Flux in a Great Lakes Watershed</p>	<p>S.V. Nghiem and G. Leshkevich Advancing a Satellite Synthetic Aperture Radar (SAR) Ice Classification Algorithm</p>	<p>C. Masson et al. Human Dimensions of Large Lake Resources Management: Research Agenda</p>	9:40
<p>D.M. Robertson and D.A. Saad Allocation of Nutrient Inputs to the Great Lakes by Source and River Basin Using SPARROW Watershed Models</p>	<p>M.L. Carlson-Mazur et al. Science for Effective Restoration of Rivermouth Ecosystems: Controls on Biophysical Structure and Food-web Processes</p>	<p>C.N. Brooks et al. Mapping and Monitoring of Invasive Phragmites in the Coastal Great Lakes using Radar Imagery</p>	<p>G.B. Wilson and R.T. Heath Ecosystem-based Management of the Lake Erie Ecosystem: A Survey-based Approach to Assessment of Management Needs</p>	10:00
<p>M.M. Ballard et al. Forecasting Future Phosphorus Loading in the Great Lakes Region from Changing Land-derived Nutrient Inputs</p>	<p>J.R. Kelly and P.M. Yurista An Integrated Set of Observations to Link Conditions of Great Lakes Nearshore Waters to Their Coastal Watersheds</p>	<p>R. Shuchman et al. Mapping <i>Cladophora</i> in the Great Lakes Using Multi-scale Satellite Imagery</p>	<p>V.B. Serveiss et al. The International Joint Commission 15th Biennial Report on Water Quality</p>	10:20
<p>N.A. Bosch and J.D. Allen Using SWAT to Evaluate the Impact of Nutrient Source Reduction and Agricultural BMP Implementation on Riverine Loads to Lake Erie</p>	<p>P.M. Yurista et al. Lake Michigan Green Bay: Nearshore Variability</p>	<p>C.N. Brooks et al. Assessing Impacts from Historical Copper Mining Stamps Sands in the Keweenaw Peninsula through Analysis of LiDAR and Multi-spectral Imagery from the CHARTS System</p>		10:40
Plenary, Lake Superior Ballroom				11:10
IAGLR Business Lunch, Lake Superior Ballroom				12:20

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>3. Climate Variability in Large Lakes Mediated by Continental-to-Global Scale Forcing <i>Co-Chairs: Brent Lofgren and Jia Wang</i></p>	<p>11. Gobies in the Great Lakes and Their Watersheds <i>Co-Chairs: Chris Pennuto and Lynda Corkum</i></p>	<p>10. Exploring Food Web Linkages and Dynamics in the Upper Great Lakes: Past, Present, and Future <i>Co-Chairs: Mohi Munawar, Thomas Nalepa, John Kelly, and Owen Gorman</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
1:40	<p><u>I.P. Panyushkina and S.W. Leavitt</u> Dieback Patterns of Ancient Spruce in the Great Lakes Region between ca. 14,000 and 10,000 cal yr BP</p>	<p><u>T.B. Campbell and S.D. Tiegs</u> Using Reach-scale Variables to Predict the Abundance of the Round Goby (<i>Neogobius melanostomus</i>) in Great Lakes Tributaries</p>	<p><u>C.R. Roswell et al.</u> Do Sub-optimal Foraging Strategies Reduce Recruitment of Yellow Perch in Saginaw Bay?</p>
2:00	<p><u>J.J. Magnuson et al.</u> Extreme Events, Trends and Variability in Northern Hemisphere Lake Ice Phenology (1855-2005)</p>	<p><u>J.H.G. Nett et al.</u> A Comparison of Sampling Methods for Detecting Round Gobies (<i>Neogobius melanostomus</i>) in Streams</p>	<p><u>S.J. Lozano</u> The Status of the Benthic Community in Lake Ontario from 2004 to 2008</p>
2:20	<p><u>S. Sharma et al.</u> Temporal Dynamics in Lake-ice Breakup Dates Around the Northern Hemisphere from 1903 to 2003</p>	<p><u>C.E. Janik et al.</u> Round Gobies Disrupt Primary Production Dynamics in Lotic Systems</p>	<p><u>L.G. Rudstam et al.</u> Lake Ontario Food Web Disruption — Comparisons with the Upper Lakes</p>
2:40	<p><u>C.M. O'Reilly et al.</u> Interacting Effects of Climate Change and El Niño on Recent Warming Patterns in Lake Tanganyika, East Africa</p>	<p><u>K.A. Cudney et al.</u> The Effects of the Invasive Round Goby (<i>Neogobius melanostomus</i>) on Organic Matter Processing: A Mesocosm and Field Test</p>	<p><u>M. Munawar et al.</u> Microbial — Planktonic Food Webs of the Great Lakes: Comparing Stressed vs. Unstressed Ecosystems</p>
3:00	<p><u>X. Bai et al.</u> Severe Ice Conditions in the Bohai Sea, China and Mild Ice Conditions in the Great Lakes during the 2009/2010 Winter</p>	<p><u>M. Poos et al.</u> Evaluating the Winners and the Losers of Round Goby Invasion into Great Lakes Tributaries</p>	<p><u>M.B. Edlund et al.</u> Historical Perspectives on the <i>Diporeia</i> Demise: Paleolimnological and Gut Content Evidence of Food Limitation</p>
3:20	Break		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Co-Chairs: Mark Rowe, James Pauer, and David Miller</i></p>	<p>16. Linkages Between the Landscape and Great Lakes Coastal Ecosystems <i>Co-Chairs: Joel Hoffman, Peder Yurista, John Morrice, Jeff Schaeffer, and Paul Seelbach</i></p>	<p>24. Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes <i>Co-Chairs: George Leshkevich and Robert Shuchman</i></p>	<p>31. Coordinated Nearshore Monitoring and Research in Lake Michigan <i>Chair: Glenn Warren</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>M.J. Maccoux et al. Chloride and Total Phosphorus Loadings (1994-2008) and a Mass Balance Model for Green Bay and Lake Michigan</p>	<p>K.M. Chomicki et al. Land Use, River Influences, and Water Quality at Contrasting Sites Along Nearshore Regions of the Great Lakes</p>	<p>D.M. O'Donnell et al. Optical Characterizations and Pursuit of Closure Across the Gradients of Green Bay and Near-shore Lake Michigan</p>	<p>L.R. Fogarty et al. A Conceptual Model for Lake Michigan Nearshore Ecosystem and Relevance to Lake Michigan LaMP Goals</p>	1:40
<p>L. Leon et al. Watershed and Lake Water Quality Modeling in Lake Winnipeg</p>	<p>J.J. Ciborowski et al. Zoobenthic Bioindicators of Environmental Condition at Great Lakes Coastal Areas: A Comparison of Methods</p>	<p>M. Sayers et al. Estimation of Absorption and Backscatter Values from <i>in Situ</i> Radiometric Water Measurements</p>	<p>G.W. Kohlhepp Lake Michigan Tributary and Nearshore Water Quality Monitoring in Michigan</p>	2:00
<p>D.D. Kane et al. Re-eutrophication of Lake Erie: Multiple Contributions by Two Agricultural Tributaries</p>	<p>C.E. Scott and H. Cyr Wind Driven Disturbance Impacts Benthic Primary Production</p>	<p>M.G. Allan et al. Atmospheric Correction of Landsat 7 Thermal Imagery for Lake Water Temperature Retrieval and Validation of a Three Dimensional Hydrodynamic Model</p>	<p>P.R. Jackson and K.D. Richards Synoptic Water Quality and Velocity Survey of Milwaukee Harbor and its Three Tributaries using a Manned Boat and Autonomous Underwater Vehicle</p>	2:20
<p>J.D. Chaffin et al. Seasonal Nitrogen Limitation in Western Lake Erie</p>	<p>M.S. Riedel et al. Dam Removal for Restoration of Potamodromous Habitat Restoration in Michigan</p>	<p>B.J. Huberty Overview of Remote Sensing Applications and Needs for the Great Lakes</p>	<p>S.R. Greb et al. Continuous <i>in Situ</i> Monitoring of the Nearshore Area off Kewaunee, WI</p>	2:40
<p>D.L. Bade et al. Biological Phosphorus Uptake in Lake Erie's Tributaries and Offshore Sites</p>	<p>C.M. Brousseau et al. Examining Landscape— Land Linkages at Different Spatial Scales</p>	<p>G. Leshkevich and L. Songzhi New Great Lakes Coast-Watch Decision Support Tools</p>	<p>G.J. Warren and J.C. May Identifying Features in the Nearshore Waters of Lake Michigan using Towed Sensor Data</p>	3:00
Break				3:20

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>3. Climate Variability in Large Lakes Mediated by Continental-to-Global Scale Forcing <i>Co-Chairs: Brent Lofgren and Jia Wang</i></p>	<p>11. Gobies in the Great Lakes and Their Watersheds <i>Co-Chairs: Chris Pennuto and Lynda Corkum</i></p>	<p>10. Exploring Food Web Linkages and Dynamics in the Upper Great Lakes: Past, Present, and Future <i>Co-Chairs: Mohi Munawar, Thomas Nalepa, John Kelly, and Owen Gorman</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
3:40	<p><u>T.K. Bayer et al.</u> Effects of Climate Change on Large, Oligotrophic Lakes in New Zealand</p>	<p><u>G.M. Andraso and M.T. Ganger</u> Factors Influencing Size-selective Predation by Round Gobies (<i>Neogobius melanostomus</i>) on Dreissenid Mussels</p>	<p><u>S.J. Czesny et al.</u> Does a Spatiotemporally Variable Prey Base in the Great Lakes affect Lake Trout Egg Fatty Acid Signatures?</p>
4:00	<p><u>M.C. Colton</u> GLERL's Great Lakes Climate Change Program</p>	<p><u>K.N. Baker</u> Shallow-water Abundances of Round Gobies (<i>Neogobius melanostomus</i>) within the Western Basin of Lake Erie, 1996-2010</p>	<p><u>M.E. Sierszen et al.</u> Stable Isotope Tracers of Process in Great Lakes Food Webs</p>
4:20	<p><u>B.M. Lofgren and M. Perroud</u> Future Regional Climate Scenarios and the Importance of Ice</p>	<p><u>C.M. Pennuto et al.</u> Round Goby Size and Abundance Correlates with Habitat in Nearshore Lake Ontario, NY</p>	<p><u>M.W. Rogers et al.</u> Modeling Lake Michigan's Offshore Food Web</p>
4:40	<p><u>J. Wang and X. Bai</u> Great Lakes Climate and Ice Research: Diagnosis and Modeling</p>	<p><u>A.F. Mensinger and M.P. Lynch</u> Site Fidelity and Movement of the Round Goby in the Duluth-Superior Harbor</p>	<p><u>C. Chu et al.</u> Ecological Modeling and Management: Insights from Lake Ontario</p>
5:00	<p><u>A. Fujisaki et al.</u> Comparison of Ice-ocean Models for Lake Erie</p>	<p><u>L.D. Corkum et al.</u> Round Goby Nest Preference and Egg Odor Attraction</p>	<p><u>T.A. Clement et al.</u> Size Structure of Small Lake Fish Assemblages: The Role of Lake Size, Biodiversity, and Disturbance</p>
6:00	Mixer and Banquet, Lake Superior Ballroom		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Co-Chairs: Mark Rowe, James Pauer, and David Miller</i></p>	<p>35. Great Lakes Adaptive Management and Climate Change <i>Co-Chairs: Linda Mortsch, Wendy Leger, Scudder Mackey, and Jennifer Read</i></p>	<p>8. Genetics, Genomics and Metagenomics in Great Lakes Microbial Communities <i>Co-Chairs: Xiaozhen Mou and Robert Heath</i></p>	<p>31. Coordinated Nearshore Monitoring and Research in Lake Michigan <i>Chair: Glenn Warren</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>M.D. Rowe et al. Modeling the Response of Nutrient Concentrations and Primary Productivity in Lake Michigan to Nutrient Loading Scenarios</p>	<p>J. Read et al. Developing an Adaptive Management Approach for Managing the Risks Associated with Great Lakes Water Level Changes due to Climate Change</p>	<p>O.A. Kutovaya et al. Expression of Phosphorus Assimilation Genes in Endemic <i>Synechococcus</i> of the Laurentian Great Lakes</p>	<p>J.R. Morris USGS Beach-health Investigations Throughout the Great Lakes</p>	3:40
<p>E.M. Verhamme et al. Application of a Fine-scale Ecosystem Model to Saginaw Bay, Lake Huron</p>	<p>A.G. Douglas Development of Water Level Sensitivity Zones for the Recreational Boating Sector</p>	<p>R. Edgar et al. Metagenomic Analysis of the Mid-winter Algal Bloom in Lake Erie</p>	<p>S. Riley et al. Botulism Type E Toxin in Northern Lake Michigan</p>	4:00
<p>G.B. Arhonditsis et al. Eutrophication Risk Assessment using Bayesian Inference Techniques</p>	<p>D. Nelson et al. Great Lakes Climate Needs Assessment: A Survey of Coastal Community Decision-maker Knowledge, Skill, Interest, and Attitudes about Climate</p>	<p>X. Mou et al. Metagenomes of Microcystin-degrading Bacteria in Lake Erie</p>	<p>E.H. Tyner et al. Investigating Botulism Mechanisms in the Lake Michigan Nearshore: Food Web Structure and Oxygen Dynamics</p>	4:20
<p>R.L. North et al. Phosphorus Bioavailability to Phytoplankton in Lake Simcoe</p>	<p>J. Day et al. Climate Ready Great Lakes</p>	<p>X. Lu et al. Denitrification is More Important than Anammox in Microbially-mediated N Removal in Lake Erie</p>	<p>S.I. Apfelbaum Multi-spectral Aerial Imagery for Near Shore Land Use</p>	4:40
<p>B.K. Ginn and M. Dennis Distribution and Seasonal Variability of <i>Microcystis</i> and <i>Planktotoxigena</i> in Lake Simcoe and the Holland River</p>	<p>D. Scavia et al. GLISA: The Great Lakes Integrated Sciences and Assessments Center</p>	<p>M. Mukherjee et al. Identification and Enumeration of Lake Superior Nitrifying Archaea by Fluorescence <i>in Situ</i> Hybridization</p>	<p>J. Read et al. Developing a Modeling Framework for Ecosystem Forecasting: The Lake Michigan Pilot</p>	5:00
Mixer and Banquet, Lake Superior Ballroom				6:00

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>3. Climate Variability in Large Lakes Mediated by Continental-to-Global Scale Forcing <i>Co-Chairs: Brent Lofgren and Jia Wang</i></p>	<p>13. History, Ecology, and Management of Aquatic Communities in Great Lakes Connecting Channels <i>Chair: Edward Roseman</i></p>	<p>19. Great Lakes and Global Invasions <i>Co-Chairs: Alexander Karatayev and Lyubov Burlakova</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
8:00	<p><u>J.L. Hanrahan et al.</u> Identification of Multi-decadal Variability in the Outflow-removed Water Levels of Lake Michigan—Huron</p>	<p><u>J. Schaeffer et al.</u> Long-term Trends in the Saint Marys River Open-water Fish Community</p>	<p><u>B. Cudmore</u> Pathway History of Non-native Fish Introductions in the Great Lakes</p>
8:20	<p><u>H. Liu and J.S. Famiglietti</u> Simulating Lake Level Variations using a Catchment-based Land Surface Model and Global Scale Forcing Data</p>	<p><u>R. Ellison et al.</u> "How the HEC did we get Here?" and Other Questions: Governance Options for Great Lakes Connecting Waterways</p>	<p><u>T.B. Johnson et al.</u> Asian Carp in the Great Lakes: Growth Rate Potential Under Different Prey Regimes</p>
8:40	<p><u>K. Van Cleave et al.</u> Interactions among Lake Superior Ice Cover, Evaporation, and Water Temperature: A Re-examination of the Standard Paradigm</p>	<p><u>D.W. Hondorp et al.</u> The Ecological Basis for Fish Habitat Restoration in the Huron—Erie Corridor</p>	<p><u>P.M. Kocovsky and D. Chapman</u> Suitability of the Maumee River for Spawning of Silver and Bighead Carp</p>
9:00	<p><u>V. Mishra and K.A. Cherkauer</u> Large-scale Climate Variability: Implications to Small Lakes in the Great Lakes Region</p>	<p><u>D.H. Bennion et al.</u> GIS Based Spatial Modeling for Remediation of Fish Spawning Habitat in the Connecting Channels of the Huron—Erie Corridor</p>	<p><u>L.A. Criger</u> An Overview of Recent Advances in the Integrated Management Program for Controlling Sea Lampreys in the Great Lakes</p>
9:20	Break		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Co-Chairs: Mark Rowe, James Pauer, and David Miller</i></p>	<p>37. Science to Management in the St. Louis River Area of Concern <i>Co-Chairs: Patrick Collins and Brent Bellinger</i></p>	<p>27. Great Lakes Observation Networks <i>Co-Chairs: Nate Booth and Jennifer Read</i></p>	<p>30. Making a Great Lake Superior: Past, Present and Future <i>Co-Chairs: Pamela Finlayson, Nancy Stadler-Salt, and Elizabeth LaPlante</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>D.K. Rucinski et al. A 3-dimensional Advanced Aquatic Ecosystem Model for Lake Erie</p>		<p>T. Dekker et al. Designing the Enterprise Architecture of the Great Lakes Observing System</p>	<p>E.V. LaPlante et al. Making a Great Lake Superior: 20 Years of the Lake Superior Binational Program</p>	8:00
<p>C.J. Winslow et al. Hypoxia in the Western Basin of Lake Erie: Low Oxygen in a Shallow System</p>	<p>B.J. Little et al. Accelerated Corrosion in Duluth-Superior Harbor</p>	<p>D.L. Blodgett et al. USGS Center for Integrated Data Analytics — Great Lakes Restoration Initiative Data Network</p>	<p>A.R. Kireta et al. Lake Superior Ecological History and Current Trajectory as Told by Diatoms</p>	8:20
<p>T.J. Valenta et al. Oxygen Depletion in Lower Green Bay</p>	<p>G.R. Clark et al. Duluth-Superior Harbor Beneficial Use of Dredged Material Efforts at Erie Pier</p>	<p>E.F. Bugliosi and N. Granneman U. S. Geological Survey Integrated Tributary Monitoring to Support Great Lakes Restoration Efforts</p>	<p>A. Dove Water Quality Status and Trends Data for Lake Superior from the Great Lakes Surveillance Program</p>	8:40
<p>J.V. Klump et al. Observations of Hypoxia and Linkages to Climatic Changes in Biogeochemical Cycles in Green Bay, Lake Michigan</p>	<p>L.L. Rozumalski et al. Fond du Lac Creek Restoration to Enhance Fish Habitat and Passage in the St. Louis River Watershed AOC</p>	<p>S. Ruberg et al. Recent Developments in Real-time Environmental Sensing</p>	<p>C. Lohse-Hanson et al. Lake Superior Zero Discharge Demonstration 2010 Critical Chemical Milestones</p>	9:00
Break				9:20

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>5. Assessing Dynamics of the Great Lakes Water Budget <i>Co-Chairs: Howard Reeves and Andrew Gronewold</i></p>	<p>13. History, Ecology, and Management of Aquatic Communities in Great Lakes Connecting Channels <i>Chair: Edward Roseman</i></p>	<p>19. Great Lakes and Global Invasions <i>Co-Chairs: Alexander Karatayev and Lyubov Burlakova</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
9:40	<p>D. Deacu et al. Effect of Improving the Consistency of the Atmospheric Forcing in a Hydrometeorological Model of the Great Lakes Basin</p>	<p>G.W. Kennedy et al. Adaptation of Two Techniques for Sampling Fish Eggs and Larvae in Deep Rivers</p>	<p>T.J. Cline et al. Sea Lamprey in Lake Superior: Responses to Increased Host Abundance and Climate Change</p>
10:00	<p>P.D. Blanken et al. Direct Measurements of the Surface Energy Balance on Lake Superior</p>	<p>J.M. Craig et al. Factors Affecting the Distribution and Species Composition of Spawning by Several Fish Species in the Detroit and St. Clair Rivers</p>	<p>A. Lochet et al. Can Statolith Microchemistry be used to Track Natal Origin of Parasitic Sea Lamprey?</p>
10:20	<p>A.D. Gronewold and T. Hunter Novel Models for Quantifying Spatial Variability in Daily Precipitation Estimates</p>	<p>E.F. Roseman et al. Using Ichthyoplankton Surveys to Assess Fish Spawning and Nursery Habitats in the Huron-Erie Corridor</p>	<p>J.L. Sieracki and J.M. Bossenbroek Modeling the Spread of Viral Hemorrhagic Septicemia Virus (VHSV) by Within - Great Lakes Shipping</p>
10:40	<p>H.W. Reeves et al. Is There One Right Answer? Why a Single Estimate may Not be the Best</p>	<p>A.S. McNaught et al. Habitat Use by Larval Fish in the Detroit and St. Clair Rivers</p>	<p>L.G. Rudstam et al. <i>Hemimysis anomala</i> - A New Predator in the Nearshore of Lake Ontario</p>
11:10	Plenary, Lake Superior Ballroom		
12:20	Lunch on your own		

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<p><u>M.M. Hernandez et al.</u> Growth Response of Chlorella to Phosphorus and Nitrogen Enrichment</p>	<p><u>T.D. Ledder et al.</u> Progress on Delisting the St Louis River AOC through Hog Island Remediation to Restoration</p>	<p><u>S.T. Kendall et al.</u> A New Moored Buoy Observatory in the Muskegon Lake AOC (Muskegon, MI)</p>	<p><u>S.K. Moses and M. Hudson</u> Current Levels and Temporal Trends of Legacy Contaminants and Emerging Chemicals of Concern in the Lake Superior Ecosystem</p>	9:40
<p><u>A.E. Poste et al.</u> Physicochemical Drivers of Microcystin Production in Several East African Lakes</p>	<p><u>C. Ostern and P. Hlina</u> Remediation-to-Restoration ("R2R") at Hog Island, St. Louis River Area of Concern, Lake Superior - A Success Story and Model</p>	<p><u>G.L. Boyer et al.</u> Blue-Green Algae are not Green Algae - Calibration and Application of <i>in Situ</i> Sensors for Cyanobacteria</p>	<p><u>D.V.C. Weseloh et al.</u> Spatial and Temporal Patterns of Contaminants in Herring Gull Eggs from Lake Superior, 1974-2009</p>	10:00
<p><u>T.V. McDaniel et al.</u> Approaches to Environmental Monitoring in Lake Superior: Linking Water and Sediment Quality to the Benthic Community</p>	<p><u>J. Silbernagel et al.</u> Spatial Narratives of the St. Louis River Estuary: Connecting Science to Spatial Literacy and Stewardship</p>	<p><u>C.G. Lochner et al.</u> Assessing the Analytical Capabilities of Real Time Ultrahigh Performance Liquid Chromatography for Organic Contaminants in the Niagara River</p>	<p><u>C. Lohse-Hanson et al.</u> Open Burning Abatement in the Minnesota Portion of the Lake Superior Basin</p>	10:20
<p><u>R.R. Rediske et al.</u> The Influence of Environmental Conditions and Hydrologic Connectivity on Cyanobacteria Assemblages</p>				10:40
Plenary, Lake Superior Ballroom				11:10
Lunch on your own				12:20

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>5. Assessing Dynamics of the Great Lakes Water Budget <i>Co-Chairs: Howard Reeves and Andrew Gronewold</i></p>	<p>13. History, Ecology, and Management of Aquatic Communities in Great Lakes Connecting Channels <i>Chair: Edward Roseman</i></p>	<p>19. Great Lakes and Global Invasions <i>Co-Chairs: Alexander Karatayev and Lyubov Burlakova</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
1:40	<p>R. Gyawali and D.W. Watkins Two Hydrologic Modeling Approaches for the Great Lakes Watersheds: A Case Study of the Kalamazoo River Basin</p>	<p>J. Chiotti et al. Comparing Fish Communities among Different Wetland Types within the Huron—Erie River Corridor</p>	<p>A. Perez-Fuentetaja and J. Wuerstle Feeding Preferences of a New Great Lakes Invader, <i>Hemimysis anomala</i>, the Bloody Red Shrimp</p>
2:00	<p>T.S. Hunter and A.D. Gronewold Variability and Uncertainty in Great Lakes Runoff Estimates</p>	<p>B.A. Manny et al. Fish Response to Construction of Fish Spawning Habitat in the Detroit River</p>	<p>M.C. TenEyck and D.K. Branstrator Testing Relationships Between Propagule Pressure and Establishment Success of a Non-native Species, <i>Daphnia magna</i></p>
2:20	<p>Y. Fan et al. Basin Supplies, Channel Capacities and Lake Superior Regulation Effects</p>	<p>M. Granados et al. Synthesizing Reference Conditions for Highly Disturbed Sites through Best Professional Judgment</p>	<p>D.T. Zanatta and M.T. Rowe Twenty-five Years of Change in the Bivalve Communities of Lake St. Clair</p>
2:40	<p>J.K. Bruyer et al. Uncertainty in Lake Erie Net Basin Supplies</p>	<p>C.A. Stepien et al. Assessing Genetic Connectivity and Divergence Patterns of Walleye and Yellow Perch along the Huron—Erie Corridor</p>	<p>L.E. Burlakova et al. <i>Dreissena</i> Impacts on Unionidae: General Trends in North America and Europe</p>
3:00	<p>F.H. Quinn Development of Great Lakes Water Supplies, 1860-1899</p>	<p>A. Horne et al. Lake Sturgeon Movements Associated with Spawning in a Deepwater Great Lakes Connecting Channel</p>	<p>V.A. Karatayev et al. Lakewide Dominance Does Not Predict the Invader Species for Dreissenids</p>
3:20	Break		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>22. Nutrients, Eutrophication, Hypoxia, and Harmful Algal Blooms <i>Co-Chairs: Mark Rowe, James Pauer, and David Miller</i></p>	<p>32. Education and Outreach: Applying Science to Problem Solving <i>Chair: Rochelle Sturtevant</i></p>	<p>15. Ecosystem Effects of Changing Water Level Regimes <i>Chair: Scudder Mackey</i></p>	<p>30. Making a Great Lake Superior: Past, Present and Future <i>Co-Chairs: Pamela Finlayson, Nancy Stadler-Salt, and Elizabeth LaPlante</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>G.E. Small et al. High Areal Nitrification Rates in Lake Superior</p>	<p>L.E. Vaccaro et al. Supporting Decision-making through Research and Collaboration: An Integrated Assessment Approach</p>	<p>S. Missaghi et al. Evaluating the Relationship of Climate Change, Lake Hydrodynamic, Shoreline Vegetations, and Bank Erosion</p>	<p>R. Eberhardt et al. Lake Superior Aquatic Invasive Species Complete Prevention Plan</p>	1:40
<p>J. Finlay et al. Controls over Denitrification in Benthic Sediments of Lake Superior</p>	<p>S.E. Da Silva and H. Shear Great Lakes Environmental Indicators and State of the Environment Reporting: Use, Needs, and Limitations</p>	<p>N.T. Schock et al. Impacts of Anthropogenic Disturbance on Macroinvertebrate and Fish Populations in Great Lakes Coastal Wetlands</p>	<p>H.R. Quinlan et al. Parasitism by Sea Lamprey on Lake Sturgeon: Are Sea Lamprey Preventing Lake Sturgeon Rehabilitation in Lake Superior?</p>	2:00
<p>P. Mayorga and G.L. Boyer The Occurrence of Cyanobacterial Toxins in Lake Atitlan, Guatemala - A Cautionary Tale for the Great Lakes</p>	<p>J.M. Hinderer and K. Glassner-Shwayder Regional Symposium to Build Capacity for the Management and Control of <i>Phragmites australis</i></p>	<p>A.D. Steinman et al. Water Levels in the Great Lakes: Influence on Nutrient Release</p>	<p>H.R. Quinlan et al. Lakewide Fish Monitoring Efforts under the Auspices of Coordinated Science and Monitoring Initiative</p>	2:20
<p>S.B. Watson and F. Pick Picoplankton Communities in Large Lakes: Spatial-temporal Patterns across Trophic and Mixing Regimes</p>	<p>D.A. Jensen and M.T. Kitson Science-based Research: A Driver in Aquatic Invasive Species Outreach</p>	<p>M.J. Cooper et al. Potential Impacts of Great Lakes Water Level Management on Coastal Wetland Fish and Macroinvertebrate Communities</p>	<p>A.M. Varian et al. Status, Distribution and Threats to Lake Superior Brook Trout</p>	2:40
	<p>M.T. Kitson et al. Moving Beyond the Borders: National Park Service Forms Partnerships for Preventing the Spread of Aquatic Invasive Species</p>	<p>J.V. DePinto et al. Assessing the Impact of Basin Supplies and Regulation on the Upper Great Lakes System with an "Integrated Ecological Response Model" (IERM2)</p>	<p>M.C. Ward et al. An Evaluation of Coaster Brook Trout Rehabilitation Measures on the Minnesota Shore of Lake Superior</p>	3:00
Break				3:20

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>5. Assessing Dynamics of the Great Lakes Water Budget <i>Co-Chairs: Howard Reeves and Andrew Gronewold</i></p>	<p>13. History, Ecology, and Management of Aquatic Communities in Great Lakes Connecting Channels <i>Chair: Edward Roseman</i></p>	<p>19. Great Lakes and Global Invasions <i>Co-Chairs: Alexander Karatayev and Lyubov Burlakova</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
3:40	<p>T.A. Dahl and J.W. Lewis The Use of Residual Net Basin Supplies in the Great Lakes</p>	<p>J. Boase et al. Habitats Occupied by Juvenile Lake Sturgeon (<i>Acipenser fulvescens</i>) in the North Channel of the St. Clair River</p>	<p>A.E. Karatayev et al. Exotic Mollusks in the Great Lakes Region Host Pathogenic Trematodes</p>
4:00	<p>K.D. Holman and M. Notaro Understanding the Source of Monthly Variations in Great Lakes Water Levels</p>	<p>K.L. Kapuscinski et al. Trends in the Muskegon Population and Fishery of the Buffalo Harbor (Lake Erie) and Upper Niagara River</p>	<p>D.A. Mayer et al. <i>Pseudomonas fluorescens</i> Strain CI 145A as a Biopesticide for the Control of Zebra and Quagga Mussels</p>
4:20	<p>L.M. Seaman Developing a Cumulative Impact Assessment for the Great Lakes Basin</p>	<p>J.M. Farrell et al. St. Lawrence River Muskegon Population Trends Following Viral Hemorrhagic Septicemia Virus Outbreak</p>	<p>A.S. Trebitz et al. Early Detection Monitoring Approaches for Non-indigenous Species in Vulnerable Great Lakes Coastal Ecosystems</p>
4:40	<p>L.M. Fry et al. Implications of Changes in Climate, Irrigation Intensity, and Population Density for Annual and Seasonal Runoff in the Great Lakes Basin</p>	<p>M.R. Twiss et al. Nearshore Water Quality Transitions Reflect Functional Process Zones Along the St. Lawrence River: How 2-D Hydrodynamic Models can be used to Describe Plankton Dynamics</p>	<p>A. Fusaro et al. GLRI Enhancements to the Great Lakes Aquatic Nonindigenous Species Information System</p>
5:00	<p>K.L. Blann Developing Biological and Ecological Criteria to Protect Environmental Flows in Minnesota</p>	<p>N.E. Mandrak and A. Thompson Predicting Spawning Locations for Asian Carps in Great Lakes Connecting Channels using Particle Tracking Models</p>	<p>W.H. Horns Early Detection and Rapid Response may Not be Smart</p>
6:00	Research Vessel Tours, Duluth Harbor behind the DECC		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>17. Contaminants of Concern: How Far Have We Come and Where Are We Going? <i>Co-Chairs: Bernard Crimmins and Sean Backus</i></p>	<p>32. Education and Outreach: Applying Science to Problem Solving <i>Chair: Rochelle Sturtevant</i></p>	<p>15. Ecosystem Effects of Changing Water Level Regimes <i>Chair: Scudder Mackey</i></p>	<p>30. Making a Great Lake Superior: Past, Present and Future <i>Co-Chairs: Pamela Finlayson, Nancy Stadler-Salt, and Elizabeth LaPlante</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>T. Mitchell and E.R. Smith The Great Lakes Binational Toxic Strategy: 13 Years Later</p>	<p>C.A. Hagley et al. Great Lakes Research Meets Great Lakes Education: Learnings from the COSEE Great Lakes Summit</p>	<p>D.G. Uzarski et al. Water Level Change and Associated Great Lakes Coastal Wetland Macroinvertebrate Community Response Independent of Shifts in Vegetation</p>	<p>S.A. Moore et al. In Search of <i>Albus</i>, a Morphometric Analysis to Determine the Status of Historic Forms of Cisco</p>	3:40
<p>D. Hu et al. Sedimentary Records of Non-aroclor and Aroclor PCB Mixtures in the Great Lakes</p>	<p>B.H. Munson et al. Effective Scientist—Teacher Collaborations Through COSEE Great Lakes</p>	<p>A.R. Cabrera et al. Assessing Wetland Vegetation Response to Water Level Changes at the Long Point Wetland Complex, Lake Erie, Ontario</p>	<p>P.J. Dryer Great Lakes Basin Fish Habitat Partnership Development using Lakewide Management Plans</p>	4:00
<p>T.S. Schulz et al. Comparison of Indoor PCB Air Contamination with Outdoor Air in East Chicago, IN, and Columbus Junction, IA</p>	<p>S.R. Stewart and D.P. Lusch COSEE Great Lakes: Scientists Who have Made a Difference and Broadened Impacts</p>	<p>E.L. Gertzen and S.E. Doka Assessment of Fish Habitat Supply in Long Point Bay, Lake Erie in Response to Water Level Regime</p>	<p>G.S. Casper and S.J. Hecnar Coordinated Monitoring of Amphibians and Reptiles in the Lake Superior Basin</p>	4:20
<p>A. Martinez and K.C. Hornbuckle Record of PCB Congeners, Sorbents and Toxicity in Core Samples from Indiana Harbor and Ship Canal</p>	<p>J. Chadde and S. Dann Great Lakes Stewardship through Teacher Leadership in Conservation Education</p>	<p>B.A. Murry et al. Beyond Mean Monthly Water Levels: The Effects of Water Level Magnitude, Timing, and Rate of Change on Coastal Wetland Fish Assemblages</p>	<p>M.J. Brouder and H.R. Quinlan Use of Low-cost Side Scan Sonar to Map Nearshore Coaster Brook Trout Habitat at Isle Royale National Park</p>	4:40
<p>D. Burniston et al. Upstream Monitoring CANCELLED</p>	<p>J.R. Peller and A. Argyilan Awareness, Education and Action: Students and Educators Taking Ownership of the Lake Michigan Watershed</p>		<p>F. Fitzpatrick and M. Fedora Trends in Streamflow for Lake Superior Tributaries during the 20th Century</p>	5:00
Research Vessel Tours, Duluth Harbor behind the DECC				6:00

	Horizon Room 202	Horizon Room 203	Horizon Room 204
	<p>4. Global Trends in Lake Temperature and Associated Impacts on Lacustrine Systems <i>Co-Chairs: John Lenters, David Livingstone, and Simon Hook</i></p>	<p>12. Restoration and Management of Native Deep-water Fish Communities in the Great Lakes <i>Co-Chairs: Tom Hrabik and Owen Gorman</i></p>	<p>9. Changes in Lower Food-Webs: Among-Lake Comparisons from Biological Monitoring Programs <i>Chair: Thomas Johengen</i></p>
	Presented by / Title	Presented by / Title	Presented by / Title
8:00	<p>S.J. Hook and P. Schneider Global Trends in Lake Surface Temperatures Estimated From Thermal Infrared Satellite Imagery</p>	<p>B.F. Lantry and R.L. Eshenroder Recent Changes in Successional State of the Deep-water Fish Communities of Lakes Michigan, Huron and Ontario</p>	<p>H.P. Riessen et al. Calcium, Kairomones, and Growth of <i>Daphnia</i></p>
8:20	<p>S.E. Hampton et al. Long-term Warming and Variation of Seasonal Timing in Lake Baikal, Siberia</p>	<p>J.G. Londer et al. Winter Diet of Sculpins from the Abysses of Northern Lake Michigan</p>	<p>H. Kling et al. Long Term Changes in Lake Winnipeg and Lake of the Woods Plankton</p>
8:40	<p>B.M. Kraemer et al. Pelagic and Littoral Warming in Lake Tanganyika, East Africa</p>	<p>J. Biberhofer et al. Underwater Visibility of Offshore Reefs and Shoals in Lake Huron</p>	<p>G. Carter et al. Benthos Population Trends across the Great Lakes, 1997-2009</p>
9:00	<p>D.M. Livingstone Spatial Coherence and Temporal Change: The Physical Impact of Large-scale Climatic Forcing and Long-term Climate Change on Inland Waters</p>	<p>J.T. Myers et al. Evaluating Effects of Temperature on Lake Superior Cisco Recruitment</p>	<p>R.P. Barbiero and G.J. Warren Rotifer Communities in the Laurentian Great Lakes, 1983-2006</p>
9:20	<p>A.M. Layden et al. Evaluation of Factors Determining the Surface Temperatures of Large Lakes Worldwide</p>	<p>M.J. Seider et al. Age, Growth and Maturity of Siscowet Lake Trout in Lake Superior, 1994-2007</p>	<p>J.M. Watkins and L.G. Rudstam Evaluating the Role of Quagga Mussel Expansion on Phytoplankton of Lake Ontario</p>
9:40	<p>J.D. Lenters et al. Rapid Increases in Lake Surface Temperature in Recent Decades: The Potentially Significant Role of Regional Brightening</p>	<p>J.A. Schuldt Morphological Differences Between Lean and Siscowet Lake Trout Morphotypes in Minnesota Waters of Lake Superior</p>	<p>K.T. Holeck et al. Timing of Changes in the Lake Ontario Lower Food Web</p>
10:00	Break		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>17. Contaminants of Concern: How Far Have We Come and Where Are We Going? <i>Co-Chairs: Bernard Crimmins and Sean Backus</i></p>	<p>32. Education and Outreach: Applying Science to Problem Solving <i>Chair: Rochelle Sturtevant</i></p>	<p>28. Ballast Water Treatment and the Great Lakes <i>Co-Chairs: Allegra Cangelosi and Jeffrey Henquinet</i></p>	<p>30. Making a Great Lake Superior: Past, Present and Future <i>Co-Chairs: Pamela Finlayson, Nancy Stadler-Salt, and Elizabeth LaPlante</i></p>	
Presented by / Title	Presented by / Title	Presented by / Title	Presented by / Title	
<p>H. Hung et al. Temporal Trends in Atmospheric Deposition of Toxic Contaminants to the Great Lakes: 1992-2008 Loadings Estimates</p>	<p>R.W. Fortner COSEE Great Lakes: Reaching Multiple Audiences for Science and Education</p>	<p>J.E. Gannon Invasive Species plus Climate Change: The Perfect Storm for Lake Superior</p>	<p>K. Taillon et al. Status of Canada's Lake Superior Areas of Concern</p>	8:00
<p>R.F. Marek et al. PCBs and OH-PCBs in Children and Their Mothers Living in Urban and Rural Communities</p>	<p>H.D. Walters and R.W. Fortner COSEE Great Lakes: Findings of the Evaluation Study</p>	<p>D.A. Reusser et al. Density Matters: A Linear Model to Evaluate Future Invasion Risk from Ballast Water Discharge</p>	<p>R. Stewart et al. Coming Down From the Ivory Tower: Can Universities Balance the Research and Applied Governance Needs of Remedial Action Plans?</p>	8:20
<p>B. Crimmins et al. Perfluoroalkylated Compounds (PFCs) in Great Lakes Fish as part of the Great Lakes Fish Monitoring and Surveillance Program</p>	<p>M. Lansing et al. Forming New Partnerships to Reach New Audiences: The Creation and Successful Launch of a Traveling Great Lakes Educational Exhibit</p>	<p>E.D. Reavie et al. Protists in Ballast Water: Assessment Methods and Performance of a Candidate Ship-board Treatment System</p>	<p>J.F. Bailey et al. Making it Great, Keeping it Great - Lessons Learned on Superior</p>	8:40
<p>E.A. Tromp et al. PBDEs in Lake Huron Fish</p>	<p>C.G. Wellington et al. Artificial Fish Habitat in Lake Erie Marinas</p>	<p>J. Gerlofsma and S.A. Bailey Assessment of Plankton Diversity in Ballast Water Samples using a High Resolution Laser Optical Plankton Counter and FlowCAM</p>	<p>H. Sorensen et al. Citizen-based Monitoring in the Lake Superior Basin: An Inventory of Local Indicators, Decisions and Partnerships to Enhance Lakewide Management and Monitoring</p>	9:00
<p>R.J. Letcher et al. Current-use Flame Retardants in Great Lakes Herring Gulls: (Non) Halogenated Organophosphates and Other Surprise Findings</p>	<p>R.G. Goettel et al. Undoing the Great Lakes Chemical Brew: Education and Outreach Tools for Effective Decisions Regarding Safe Disposal of Unwanted Medicines</p>	<p>B. Watten et al. Active Mixing Techniques in Ballast Water Tanks</p>	<p>M.J. Hudson and V.A. Damstra The Marengo River Watershed Partnership: A Local Community Making a Great Lake Superior</p>	9:20
<p>J. Pagano et al. Non-PBDE Flame Retardants in Great Lakes Fish</p>	<p>L.A. Kammin and S.E. Boehme Sustainable Unwanted Medicine Collection Programs: Strategies from the Great Lakes States and Beyond</p>	<p>M.D. Balcer and A.A. Cangelosi Evaluating the Effectiveness of Ballast Water Treatment on Freshwater Zooplankton: Looking for the Needle in the Haystack</p>	<p>C.T. Crech et al. Reducing Sediment Yields to Lake Superior: Case Studies from the Great Lakes Tributary Modeling Program</p>	9:40
Break				10:00

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	<p>4. Global Trends in Lake Temperature and Associated Impacts on Lacustrine Systems <i>Co-Chairs: John Lenters, David Livingstone, and Simon Hook</i></p>	<p>12. Restoration and Management of Native Deep-water Fish Communities in the Great Lakes <i>Co-Chairs: Tom Hrabik and Owen Gorman</i></p>	
	Presented by / Title	Presented by / Title	Presented by / Title
10:20	<p>R.P. North and D.M. Livingstone 1D Modeling of Climate Change Impacts on Hypolimnetic Oxygen Depletion</p>	<p>A.M. Muir et al. Phenotypic Diversity of Lake Trout at Isle Royale, Lake Superior</p>	
10:40	<p>P. Cheng and J.A. Austin Seasonal Dependence in the Response of Lake Water Temperatures to Atmospheric Warming</p>	<p>D.R. Schreiner and M.P. Ebener Establishment of a Commercial Siscowet Fishery in Lake Superior: Considerations, Concerns and Consequences</p>	
11:00	<p>D. Straile et al. Lake Temperatures as Proxies for Plankton Succession</p>	<p>T.R. Hrabik et al. Prey Supply and Demand in Offshore Waters of Lake Superior: Does Diel Vertical Migration Stabilize Predator—Prey Interactions?</p>	
11:20	<p>K. Teubner and M.T. Dokulil Intra-annual Trends in the Timing of Rapid Spring Warming Induced by Climate Signal and its Effects on Phytoplankton Seasonality</p>		
11:40	<p>M. Dokulil and K. Teubner Climate-induced Variability in the Irradiance and Temperature-dependent Spring Maximum of Phytoplankton in Deep Alpine Lakes</p>		
12:00	Conference Ends		

Gooseberry Falls	Split Rock Room	Horizon Room 205	French River Room	
<p>17. Contaminants of Concern: How Far Have We Come and Where Are We Going? <i>Co-Chairs: Bernard Crimmins and Sean Backus</i></p>	<p>32. Education and Outreach: Applying Science to Problem Solving <i>Chair: Rochelle Sturtevant</i></p>	<p>28. Ballast Water Treatment and the Great Lakes <i>Co-Chairs: Allegra Cangelosi and Jeffrey Henquinet</i></p>	<p>30. Making a Great Lake Superior: Past, Present and Future <i>Co-Chairs: Pamela Finlayson, Nancy Stadler-Salt, and Elizabeth LaPlante</i></p>	
<p>Presented by / Title</p>	<p>Presented by / Title</p>	<p>Presented by / Title</p>	<p>Presented by / Title</p>	
<p>Y. Ma et al. Alternative Flame Retardants in the Atmosphere Over the Great Lakes</p>	<p>K. Eckman et al. The Lakeside Stormwater Reduction Project: Evaluating the Impacts of a Paired-watershed Study on Local Residents</p>	<p>P.A. Green and S.S. Smith Developments in Emergency Ballast Treatment Technologies</p>	<p>R.P. Boudreau et al. Lake Superior National Marine Conservation Area</p>	<p>10:20</p>
<p>M.L. Craddock et al. Increasing Partnerships and Collaboration on Great Lakes Emerging/Emerged Contaminant Research</p>	<p>J. Beck and J.E. Edstrom Enhancing Opportunities for Interactive Watershed Management in the Lake Michigan Basin</p>	<p>S.A. Bailey Proposal to Utilize Ballast Water Exchange in Combination with a Ballast Water Management System to Achieve an Enhanced Level of Protection</p>	<p>F.N. Dawson Monitoring Mammalian Carnivores in the Lake Superior Basin: Challenges and Opportunities</p>	<p>10:40</p>
<p>A. Li et al. Non-PBDE Flame Retardants in the Sediment of the Great Lakes</p>	<p>K.M. Ballard et al. Learning how to Become More Resilient to Coastal Hazards on the Great Lakes: Inquiry-based Lessons Integrating Open Water Observations and Local Government Spatial Data</p>		<p>L.D. Betzhold and R.L. Mataosky Elevation Advances for Lake Superior and the Great Lakes: New Bathymetric LiDAR and an Inventory of Coastal Elevation</p>	<p>11:00</p>
<p>J. Struger et al. Occurrence and Distribution of Sulfonylethane Related Hermitals in Central Canadian Surface Waters, 2006-2008</p>	<p>R.W. Pillsbury Fingerprinting Nuisance <i>Cladophora</i> Events: Can Associated Attached Algae Provide Management Tools?</p>		<p>N.J. Schuldt et al. Mining in the Lake Superior Basin: Tribal Agencies Collaborate to Protect Resources of Cultural Importance</p>	<p>11:20</p>
<p>D.J. McGoldrick et al. Status and Trends of Polychlorinated Flame Retardants in Canadian Fish</p>				<p>11:40</p>
<p>Conference Ends</p>				<p>12:00</p>

Poster Session

Poster Social and Judging: Tuesday, May 31, 5:00-7:00 p.m., Edmund Fitzgerald Hall
Posters will remain up for viewing for the duration of the conference

Authors present:

5:00 - 6:00 p.m. for odd numbered posters
6:00 - 7:00 p.m. for even numbered posters
5:00 - 7:00 p.m. for all students being judged

Poster Session

Theme: Physics and Hydrology (posters PH-1 through PH-14)

1. Physical Processes in Lakes

- PH-1** Liu, W., Bocaniov, S., Lamb, K.G., and Smith, R.E.H.
Hydrodynamic-biogeochemical Modeling of Lake Erie in 2008
- PH-2** Missaghi, S. and Hondzo, M.
Evaluation and Application of a Three-dimensional Ecological Model in a Morphologically Complex Lake
- PH-3** Ong, J.B., Lenters, J.D., Zlotnik, V.A., and Jones, S.L.
Variations in the Energy, Water, and Salt Balance of a Saline Lake in the Semi-arid Sandhills Region of Western Nebraska (USA)
- PH-4** Roehm, C., Anderson, E., Beletsky, D., Perrelli, M., Singer, J., and Vermette, S.
Hydrodynamics of Nearshore Lake Erie: An Insight into Winter Conditions
- PH-5** Withers, J.L., Hook, T.O., Troy, C.D., and Foley, C.J.
Larval Yellow Perch (*Perca flavescens*) and Alewife (*Alosa pseudoharengus*) Distributions in Response to Fine-scale Temperature Pattern in Nearshore Lake Michigan

2. Extreme or Catastrophic Events in Lakes and Rivers

- PH-6** Clark, G.R., Anderson, J.D., Krumenaker, R.J., and Wu, C.H.
Design and Implementation of a Real-time Wave Observation System (RTWOS) at the Apostle Islands Mainland Sea Caves

3. Climate Variability in Large Lakes Mediated by Continental-to-Global Scale Forcing

- PH-7** Hu, H., Wang, J., Schwab, D., and Leshkevich, G.
Simulation of Lake Erie Ice from 2007 to 2010
- PH-8** Luo, L. and Wang, J.
Modeling Ecosystem in Lake Michigan

- PH-9** Scheelk, B., Anderton, J.B., Lenters, J.D., and Van Cleave, K.
Quantifying the Seasonal and Diurnal "Lake Effect" of Lake Superior: A Year-round Comparison between Onshore and Offshore Meteorological Conditions near Marquette, Michigan

4. Global Trends in Lake Temperature and Associated Impacts on Lacustrine Systems

- PH-10** Read, J.S., Hamilton, D.P., Muraoka, K., Wu, C.H., Eckert, W., Lenters, J.D., and Winslow, L.
Drivers of Lake Water Temperature across Gradients of Climate and Size: A Global Analysis of High-frequency Instrumented Buoy Data from 25 Temperate Lakes
- PH-11** Zigler, O., Austin, J.A., and Vinson, M.
Development of a Historical Water Temperature Profile Database for Lake Superior

5. Assessing Dynamics of the Great Lakes Water Budget

- PH-12** Clites, A.H., Hunter, T., Gronewold, A.D., and Stow, C.A.
An Appraisal of the Great Lakes Advanced Hydrologic Prediction System
- PH-13** Kondabolus, S. and Lenters, J.D.
Changes in the Seasonal Water Balance of the Tahquamenon River Watershed Since 1953: Earlier Spring Onset in the Northern Great Lakes Region
- PH-14** Phanikumar, M.S., Shen, C., and Niu, J.
Understanding Water Budgets in Great Lakes Watersheds Using an Efficient, Process-based Distributed Hydrologic Model

Theme: Biology and Ecosystems (posters BE-15 thru BE-37)

6. Large Asian and African Lakes

- BE-15** Klump, J.V. and Edgington, D.N.
Diagenesis of Sedimentary Organic Carbon in Lake Baikal
- BE-16** Kruger, B.R., Minor, E.C., Werne, J.P., and Johnson, T.C.
Spatial Distribution and Sources of Sedimentary Carbon in Lake Malawi, Africa

- BE-17** **Ngochera, M., Macuine, M., Hecky, R.E., and Guildford, S.J.**
Defining Patterns of Phytoplankton Composition and Abundance in Lake Malawi

8. Genetics, Genomics and Metagenomics in Great Lakes Microbial Communities

- BE-18** **Munoz Ucros, J. and Hicks, R.E.**
Comparing the Distributions of Planktonic *Archaea* in Lakes Superior and Malawi

- BE-19** **Shtarkman, Y.M., Edgar, R.E., Morris, P.F., and Rogers, S.O.**
Metagenomic Analysis of Ice from the Central Basin of Lake Erie

9. Changes in Lower Food Webs: Among-Lake Comparisons from Biological Monitoring Programs

- BE-20** **Harrison, J.W. and Smith, R.E.H.**
Effects of UV Radiation on Lake Ontario Phytoplankton Photosynthesis

- BE-21** **Stoneman, A.T., Kocovsky, P.M., Kraus, R.T., Lee, C.S., and Plumb, R.S.**
Diet, Age, and Reproduction of Trout-Perch in the Western Basin of Lake Erie

- BE-22** **White, B.A., Matsumoto, K., and Austin, J.A.**
Controls on Lower Trophic Level Ecosystem Trends in Lake Superior: A Numerical Modeling Study

10. Exploring Food Web Linkages and Dynamics in the Upper Great Lakes: Past, Present, and Future

- BE-23** **Beall, B.F.N., McKay, R.M., and Bullerjahn, G.S.**
Phytoplankton Through Different Eyes: Flow Cytometric Analysis of Phytoplankton Communities in Lake Superior

- BE-24** **Larson, J.H., Richardson, W.B., Vallazza, J.M., and Nelson, J.C.**
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the 1990s, the number of people in the world who are undernourished has increased from 600 million to 800 million (FAO 2001).

There are a number of reasons for this increase. One of the main reasons is the increase in the world population. The world population has increased from 5 billion in 1987 to 6 billion in 2000, and is projected to reach 9 billion by 2050 (FAO 2001). This increase in population has led to an increase in the demand for food, which has led to an increase in the number of people who are undernourished.

Another reason for the increase in the number of people who are undernourished is the increase in the number of people who are living in poverty. The number of people who are living in poverty has increased from 1 billion in 1987 to 1.5 billion in 2000, and is projected to reach 2 billion by 2050 (FAO 2001). This increase in poverty has led to an increase in the number of people who are unable to afford the food that they need to survive.

A third reason for the increase in the number of people who are undernourished is the increase in the number of people who are living in rural areas. The number of people who are living in rural areas has increased from 3 billion in 1987 to 4 billion in 2000, and is projected to reach 5 billion by 2050 (FAO 2001). This increase in rural population has led to an increase in the number of people who are unable to access the food that they need to survive.

There are a number of ways in which the number of people who are undernourished can be reduced. One of the main ways is to increase the production of food. This can be done by increasing the number of people who are working in agriculture, by increasing the number of people who are working in food processing, and by increasing the number of people who are working in food distribution.

Another way to reduce the number of people who are undernourished is to increase the number of people who are living in poverty. This can be done by increasing the number of people who are working in the private sector, by increasing the number of people who are working in the public sector, and by increasing the number of people who are working in the non-profit sector.

A third way to reduce the number of people who are undernourished is to increase the number of people who are living in rural areas. This can be done by increasing the number of people who are working in agriculture, by increasing the number of people who are working in food processing, and by increasing the number of people who are working in food distribution.

There are a number of challenges that must be overcome in order to reduce the number of people who are undernourished. One of the main challenges is the increase in the world population. This increase in population has led to an increase in the demand for food, which has led to an increase in the number of people who are undernourished.

Another challenge is the increase in the number of people who are living in poverty. This increase in poverty has led to an increase in the number of people who are unable to afford the food that they need to survive. A third challenge is the increase in the number of people who are living in rural areas. This increase in rural population has led to an increase in the number of people who are unable to access the food that they need to survive.

There are a number of ways in which these challenges can be overcome. One of the main ways is to increase the production of food. This can be done by increasing the number of people who are working in agriculture, by increasing the number of people who are working in food processing, and by increasing the number of people who are working in food distribution. Another way to overcome these challenges is to increase the number of people who are living in poverty. This can be done by increasing the number of people who are working in the private sector, by increasing the number of people who are working in the public sector, and by increasing the number of people who are working in the non-profit sector.

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 Murphy, E.S26-Tue-8:00 / S17-Fri-10:40
 Murry, B.A.S14-Wed-9:40 / S10-Wed-5:00
S15-Thu-2:40 / S15-Thu-3:40
S15-Thu-4:40 / BE-37
 Muzzi, R.S27-Thu-9:00
 Myers, J.T.S12-Fri-9:00

- Reiners, P.W.S29-Tue-3:00
Rennie, M.D.S18-Tue-2:00
Repeta, D.S7-Tue-4:20
Reusser, D.A.S28-Fri-8:20
Richards, K.D.S31-Wed-2:20
Richards, R.P.S16-Wed-9:00 / S22-Wed-9:40
Richardson, W.B.S16-Wed-10:00 / BE-24
Ricketts, R.D.S29-Tue-1:40
Ridal, J.J.S21-Tue-8:40
Riedel, M.S.S16-Wed-2:40 / S37-Thu-9:00
Riessen, H.P.S9-Fri-8:00
Riley, S.S39-Tue-2:00 / S18-Tue-3:40
S31-Wed-4:00 / HI-73
Rinchar, J.S10-Wed-3:40
Riordan, K.S24-Wed-10:00
Ripley, M.S30-Fri-11:20
Rippke, M.B.BE-35
Riseng, C.M.S9-Fri-8:40
Roark, S.A.HI-47
Robertson, D.M.S22-Wed-10:00 / S22-Wed-10:20
Robinson, J.S37-Thu-9:40
Rodenburg, Z.L.HI-52
Roebber, P.J.S3-Thu-8:00
Roehm, C.PH-4 / TT-83
Rogers, M.W.S31-Wed-1:40 / S10-Wed-4:20
Rogers, S.O.BE-19
Rokitnicki-Wojcik, D.B.S14-Wed-8:00
Rondeau, M.S17-Fri-11:20
Roseman, E.S10-Tue-3:40 / S10-Tue-4:20
S13-Thu-8:40 / S13-Thu-9:00
S13-Thu-9:40 / S13-Thu-10:00
S13-Thu-10:20 / S13-Thu-10:40
S13-Thu-1:40 / S13-Thu-2:00
BE-32 / BE-34
Rosillo, L.S33-Tue-9:00
Rossmann, R.S21-Tue-9:00
Roswell, C.S10-Tue-4:40 / S10-Wed-1:40
BE-28
Roth, B.M.S12-Fri-11:00
Route, W.T.HI-53
Rowe, M.D.S21-Tue-9:00 / S22-Wed-3:40
Rowe, M.T.S19-Thu-2:20
Rozon, R.BE-26
Rozumalski, L.L.S37-Thu-9:00
Ruberg, S.S27-Thu-8:00 / S27-Thu-9:00
Rucinski, D.S39-Tue-1:40 / S22-Thu-8:00
S15-Thu-3:00
Rudstam, L.G.S18-Tue-2:20 / S36-Tue-3:40
S10-Wed-2:20 / S19-Thu-10:40
S9-Fri-9:20 / S9-Fri-9:40
Ruetz III, C.R.S16-Wed-8:20
Ruiz, G.M.S28-Fri-8:20
Rupp, B.R.S26-Tue-8:40
Russom, C.L.S25-Tue-3:40
Rutherford, E.S18-Tue-9:00 / S18-Tue-9:20
S16-Tue-2:40 / S16-Tue-3:00
S16-Tue-3:40 / S18-Tue-4:40
S19-Thu-4:40 / HI-60 / HI-63
Rutherford, S.PMEC-98
Ruzycycki, E.M.S16-Tue-4:40
Ruzycycki, E.R.S25-Tue-3:00 / PMEC-93
Ryan, D.J.HI-59
Rygwelski, K.R.S21-Tue-9:00
- S**
- Saad, D.A.S22-Wed-10:00
Sabol, B.S24-Wed-10:40 / TT-78
Saborido Basconillo, L. HI-54
Sadowsky, M.J.S23-Wed-9:40
Salamova, A.S17-Fri-10:20
Salki, A.S9-Fri-8:20
Sarvala, J.S4-Fri-8:40
Sass Hilbrich, D.J.S36-Wed-8:20
Saunders, K.PMEC-107
Savignac, F.S36-Wed-8:40
Sayers, M.S25-Tue-2:40 / S24-Wed-8:40
S24-Wed-10:20 / S24-Wed-10:40
S24-Wed-2:00 / TT-81
Scavia, D.S18-Tue-8:00 / S22-Thu-8:00
S18-Tue-8:20 / S39-Tue-1:40
S35-Wed-5:00 / S32-Thu-1:40
Schaeffer, J.S10-Tue-4:20 / S10-Tue-5:00
S16-Wed-10:00 / S13-Thu-8:00
BE-32
Schallenberg, M.S3-Wed-3:40
Scharold, J.V.HI-42
Scheelk, B.PH-9
Schlais, M.J.S8-Wed-5:00
Schloesser, D.W.S18-Tue-2:40 / S16-Wed-10:00
Schloesser, J.S30-Thu-2:20
Schmieder, P.K.S21-Tue-8:00
Schmitt Marquez, H.S.S22-Wed-9:00
Schneeberger, P.J.S18-Tue-1:40
Schneider, P.S4-Fri-8:00
Schock, N.T.S15-Thu-2:00
Schoer, J.S33-Tue-9:00
Schoff, P.K.HI-67
Schofield, J.A.S26-Tue-8:00
Schomberg, J.S25-Tue-3:00 / S32-Fri-10:20
PMEC-93 / PMEC-95/ PMEC-108
Schott, J.R.S24-Wed-9:00
Schouten, S.S29-Tue-2:00 / S29-Tue-2:20
Schreiner, D.R.S30-Thu-3:00 / S12-Fri-10:40
Schuldt, J.S12-Fri-9:40 / PMEC-108
Schuldt, N.J.S30-Fri-11:20
Schultz, M.S.S36-Tue-3:00
Schulz, T.S.S17-Thu-4:20
Schwab, D.S2-Tue-8:00 / S18-Tue-8:40
S1-Tue-3:40 / S1-Tue-4:40
S3-Wed-5:00 / S31-Wed-5:00
S22-Thu-8:00 / PH-7
Schwalb, A.N.S18-Tue-4:20
Scott, C.S23-Wed-8:00
Scott, C.E.S16-Wed-2:20
Seaman, L.M.S5-Thu-4:20
Seelbach, P.W.S16-Wed-10:00 / S31-Wed-1:40
Seider, M.J.S12-Fri-9:20 / S12-Fri-11:00
Seitz, B.S32-Thu-3:00
Sekela, M.S17-Fri-11:40
Selegean, J.P.S30-Fri-9:40
Selvendiran, P.S26-Tue-8:40
Sepulveda, M.S.HI-59 / HI-65
Sepulveda-Villet, O.J.S39-Tue-9:40
Serck, J.L.S23-Wed-8:00 / S37-Thu-8:40
Serveiss, V.B.S36-Wed-10:20
Sgren, C.D.BE-27
Shantz, M.S1-Wed-8:00
Sharma, S.S3-Wed-2:20
Sharrow, J.D.S23-Wed-8:00 / S37-Thu-8:40
Shattuck, C.S35-Wed-4:40
Shear, H.S32-Thu-2:00
Shen, C.PH-14
Sheng, Y.S1-Wed-10:00
Sherman, J.J.S14-Wed-9:40
Shimaraev, N.M.S1-Wed-10:40
Shimek, S.S32-Thu-4:00
Shimoda, Y.S22-Wed-4:20
Shmagin, B.S26-Tue-9:40
Shtarkman, Y.M.BE-19
Shuchman, R.S25-Tue-2:40 / S24-Wed-8:40
S24-Wed-10:20 / S24-Wed-10:40
S24-Wed-2:00 / TT-78 / TT-81
Shulski, M.D.S1-Wed-10:00
Sieracki, J.L.S19-Thu-10:20

Vanderploeg, H.A.S18-Tue-8:40 / S18-Tue-9:00
 S18-Tue-9:20
 Vargo, R.PMEC-105
 Varian, A.M.S30-Thu-2:40
 Venier, M.S17-Fri-8:20 / S17-Fri-10:20
 Ventura, S.J.S25-Tue-4:00
 Verburg, P.S1-Tue-5:00 / S4-Fri-8:40
 Verhamme, E.M.S22-Wed-4:00
 Vermette, S.PH-4 TT-83
 Vidal, J.S1-Wed-10:20
 Villard, P.V.S1-Wed-8:00
 Villeneuve, D.L.S25-Tue-3:40
 Villeneuve, M.S36-Wed-8:40
 Vinson, M.S12-Fri-11:00 / PH-11
 Voronova, S.O.S23-Wed-10:20

W

Wade, S.S13-Thu-10:20
 Wagler, M.PMEC-108
 Wagner, C.HI-40
 Waide, J.B.S16-Wed-10:00
 Walker, G.S36-Wed-8:40
 Walsh, M.S19-Thu-10:40 / S9-Fri-9:40
 Walters, H.S32-Fri-8:20 / PMEC-98
 Waltho, J.S17-Fri-11:40
 Wang, J.S3-Wed-3:00 / S3-Wed-4:40
 S3-Wed-5:00 / S3-Thu-8:40
 S4-Fri-9:40 / PH-7 / PH-8
 Wang, Y.X.S6-Tue-9:40
 Wang, Y.Y.S6-Tue-9:20
 Waples, J.T.S22-Thu-9:00
 Ward, M.C.S30-Thu-3:00
 Warner, D.S18-Tue-9:00 / S10-Tue-3:40
 S10-Wed-4:20
 Warren, G.J.S31-Wed-3:00 / S9-Fri-9:00
 Waters, S.S32-Fri-8:40
 Watkins, D.W.S5-Thu-1:40
 Watkins, J.S10-Wed-2:20 / S9-Fri-9:20
 Watkinson, D.A.S14-Wed-10:40
 Watson, S.S27-Thu-10:00 / S22-Thu-10:20
 S22-Thu-2:40 / S9-Fri-8:20 / TT-76
 Watten, B.S28-Fri-9:20
 Weaver, T.L.PMEC-90
 Webster, W.C.S14-Wed-8:20 / S15-Thu-2:00
 Weckerly, K.S22-Thu-9:00
 Weckman, G.HI-71
 Wehrli, B.S4-Fri-8:40
 Wei, H.S17-Fri-11:00
 Weidel, B.S6-Tue-9:00 / S19-Thu-10:40
 Weimer, E.J.TT-79
 Weiner, J.S36-Wed-10:20
 Weinert, M.S15-Thu-2:20
 Weintraub, L.H.S26-Tue-8:40
 Welch, J.B.S23-Wed-10:00
 Wellen, C.S22-Wed-4:20
 Wellington, C.G.S32-Fri-9:00
 Welsh, E.S7-Tue-3:40
 Were, V.S32-Fri-10:20
 Werne, J.P.S29-Tue-1:40 / S29-Tue-2:00
 S29-Tue-2:20 / S29-Tue-2:40
 S7-Tue-4:40 / BE-16
 Weseloh, D.V.C.S30-Thu-10:00
 West, C.W.S19-Thu-4:20
 Westerbur, A.PMEC-93
 White, B.A.BE-22
 White, L.S31-Wed-4:00
 Wilcox, E.M.S31-Wed-4:20
 Wiley, M.J.S16-Wed-8:00
 Wilkinson, M.A.S13-Thu-4:00 / HI-58
 Will, N.S25-Tue-3:00 / S16-Tue-4:40
 PMEC-93
 Willey, J.S36-Tue-4:20

Wilson, G.B.S36-Wed-10:00
 Winick, J.S32-Fri-8:40
 Winslow, C.J.S22-Thu-8:20
 Winslow, L.PH-10
 Winter, J.S22-Wed-4:40
 Withers, J.L.PH-5
 Witter, D.L.S36-Tue-2:00
 Woityra, W.C.S36-Tue-3:00
 Wolfe, M.D.S32-Fri-9:00
 Woltering, M.L.S29-Tue-2:00
 Woodruff, L.G.PMEC-90
 Woolnough, D.S14-Wed-9:40
 Wortley, A.J.TT-82
 Wright, G.S13-Thu-8:00
 Wrubleski, D.A.S14-Wed-10:20 / S14-Wed-10:40
 Wu, C.S2-Tue-8:40 / S2-Tue-9:00
 S2-Tue-10:00 / S32-Fri-11:00
 PH-6 PH-10
 Wuerstle, J.S19-Thu-1:40

X

Xia, X.S21-Tue-9:40 / S17-Fri-9:00
 S17-Fri-9:40 / HI-45 HI-55
 Xie, L.Q.S22-Thu-10:40
 Xu, J.S6-Tue-9:20
 Xu, L.S7-Tue-4:20

Y

Yan, N.D.S9-Fri-8:00
 Yang, R.S17-Fri-11:00
 Yavno, S.S11-Wed-5:00
 Yerubandi, R.S22-Wed-2:00 / S22-Thu-10:20
 Yousef, F.S18-Tue-8:40 / S18-Tue-10:00
 S24-Wed-10:40 / TT-78
 Yu, X.B.S6-Tue-9:20
 Yucuis, R.A.HI-56
 Yule, D.L.S10-Tue-2:20 / S30-Thu-3:40
 S12-Fri-9:00 / S12-Fri-11:00
 Yurista, P.M.S16-Wed-10:20 / S16-Wed-10:40
 HI-42 / HI-43

Z

Zanatta, D.S14-Wed-9:40 / S19-Thu-2:20
 S19-Thu-2:40
 Zhang, H.S18-Tue-4:40
 Zhang, X.S21-Tue-9:00
 Zhang, Y.J.S2-Tue-10:00
 Zhao, J.S22-Wed-2:00
 Zhdanov, A.A.S1-Wed-10:40
 Zhong, Y.S6-Tue-9:40
 Zhu, X.S39-Tue-8:40 / HI-57
 Zigah, P.K.S7-Tue-4:20 / S7-Tue-4:40
 Zigler, O.PH-11
 Zimmerman, M.S.S12-Fri-10:20
 Zlotnik, V.A.PH-3
 Zorn, T.G.S18-Tue-1:40

Notes

Notes

From Greatest Lakes flow Mighty Rivers

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- ✓ Limnology
- ✓ Climate impacts
- ✓ Watershed Interactions
- ✓ Invasive Species
- ✓ Fisheries and Wildlife
- ✓ Algal toxins
- ✓ Water Quality and Quantity
- ✓ Ecosystem Change and Remediation
- ✓ Science Policy linking Governments
- ✓ Catchment and Coastal Processes
- ✓ Hg transfer in Great Lakes food webs
- ✓ Large rivers - spatial partitioning of habitat and ecosystem structure and function by currents
- ✓ Biological, chemical, and physical linkages between sediment and water
- ✓ Emerging contaminants of concern
- ✓ The history and future of long-term monitoring programs and data sets
- ✓ Large Rivers and Lakes of the World **and much more**

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