

## John Joseph Magnuson

### Talks, Seminars, Testimony, Briefings, Meetings:

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1988

Invited symposium speaker: Potential Effects of Global Climate Warming on Great Lakes Fishes. American Fisheries Society Annual Meeting, Toronto, Ontario. Sep.

1989

Seminar: Expanding the Temporal and Spatial Scales of Ecological Research. University of Tennessee. Knoxville, Tennessee. Jan. 26.

Briefing: Climate Change and Fisheries. Division Heads at the Michigan Department of Natural Resources. East Lansing, Michigan. Feb. 15.

Talk: Climate Change and Fishes. Madison Hydrology Club. Madison, Wisconsin. Feb. 27.

Invited Speaker: Potential Effects of Global Climate Change on the Great Lakes. Center for Lake Superior Environmental Studies. Superior, Wisconsin. Apr. 27-28.

Presentation: Climate Change and Fisheries in the Great Lakes. Great Lakes Fishery Commission. Montreal, Quebec. May 8.

Seminar Speaker: Climate Change Effects on the Fishes of the Great Lakes. Great Lakes Environmental Research Laboratory. Ann Arbor, Michigan. Jun.

Contributed paper: Potential Influence of Climate Change on Lake Michigan Fishes. Annual Meeting International Association of Great Lakes Researchers. Madison, Wisconsin. Jun.

Plenary Speaker: Long-term Ecological Research in the United States. Annual Meeting of the Freshwater Biological Association. Royal Society. London, U.K. Jul.

Symposium Organizer with H. Regier and C. Coutant: Climate Change and Fisheries. Annual Meeting of the American Fisheries Society. Toronto, Ontario. Aug.

Invited Symposium Speaker: Fish Ecology-the Intersection of Fisheries Science, Ichthyology, and Ecology. Annual Meeting of the Ecological Society of America. Toronto, Ontario. Aug.

Invited symposium speaker: Potential Influence of Global Climate Warming on Water Temperatures and the Thermal Niche and Growth of Fisheries in the Laurentian Great Lakes. Society of International Limnology. Munich, Germany. Aug.

Contributed paper: Relation of Biomass, Size Structure, and Energy Transfer

Efficiency to the Productivity Gradient in a Freshwater Estuary-Green Bay, Lake Michigan. International Association of Theoretical and Applied Limnology. Munich, Germany, Aug.

Foreign plenary speaker: Long-term Ecological Research at the North Temperate Lake Site in the United States. Symposium on Concepts in Ecosystem Research, Christian-Albrechts-University. Kiel, West Germany. Oct.

Plenary Talk: Long-term Fish and Wildlife Assessments. Midwest Fish and Wildlife Conference on Stephen A. Forbes, Development of Ecological Theory and Its Application in Fish and Wildlife Management. Springfield, Illinois. Dec. 3-6.

1990

Departmental Seminar: Landscape Ecology of Lakes and Oceans. Biology Department, University of Illinois. Chicago, Illinois. Mar. 29.

Seminar Speaker: Potential Effects of Climate Change on Fishes. Water Minor Program, University of Minnesota-St. Paul. St. Paul, Minnesota. Apr. 4.

Symposium speaker: Interspecific competition--current critical issues. P.A. Larkin Retirement Event, University of British Columbia, Vancouver, British Columbia. Apr. 28.

Invited lecturer: Impact of Changing Climate on Minnesota Water Resources. Minnesota Sea Grant College Program. St. Paul, Minnesota. Apr.

Seminar Speaker: New Applications of Hydroacoustic Sampling in the Study of Biological Patchiness. Hancock Biological Station, Murray State University. Murray, Kentucky. Jun. 27.

Contributed Paper: Colonization or Extinction Determines Fish Assemblage Structure in Small Forest Lakes. Annual Meeting of the Ecological Society of America. Snowbird, Utah. Aug.

Seminar Speaker: Long-term Ecological Research on Lakes and Global Change. Great Lakes Environmental Research Laboratory. Ann Arbor, Michigan. Aug.

Symposium Organizer and Speaker: Symposium with T. Miura - Role of Fish and/or Birds in the Regulation of Aquatic Ecosystems, 13 speakers. Talk - Influences of a Strong Year Class of Fish and Variation in Hydrologic Inputs on Interannual Dynamics of an Oligotrophic Lake. International Congress of Ecology. Yokohama, Japan. Aug. 29.

Invited speaker: Variability in North American Ecosystems. Long-Term Ecological Research All Scientist Meeting. Estes Park, Colorado. Sep. 26.

Invited symposium speaker: Habitat Variation in Lakes and Reservoir. US EPA Biological Criteria Symposium: Research and Regulation, US Environmental Protection Agency. Washington, D.C. Dec.

Plenary Speaker: Potential Effects of Global Climate Change on Midwestern Lakes. Midwest Fish and Wildlife Conference, Climate Change: Fish and Wildlife in the Years Just Ahead. Minneapolis, Minnesota, Dec. 3.

1991

Discussant: Great Lakes Water Level Study Workshop, International Joint Commission Biennial Meeting. Traverse City, Michigan. Oct.

Invited speaker and Leader of Food Web Working Group: Potential Effects of Global Climate Change on the Laurentian Great Lakes of North America. Workshop on the Importance of External Perturbations for Short- and Long-Term Changes in Large Lake Ecosystems. University of Konstanz. Konstanz, Germany. Oct. 21-26.

Invited Symposium Speaker: Perspectives on Long-Term Ecological Research on North Temperate Lakes and Comparisons with Disparate Systems. Land Margin Ecosystem Research Program, Biennial International Estuarine Research Conference, San Francisco, California. Nov. 10-14.

1992

Invited speaker: Biodiversity of Fishes in North Temperate Lakes: Insights from a Long-Term Ecological Research Site. Symposium on Contributions of Long-Term Ecological Research to Current Issues in the Conservation of Biological Diversity. Annual Meeting of the American Society of Zoologists. Vancouver, British Columbia. Dec.

Invited Talk: Introduction to Long-Term Ecological Research. Canadian Government Interagency Planning Workshop for Canadian Green Plan. Toronto, Ontario. May.

Invited Public Lecture and Departmental Seminar: 1. Potential Effects of Global Climate Warming on Lakes. 2. Temporal Coherence among Lakes and Fish Year Class Strength. University of Alberta, Edmonton, Alberta. Feb.

Symposium Organizer and Speaker: 1. Fish Recruitment in Marine and Fresh Water. 2. Coherence and Variability in Fish Recruitment in Lakes. American Society of Limnology and Oceanography. Santa Fe, New Mexico. Feb.

Invited Lecturer: Marine and Terrestrial Time Scales. A Summer School at Cornell University for Long Time Series Analysis and Interpretation in Terrestrial, Marine and Freshwater Ecosystems, supported by NSF and organized by Steele and Powell. Jul.

Guest Lectures and Seminars: University of Washington, Seattle, Washington. Potential Effects of Climate Change on Fishes in Inland Lakes. School of Fisheries Seminar. Feb.

Coherence in Fish Recruitment. Juvenile Fish Course. Friday Harbor Laboratories. Apr.

The Invisible Present: Adding a Long Term, Regional Perspective to Ecological Research. School of Fisheries Seminar. Oct.

Comparative Landscape Ecology of Disparate Systems--Lakes and Continents. Streamside Studies Seminar. Fall.

1. Lakes as Islands. 2. Fish Biodiversity. Lectures in Diana Stouder's course in Fish Ecology (Fish 312). Fall.

Contributed paper: Latitudinal and Longitudinal Differences in Thermal Habitat for Fishes Influenced by Climate Warming: Expectations from Simulations. International Society of Limnology, Barcelona, Spain. Aug.

Discussion: Extinction versus Isolation: Fish Biodiversity in Lakes. Brown Bag, Institute of Environmental Science, University of Wisconsin-Madison. Madison, Wisconsin. Nov.

1993

Invited Lecture: Moore Lecture in Ecology, University of Virginia, Charlottesville, Virginia. Feb.

Invited presentation: The Laurentian Great Lakes: Knowing and Not Knowing the Future. Conference on Great Lakes of the World, Meeting of the Canadian Society of Zoologists. Guelph, Ontario. May 5-9.

Session Co-chair and Speaker: Effect of Climate Change on Freshwater and Marine Systems. Changes in Fish Thermal Habitat in Small Temperate Lakes Simulated by Climate Change Scenarios. American Society of Limnology and Oceanography. Edmonton, Alberta, Jun. 3.

Contributed paper: Remotely Sensed Differences in Spatial Heterogeneity of Vegetation Indices among Disparate LTER Landscapes. Annual Meeting of the Ecological Society of America. Madison, Wisconsin. Aug. 4.

Invited lecture: Temporal and Spatial Variability as Neglected Ecosystem Properties: Lessons Learned from 12 North American Ecosystems. NATO Advanced Research Workshop on Evaluating and Monitoring the Health of Large-Scale Ecosystems. Montecello, Quebec. Oct. 15.

Invited presentation: A Long-Term Perspective to Ecological Restoration. Executive Officers Seminar on Environmental Policy on Ecological Ethics and Initiatives. Sand County Foundation and Environmental Defense Fund. Berkeley, California. Oct. 20.

Report Presentation. Science Advisory Board's Emerging Issues Task Force. Public report to Commissioners and Public. International Joint Commission on Great Lakes Water Quality. Oct. 22.

Invited Presentation: Potential Effects of Climate Warming on Lake Ecosystems. Association of Ecosystem Research Centers (AERC) Symposium on Ecosystem Response to Global Change. Annual Meeting. Washington, D.C. Nov. 1.

Invited Presentation: Comparative Heterogeneity of Diverse Landscapes. Center for Mathematical Sciences Symposium on Spatial Processes in Biology, University of Wisconsin-Madison. Madison, Wisconsin. Nov. 11.

1994

Invited Nieuwland Lectures: Studying the Invisible Present and the Invisible Place: Long-Term Ecological Research in the United States; Lakes as Islands: Invasion, Extinction and Biodiversity of Fishes in Midwestern Lakes; and Should Fishes Care about Global Warming? Potential Effects of Climate Warming on Midwestern Lakes. University of Notre Dame, Notre Dame, Indiana. Mar. 28-30.

Invited Wooster Lectures: Sea Turtles and Atlantic Bluefin Tuna - The Importance of Framing the Issues at the Ocean Scale; Lakes as Islands and Oceans as Continents; and Climate Changes and Fisheries in Oceans and Lakes: Physiological Ecology, Species interactions and Connectedness (3 lectures). Schools of Fisheries, Oceanography and Marine Affairs, University of Washington. Seattle, Washington. Nov. 29- Dec. 1.

Invited presentation: NRC Report on Assessment of Atlantic Bluefin Tuna.

Scientific and Technical Committee of the International Commission for the Conservation of Atlantic Bluefin Tunas. Malaga, Spain. Sep. 24.

Participant and Writer: Working Group Meetings Related to Oceans and Large Lakes, International Panel on Climate Change. Hamburg, Germany - Jan. Madison, Wisconsin - Apr. Washington D.C. - Jun. and Beijing, China - Nov.

1995

Co-chaired with T. Kratz: Research Planning and Synthesis Meeting with Canadian Limnological Researchers. Part of the Center for Limnology's NSF LTER Augmentation Grant. Colleagues came from the Experimental Lakes Area and Dorsett Research Center, both in Ontario. Trout Lake Station, Boulder Junction, Wisconsin. Jan 17-20.

Invited Lecture: Potential Changes in Thermal Resources in North Temperate Lakes owing to Global Warming. Symposium on Global Warming - Implications for Freshwater and Marine Fish. Society for Experimental Biology. St. Andrews, Scotland. Apr. 4.

Invited Lecture: Thinking Like a Mountain. Seminar on Modern Guide to Environmental Philanthropy. Organized by the Sand County Foundation. Charleston, South Carolina. May 31.

Plenary Lecture: The Freshwater Imperative. Annual Meeting of the American Society of Limnology and Oceanography. University of Reno, Reno, Nevada. Jun. 1.

Invited Symposium Speaker: A Geomorphic Template for Analyses of Headwater Lake Districts. Symposium on the Influence of Geomorphic Processes on Terrestrial and Aquatic Ecosystem Patterns and Processes. Annual Meeting of the Ecological Society of America. Snowbird, Utah. Aug. 3.

Poster Paper: Long-Term Ecological Research on North Temperate Lakes. Society for International Limnology. Sao Paulo, Brazil. Aug.3

Panel Chair: National Fisheries Forum, How do Our Changing Coasts Affect Fisheries. Press Club. Washington D.C. Sep. 11.

1996

Keynote Speaker: The Assemblage of Fishes in Wisconsin Lakes; Invasions, Extinctions, and Species Interactions. Wisconsin Chapter of the American Fisheries Society, Stevens Point, Wisconsin. Jan. 10.

Invited Symposium Speaker: Freshwater Ecosystems, Hydrology, and Water Resources. Symposium on the Intergovernmental Panel on Climate Change. Annual Meeting of the American Association for the Advancement of Science. Baltimore, Maryland. Feb.10.

Invited Lecture: Long-Term Regional Ecology of Lakes. Center for Great Lakes Research, University of Wisconsin-Milwaukee. Milwaukee, Wisconsin. Feb. 29.

Invited Speaker and Participant: Scale, Hierarchy, Pattern, and Patchiness on the Ecological Analysis of the Ocean. Office of Naval Research Workshop on Marine Bio-Acoustics Technics and Their Applications. U.S.- India Workshop

- on Bioacoustics in the Indian Ocean. Goa National Institute of Oceanography. Goa, India. Mar. 11-15.
- Invited Lecture: Climate Change - Freshwater Ecosystems, Hydrology, & Water Resources, The IPCC Assessment. Zoology Colloquium, University of Wisconsin-Madison. Madison, Wisconsin. Mar. 29.
- Invited Lecture: Long-Term Regional Ecology of Lakes. Department of Biology, Kansas State University. Manhattan, Kansas. Apr. 26.
- Invited Lecture: Long-Term Regional Ecology of Lakes. Kellogg Biological Station, Michigan State University. Hickory Corners, Michigan. Jul. 11.
- Co-chair with Bob Naiman and Penny Firth: Fresh Water: Linking Cultural, Economic and Environmental Vitality. Symposium at the Ecological Society of America. Providence, Rhode Island. Aug. 10-14.
- Invited Participant and Speaker: Natur Expo-1996 Budapest. CoChaired Aquatic Sessions and served as an Editor of the Budapest Declaration. Presented paper Rehabilitation and Management of Fish Populations and Communities. Budapest, Hungary. Aug. 26-29.
- Invited Participant: Aspen Global Change Institute Workshop II, Ranking and Communicating Levels of Confidence to Policy and Media Audiences. Aspen, Colorado. Jul. 31-Aug. 8.
- Invited Participant and Speaker: Invasion, Extinction, and Species Turnover in Lakes. Workshop on Freshwater Biodiversity, International Union for Biological Science. Balatonfured, Hungary. Aug.
- Co-chaired with Randy Wynne: Lake Ice Phenology; Climate change and Variability. International Workshop as part of our NSF grant on Cross Site Comparisons, Synthesis and Internationalization. Trout Lake Station, Boulder Junction, Wisconsin. Oct.
- Invited Lecture: Potential Effects of Climate Change on Aquatic Ecosystems. Michigan Tech University. Houghton, Michigan. Oct. 25.

#### 1997

- Invited speaker: Planning Workshop on Riparian Research Program for the North Central District, U.S. Forest Service. St. Paul. Minnesota. Jan.
- Invited Symposium Speaker: 1. Will it Work? Ecological Feasibility of Salmon Recovery. in Columbia River Salmon Restoration: Can Science Help Resolve the Conflicts? 2. Uncertainty, Environmental Variability: The Science and Consequences to Fisheries in Managing Marine Fisheries in an Ecosystem Context. American Society for the Advancement of Science. Seattle, Washington. Feb.
- Panel Discussant: Salmon Rehabilitation in the Pacific Northwest. National Public Radio's "Talk of the Nation" on Live from the AAAS meeting in Seattle, Washington. Feb. 17.
- Invited speaker: 1. with Riera, and Kratz. A geomorphic template for heterogeneity among adjacent lakes and watersheds at the lake district scale. 2. Poster with Webster, Kratz, Dillon, Campbell, Fee, and Hecky. Local and regional factors affecting relationships between climate drivers and lake biogeochemistry. Gordon Conference on the Hydrobiogeochemistry of

Forested Watersheds. Colby-Sawyer College. New London, New Hampshire. Aug.

Contributed Talk: Isolation versus Extinction in the Assemblage of Fishes in Small Lakes. Annual Symposium of the Madison Ecology Group, University of Wisconsin-Madison. Madison, Wisconsin. Sep. 19.

Invited Speaker: Impact on Water Resources. In Global Climate Change: What Does It Mean for the Midwest and the Great Lakes. Regional Conference Sponsored by the US Environmental Protection Agency. Chicago, Illinois. Sep.

Invited Speaker: Lakes in the Landscape: Approaches to Regional Ecology. 50<sup>th</sup> Anniversary of Idaho Cooperative Research Unit. University of Idaho, Moscow, Idaho. Oct. 13.

Invited Speaker: Madison Town Meeting on Climate Change. Monona Terrace, Madison, Wisconsin. Nov.

1998

Invited Speaker: Northern Hemisphere Patterns in Lake Ice Phenology with Benson. Canada's Ecological Monitoring and Assessment Network's (EMAN) National Science Meeting. Charlevoix, Quebec. Jan.

Invited Speaker: Long-Term Regional Ecology and Natural Resource Management. State-wide Meeting of the Fish Habitat Bureau of the Wisconsin Department of Natural Resources. March 11.

Invited Faculty Speaker and Participant: 1. Endangered species - Can we Save Them, 2. Invisible Places in the Invisible Present - A Look at Long-term Ecological Research. Wisconsin Weekend Away, Jekyll Island, Georgia, March 27-29.

Invited Plenary Speaker: Potential Influences on Aquatic Systems: 1995 versus 2000 Assessments. Upper Great Lakes Regional Climate Change Impacts, US Global Change Research Program. Ann Arbor, Michigan. May 4-5.

Invited Symposium Speaker. Symposium on Perspectives on International Long-Term Ecological Research. INTECOL, VII International Congress of Ecology. Florence, Italy July 20-24, 1998. Magnuson, Wynne, and Benson. Northern Hemisphere Patterns in Lake Ice Phenology.

Invited Plenary Speaker with Kratz. Lakes in the Landscape: Approaches to Long-Term Regional Ecology. Society for International Limnology. Dublin, Ireland. Aug. 8-14.

Symposium Organizer and Speaker: 1. With Wynne - Ice Phenology of Lakes as a Climate Indicator (17 talks to be published in *Verh. Internat. Verein. Limnol.* from our research group on the Lake Ice Analysis Group). 2. With Wynne, Benson, and Robertson - Lake and river ice as a powerful indicator of past and present climates. Society for International Limnology. Dublin, Ireland. Aug. 8-14.

Invited Lead Speaker: Do Fishes Care about Climate Change? You Bet They Do. Symposium on Climate Change Impacts to Freshwater Fish Habitats at the Annual Meeting of the American Fisheries Society, Hartford, Connecticut. Aug. 23-27.

Invited Speaker: Long-Term Ecological Research. Northeast Association of Marine & Great Lakes Laboratories. Stony Brook, New York. Oct. 2.

Invited Speaker: Long-Term Regional Ecology of Lakes; Long-Term Data, Networks, Analyses, New Insights and Concepts. LTER & USGS Inventory and Monitoring Workshop. Estes Park, Colorado. Oct. 5-6.

Invited Speaker: What might happen to freshwater fish? Is Climate Changing Where the Wild Things Are? National Zoo, Washington D.C., Oct. 7-8.

Invited speaker: Perspectives on Integrated Science. Enhancing Integrated Science. USGS National Center. Reston, Virginia. Nov. 4-5.

Invited speaker: Inter Site Research. Meeting of the National Advisory Board of the Long-Term Ecological Research Network. Sevilleta LTER Site, Albuquerque, New Mexico. Dec. 10-11.

1999

Invited Keynote Address: Long-Term Ecological Research and the Student. First Annual Poster Symposium. Central Arizona- Phoenix Long-Term Ecological Research Program. Arizona State University, Phoenix, Arizona. Jan. 22.

Invited Speaker: Birge & Juday, and Hasler: Living with History. Symposium on the History of Limnology. Annual Meeting of the American Society of Limnology and Oceanography. Santa Fe, New Mexico. Feb 1-5.

Invited Seminar: Lakes in Time and Space. Honoring New York State University, Syracuse, New York. Mar. 23.

Convener with Tohru Nakashizuka and Introductory Speaker: 1. – The Long-Term Ecological Research Program in the USA and Opportunities for Intersite Research. 2. International Young Researcher's Workshop on Long-Term Ecological Research. Tomakomai Experimental Forest. Hokkaido, Japan and the Center for Ecological Research, Kyoto, Japan. Jun. 16-17.

Invited Symposium Speaker. Serendipity: Experience at the North Temperate Lakes LTER. Symposium on Planning for Serendipity, Annual Meeting of Ecological Society of America. Spokane, Washington. Aug. 11.

2000

Invited talk: Global Warming and Wisconsin Lakes. Wisconsin Alumni Association's Founders Day Lecture. Ashland, Wisconsin. Apr. 25.

Panelist: Lake Ice Analysis Group with Benson and Olson. The partnership between long-term ecological research and information management: Successes and challenges. LTER All Scientist Meeting. Snowbird, Utah. Aug. 1- 4.

2001

Invited speaker and participant: Workshop on French and United States Network-to-Network Collaboration in Long Term Integrated Environmental Research and Management. International LTER Network. Organized by Patrick S. Bourgeron and Hope Humphries. Hotel du Cheval Rouge. Versailles, France. Jan. 15-19.

- Presented Paper: Three Generations of Limnology at the University of Wisconsin-Madison. Society of International Limnology. Monash University, Melbourne, Australia. Feb. 4-10.
- Invited Seminar: The Study of Slow Things from Far Away; Long-term Regional Ecology. Departments of Botany and Zoology, University of Toronto. Toronto, Ontario. Mar. 25.
- Co-Chair and Speaker. 1. With Brent Lofgren. Evidence and Modeling of Climate Driven Global Change in the Great Lakes. 2. Potential Affects of Climate Warming on Lakes and Streams – IPCC 2000. Annual meeting of the International Association for Great Lakes Research. Green Bay, Wisconsin. Jun 10 –14.
- Keynote Speaker: The Charismatic Megafauna and the Lake in Your Backyard: Perceptions of issues in Aquatic Biodiversity. Envirovet Program. University of Minnesota-Duluth, Duluth, Minnesota. Jul. 21.
- Invited Symposium Speaker: Invasion of Inland Lakes of the Northern Midwest. Current Status of Knowledge on Invasive Species: Theory and Practice. Annual Meeting of the Ecological Society of America. Madison, Wisconsin. Aug. 9. (Also attended luncheon as a guest of Ann Forbes on Robert Croker's book "Stephen Forbes and the Rise of American Ecology.")
- Attended: Tribute to John Magnuson: in Honor of my Retirement. Organized by Jim Kitchell. Annual Meeting of the Ecological Society of America. Madison, Wisconsin. Aug. 9.
- Invited symposium speaker: 1. Signals from Ice Cover Trends and Variability. 2. A future of Adapting to Climate Change and Variability. In Fisheries in a Changing Climate, Annual Meeting of the American Fisheries Society. Phoenix, Arizona. Aug. 20-21. (Resulted in book edited by N. A. McGinn in 2002)
- Invited Seminar: Fish and Fisheries in a Changing Climate: a Future of Adapting to Climate Change and Variability. School of Natural Resources, University of Michigan. Ann Arbor, Michigan. Oct. 15.
- Invited paper: Exotics: Before and After They Arrive. Annual Meeting of the North American Lake Management Society. Madison, Wisconsin. Nov 7-9.

## 2002

- Invited Speaker: Signals from Ice Cover Trends and Variability. Sudbury Restoration Workshop. Laurentian University, Sudbury, Ontario. Feb. 20.
- Keynote speaker: Impact and Adaptation to Climate Change; Perspectives of a Limnologist. Midwest Ecology & Evolution Conference. Bowling Green State University, Bowling Green, Ohio. Mar. 22.
- Invited Talk: Tribute to Tom Frost - The Little Rock Lake Acidification Experiment. Annual Meeting of the American Society of Limnology and Oceanography. Victoria Conference Center, Victoria, British Columbia. Jun. 10-14.
- My Acceptance Comments: Lifetime Achievement Award, American Society of Limnology and Oceanography. Victoria, British Columbia. Jun. 10.
- Invited Talk: Lake Ice Cover around the World. Midvale Community Lutheran Church. Madison, Wisconsin, Oct. 27.

2003

- Keynote Speaker: Climate Change Effects on the Great Lakes Region. Symposium on Monitoring the Effects of Climate Change in Minnesota. Walter Library, University of Minnesota, Minneapolis. May 22.
- Invited Talk: Effects of Global Warming on the Great Lakes Region. Executive Council of the Minnesota AFGL-DIO. Thunderbird Hotel, Bloomington, Minnesota. May 29.
- Invited Speaker: Confronting Climate Change in the Great Lakes Region. Annual Meeting of the Society for Conservation Biology. Duluth, Minnesota. Jun 8.
- Invited Speaker: Confronting Climate Change in the Great Lakes Region. Union of Concerned Scientists meeting. Arts Club of Chicago, Chicago, Illinois. Jun. 10.
- Invited Speaker: Confronting Climate Change in the Great Lakes Region. Union of Concerned Scientists. Chicago, Illinois. Jun. 10.
- Public Lecture: About Zebra Mussels. Memorial Union, University of Wisconsin-Madison, Madison Wisconsin. Jun. 17.
- Invited Speaker: Confronting Climate Change in the Great Lakes Region. Union of Concerned Scientists. Chicago, Illinois. Jun. 19.
- Hearing: Lakes and Watershed Commission: Zebra Mussels. City County Building, Madison, Wisconsin. Jun. 24.
- Invited Seminar: A Sustainable Future in a Changing Climate. University of Alberta, Edmonton, Alberta. Aug. 11.
- Presented Paper: Patterns of Coherence of Inter-Annual Dynamics Between Lakes from Lake District to Intercontinental Scales. Lammi Biological Station, University of Helsinki, Lammi, Finland Sep. 24.
- Keynote Lecture: The Long-Term Landscape Ecology of Lakes with Benson and Kratz. Symposium on Changing Climate and Northern Aquatic Ecosystems, Lammi Biological Station, University of Helsinki, Lammi, Finland. Sep. 25-27.
- Class Lecture: Sustaining Water Futures in a Changing Climate: A Wisconsin View. Environmental Toxicology 606. University of Wisconsin-Madison. Madison, Wisconsin. Oct. 14.
- Invited Seminar: Sustaining Water Futures in a Changing Climate: A Wisconsin View. College of Natural Resources Colloquium Series, University of Wisconsin-Stevens Point. Stevens Point, Wisconsin. Oct. 29.
- Invited Talk: Sustaining Water Futures in a Changing Climate: A Wisconsin View. Wisconsin Land and Water Conservation Association. Madison Wisconsin. Dec. 4.
- Invited Talk: A Sustainable Water Futures in a Changing Climate: a View from Wisconsin. St. Cloud, Minnesota. Dec. 11.
- Invited Conference Speaker: Confronting Climate Change in Wisconsin. Clean Energy for Cleaner Air and a Brighter Future Conference. Madison, Wisconsin. Dec. 17

## 2004

- Invited talk: Ice on Lake Mendota: Beautiful to Our Eyes, A Signal of Change, Used by Us All, A Threatened Future. Wisconsin Interfaith Climate and Energy Campaign. State Wide Conference. Oshkosh, Wisconsin. Feb. 8.
- Invited Talk: Climate Change. East Side Business Club. Madison, Wisconsin. Mar.
- Invited Talk. First Thought: We All Enjoy and Love the Waters in Our Own Ways. Waunona Garden Club. Monona, Wisconsin. Mar. 22.
- Public Talk: Our Changing Climate and the Future: Wisconsin's Weather, Winters, and Waters. Baraboo Range Preservation Association. Baraboo, Wisconsin. Mar. 31.
- Invited Talk: Lake Mendota: Miner's Canary for Climate Change. Lake Mendota Yacht Club, Madison, Wisconsin. Apr. 29.
- Invited Talk: Our Changing Climate and the Future: Wisconsin's Weather, Winters, and Waters. Dodgeville Kiwanis. Dodgeville, Wisconsin. May 17.
- Contributed Paper: Coherence of Ice-on-and-Ice-off Dates among Inland Lakes of the Laurentian Great Lakes Region. with Benson, Clark, Futter, Soranno, Stewart. & Card. In Global-Scale Impacts of Climate Change and Global Warming on Lakes, International Society of Limnology. Lahti, Finland, Aug. 8-14.
- Plenary: Aldo Leopold's Thinking Like a Mountain. Annual Meeting of the American Fisheries Society, Madison, Wisconsin. Aug. 23.
- Short talk: Spatial Persistence and Decay of Coherence in Lake-Ice Phenologies. Science in the Northwoods. Center for Limnology. Camp Manitowish, Manitowish Waters, Wisconsin. Sep. 16.
- Debate: Climate Change with Ed Hopkins. Wisconsin/Minnesota Federation of Cooperative Conference. Eau Claire, Wisconsin. Nov. 16.
- Invited Talk: Changing Climate and the Future of Wisconsin Waters: Lakes, Streams, and Groundwater. Winchester Academy. Waupaca, Wisconsin. Nov. 22.
- Invited Seminar: Climate change. Dauphin Island Sea Lab & University of South Alabama, Dauphin Island, Alabama. Dec. 10.

## 2005

- Invited talk: Climate is Changing in Wisconsin: Evidence, Impacts, Attribution of Cause, and Future Scenarios. Winter Enrichment. University of Wisconsin Arboretum. Madison, Wisconsin. Jan. 27.
- Invited seminar: Temporal and Spatial Patterns; Lake Ice Cover Phenology. Center for Sustainability and the Global Environment. University of Wisconsin-Madison. Madison Wisconsin. Mar. 16.
- Invited Talk: Good News, Bad News, Challenges: Madison Lakes Are Changing. Attic Angels, Madison, Wisconsin. Apr. 4.
- Invited Talk: What can we learn from lake ice? On the Road with the Wisconsin Alumni Association, Great Lakes Visitors Center. Ashland, Wisconsin. May 26.
- Invited Lecture: What Everybody Needs to Know about Lakes. Extension's

College Days, University of Wisconsin-Madison. Madison, Wisconsin. Jun. 2.  
 Plenary Talk: Changing Strategies in a Changing Climate. Minnesota Water  
 2005-Annual Water Resources Conference. Water Resources Center,  
 University of Minnesota, St. Paul. St. Paul, Minnesota. Oct. 25.  
 Presentation: The U.S. Long Term Ecological Research Network. Japan U.S  
 Conference. Yokohama, Japan. Oct. 31-Nov. 2.  
 Seminar: Temporal and Spatial Patterns: Lake Ice Cover Phenology. Lake Suwa  
 Limnological Laboratory. Suwa, Japan. Nov. 4.  
 Invited Talk: New Perspectives Are Necessary for Lake Protection and  
 Management. Annual Meeting of the North American Lake Management  
 Society. Madison Wisconsin. Nov. 9.

2006

Briefing: Biology Division, National Science Foundation (Jim Collins, Penny Firth)  
 on the U.S. Long Term Ecological Research Network. National Science  
 Foundation. Arlington, Virginia. Jan 18  
 Invited Talk. History of the U.S. Long Term Ecological Research Network. LTER  
 Network Office Staff. University of New Mexico, Albuquerque, New Mexico.  
 Feb. 17.  
 Invited Talk: Changing Climate and Waters of Wisconsin. Annual Meeting of The  
 Wisconsin Association of Land Conservation Employees. Madison,  
 Wisconsin. Mar. 3.  
 Class Lecture: Challenges of Unveiling the Invisible Present and Place. Remote  
 Network Lecture, Bob Waide's Ecology Class, University of New Mexico.  
 Albuquerque, New Mexico. Apr. 12.  
 Departmental Seminar: Challenges of Unveiling the Invisible Present and Place.  
 Department of Biology. University of Maine. Orono, Maine. Apr. 14.  
 College Lecture: Climate is Changing in the Upper Midwest: Challenges for  
 Water Ecosystems and Resources. Concordia College. Moorhead,  
 Minnesota. Apr. 18.  
 Departmental Seminar: Everything is Connected to Everything Else. Or is it?  
 Coherent Dynamics of Lake Ecosystems. Department of Biological Sciences.  
 North Dakota State University. Fargo, North Dakota. Apr. 19.  
 Earth Day Teachin: Changing Climate and Waters of Wisconsin. Institute of  
 Environmental Sciences, University of Wisconsin-Madison. Madison,  
 Wisconsin. Apr. 22.  
 Invited Talk: Ice: Beautiful to Our Eyes, A Signal of Change, Used by Us All, A  
 Threatened Future. Paradise Lost Opening at Camp Jorn, Manitowish  
 Waters, Wisconsin. May 3.  
 Presentation: An Evolving LTER Network: Requires Changes to Governance.  
 LTER Network Coordinating Committee. Cedar Creek, Minnesota. May. 17  
 Briefing: A New Zealand Fisheries Experience for US Fishers: NZ's Experiment  
 with a Quota Management System 1986 to Present. Sand County Board.  
 Madison, Wisconsin. Jul. 14.  
 Introductory and Legacy Comments: Origin, Development, and Future of the  
 LTER Network. Symposium on our history. LTER All Scientist Meeting. Estes

Park, Colorado. Sep. 19-23.

Invited Presentation: Origin and Development of the Thermal Niche Concept for Fishes. Lake Trout Climate Change Workshop, Fisheries and Oceans Canada. Winnipeg, Manitoba. Oct. 31.

Invited Talk: Climate Change from Lake Mendota to the Poles: Ice - a Miner's Canary to an Overwhelming Force. Plato Senior Learning Center. Madison, Wisconsin. Nov. 8.

Invited Talk. Climate Change from Lake Mendota to the Poles: Ice - a Miner's Canary to an Overwhelming Force. Madison SCUBA Club meeting. Madison, Wisconsin. Nov. 8.

Invited Talk: Climate Change from Wisconsin to the Poles; Ice - a Miner's Canary to an Overwhelming Force. Portage County Library. Stevens Point Audubon Society, Stevens Point, Wisconsin. Nov. 15.

Invited Talk: Changing Climate and Waters of Wisconsin. Wisconsin Council for Environmental Education's 15th Annual High School Conference. University of Wisconsin-Stevens Point. Stevens Point, Wisconsin. Nov 15.

Briefing: Confronting Climate Change in the Great Lakes Region: Impacts and Solutions for Great Lakes Communities and Ecosystems. National Caucus of State Legislators, Washington, D C. Dec. 8.

2007

Speaker and Participant. 1. Extrinsic Drivers of Fisheries. 2. Ecosystem Effects of Fisheries on Food Webs (NRC Report). University of Stockholm. Stockholm, Sweden. Jan 9-11.

Seminar Speaker: Changing Climate and Waters of Wisconsin. Wisconsin Department of Natural Resources, GEF 3. Madison, Wisconsin. Jan. 18.

Invited talk: Wisconsin's Changing Climate. Doctors for Social Responsibility. Madison, Wisconsin. Jan 24.

Invited Talk: Understanding the Challenges of Global Climate Change and Fisheries. Minnesota Department of Natural Resources Fishery Management Training Meeting. Brainerd, Minnesota. Feb. 13.

Seminar Speaker: Freshwater Ecosystems and Climate Change: Impacts on Lake Ice, Fishes, and Hydrology. Spring Seminar Series on Climate Change in Ecology. Penn State University. University Park, Pennsylvania. Feb. 5.

Invited Lecture: Changing Climate and Waters of Wisconsin. Shakhshiri's 104 Chemistry Enrichment Course. Chemistry Department, University of Wisconsin. Madison, Wisconsin. Feb 23.

Invited Talk: New Perspectives Are Necessary for Lake Protection and Management. South East District. Wisconsin Department of Natural Resources. Fitchburg, Wisconsin. Mar. 21.

Invited Lecture: Science and History: the Importance of Temperature for Fishes and their Ecology. Workshop on Fish Populations and Production in the Great Lakes. Ann Arbor, Michigan. Mar. 14.

Briefing of Congresswoman Baldwin: Three Water Examples: Lake Ice Cover, Fish Habitat, Water Levels and Flows. Environmental, Energy and Climate

- Change Challenges. University of Wisconsin-Madison. Madison, Wisconsin. Apr. 10.
- Invited Talk: A Water View of Climate Change in the Upper Midwest. Staff of the Wisconsin Nature Conservancy. University Arboretum, Madison, Wisconsin. Apr. 16.
- Class Lecture: Wisconsin's Changing Climate. Environmental Science Class. Sun Prairie High School. Sun Prairie, Wisconsin. Apr. 17.
- Invited Seminar: A Water View of Climate Change in the Upper Midwest. Mississippi?????
- Invited Talk: Changing Climate and Waters of Wisconsin. Green College Workshop. Madison, Wisconsin. Apr. 25.
- Keynote Plenary: Changing Strategies in a Changing Climate. Annual Wisconsin Lakes Convention. Green Bay, Wisconsin. Apr. 27.
- Lecture: Climate Change and Waters of Wisconsin. Lecture in College Days Workshop. University of Wisconsin-Madison, Madison, Wisconsin. Jun. 6.
- Public Lecture: The Disappearing Ice Cover on Wisconsin Lakes. Ashland Opening of Paradise Lost. Ashland, Wisconsin. May 5.
- Invited talk: Changing Climate and Waters of Wisconsin: Keep Greater Milwaukee Beautiful. Workshop on How Business, Industry & Government Can Make a Difference. Milwaukee, Wisconsin. May 17.
- Invited Talk: Changing Climate and Waters of Wisconsin. Optimist Club, Madison. Wisconsin. May 30.
- Public Lecture. Climate Change and Waters of Wisconsin. Sea Grant Lecture Series, Milwaukee, Wisconsin. Jun.
- Public Lecture. Climate Change and Waters of Wisconsin. Sea Grant Lecture Series, Superior, Wisconsin. Jun. 7.
- Public Lecture: Climate Change and Waters of Wisconsin. One of three Public Lectures Organized by the Trout Lake Station. Minocqua, Wisconsin. Jul. 11.
- Invited Talk: Climate Change and Waters of Wisconsin. Great Dane. Madison, Wisconsin. Sep. 11.
- Public Lecture: Paradise Lost opening at Manitowish Waters Discovery Center: Manitowish, Wisconsin. Aug. 17.
- Public Lecture: Lake Ice: Climate Change Evidence from the Madison Lakes. Science on Tap Invited Talk: Climate Change and the Great Lakes: Overview of Implications for the Great Lakes Region. Great Lakes Sea Grant Network Climate Change Session. Chicago, Illinois. Sep. 19.
- Invited Talk. Changing Climate and Waters of Wisconsin. Platteville Kiwanis. Platteville, Wisconsin. Sep 22.
- Invited Seminar and Ph.D. External Examiner: 1. Lake Ice, Climate Change, and the Loss of Winter. 2. PhD exam - Sapna Sharma, The effects of climate change on the northward range expansion of the smallmouth bass (*Micropterus dolomieu*) and the consequential impacts on native fish populations. University of Toronto, Advisor Donald Jackson. Department of Zoology, University of Toronto, Toronto, Ontario. Oct. 9.
- Invited Talk: Evidence for Global Climate Change in Wisconsin. Milwaukee School of Engineering. Milwaukee, Wisconsin. Oct 17.

- Public Lecture. What Do Fishes Think about Climate Change? Nevelle Museum. Green Bay, Wisconsin. Oct 18.
- Invited Talk. Climate Change and Waters of Wisconsin. Wisconsin Wastewater Operators Association. LaCrosse, Wisconsin. Oct. 26.
- Invited Talk: Trends and Variability for Ice Cover on Inland Lakes. Lake Superior Conference. Duluth, Minnesota. Oct 29.
- Invited Lecture: Climate Change and Waters of Wisconsin. Edgewood High School, Madison Wisconsin. Nov. 8.
- Invited Talk: Lake Ice: A Miners Canary for Climate Change. Bethel Lutheran Church Interest Group. Madison, Wisconsin. Nov. 20.
- Plenary Talk: Climate Change and Waters of Wisconsin. Midwest Fish and Wildlife Conference. Monona Center. Madison, Wisconsin. Dec. 10.

## 2008

- Invited Lecture: Learning the Merits of Thinking and Observing Long-Term and Broadly across Space. Teacher Training. Center for Biology Education, University of Wisconsin-Madison. Madison, Wisconsin. Jan 5.
- Invited Talk: Climate Change: Freshwater Fishes and Lake Ice Dynamics. Symposium at Swiss Federal Institute of Aquatic Science and Technology (EAWAG). Dübendorf, Switzerland. Jan 14.
- Departmental Seminar: Dynamics of Lake-Ice Cover in North America, Europe, and around the Northern Hemisphere. University of Barcelona. Barcelona, Spain. Jan. 22.
- Invited Talks with Robert Waide: 1. Perspectives on Values of Long-Term Ecological Research for Environmental Management and Policy. 2. Long-Term Ecological Research: A New and Evolving Way to do Ecological Research. Portugal Meeting Exploring a Program and Sites for Long-Term Ecological Research. Luso-American Development Foundation. Lisbon, Portugal. Jan. 24-25.
- Invited Talk: The Science and Policy Behind Climate Change, IPCC. Board of Trustees, The Nature Conservancy of Wisconsin. Madison, Wisconsin. Jan 31.
- Invited Keynote: Climate Change and Wetlands of Wisconsin. Climate Change and Wetlands. Wisconsin Wetland Association Annual Meeting. Oconomowoc, Wisconsin. Feb. 1.
- Invited Talk: Climate Change in Wisconsin: A Need to Adapt. A. F. Coterie, A Madison Campus Social Club. Madison, Wisconsin. Feb. 12.
- Invited talk: Climate Change and Waters of Wisconsin: A Local and a Global View. University of Wisconsin Roundtable. Madison Wisconsin. Mar. 13.
- Invited Keynote: Climate Change & Waters of Wisconsin: Lake Ice, Fishes & Water. Water Wise Meeting. Carrol University. Waukesha, Wisconsin. Mar. 15.
- Invited Public Lecture: Climate Change in Wisconsin: Local to Global to Local. Holtz Center for Science and Technology. University of Wisconsin-Madison. Madison, Wisconsin. Apr 28.

- Invited Lecture: Climate Change & Waters of Wisconsin - Lake Ice, Fishes & Water. University of Wisconsin-Fox Valley. Menasha, Wisconsin. Apr. 21.
- Keynote: Identifying and Adapting to Climate Change Impacts in Wisconsin. Earth Day Session, University of Wisconsin-Milwaukee. Milwaukee, Wisconsin. Apr. 25.
- Luncheon Address: Lake Ice and Why It is Important in a Warming World. Annual Conference on Enhancing the States' Lake Management Programs. US Environmental Protection Agency. Chicago, Illinois. May 1.
- Departmental Seminar: Climate Change Local to Global and Back Again. Department of Physics, University of Wisconsin-Madison. Madison, Wisconsin. May 9.
- Invited Talk: Climate Change and Waters of Wisconsin Local to Global to Local. Gateway Badgers Alumnae. St. Louis, Missouri. May 20.
- Plenary Speaker and second talk: 1. Impacts of Climate Change on Lakes and Streams. 2. Lakes in the Landscape. North West Wisconsin Association of Lakes. Cable, Wisconsin. Jun.
- Invited Keynote: Impacts of Climate Change on Lakes and Streams. Wild Rose Hatchery Opening of Paradise Lost. Jul. 8.
- Invited Symposium Talk: What has the IPCC said about Fish and Fisheries? Annual Meeting of the American Fisheries Society, Ottawa, Ontario. Aug.
- Keynote Talk: Climate Change and Waters of Wisconsin. Wisconsin Annual Conference. Association of Resource Conservation and Development Council. Oconomowoc, Wisconsin. Sep. 11.
- Invited Speaker: Climate Change and Waters of Wisconsin. Lego League at Madison West High School. Madison, Wisconsin. Oct. 6.
- Invited Speaker: Global Warming and Climate Change in Wisconsin. Wisconsin Muir Chapter of Sierra Club. Wisconsin Dells, Wisconsin. Oct. 11.
- Do We Have to Manage Exotics "One Lake at a Time"? Michigan Chapter of the North American Lake Management Society, East Lansing, Michigan. Oct 31.
- Keynote: Climate Change and Waters of Wisconsin. Annual Conference of the Wisconsin Library Association. Madison, Wisconsin. Nov. 5.
- Invited Talk: Climate Change in Wisconsin. Friends of the Nature Conservancy in Milwaukee. Milwaukee, Wisconsin. Nov. 7.
- Invited Talk. Climate Change and Impacts in Wisconsin. Green Charter Schools Conference. Madison, Wisconsin. Nov. 8.
- Invited Seminar: What Did the IPCC Say about Impacts and Adaptation? Chaos Seminar. Physics Department. University of Wisconsin-Madison, Madison, Wisconsin. Dec. 2.
- Invited Talk: Climate Impacts and Adaptation in Wisconsin, Climate Change Summit, Stevens Point, Wisconsin. Dec. 12.

## 2009

- Invited Talk: Interpreting Climate Change Data: The example of Lake Ice. Paradise Lost, University of Wisconsin-Baraboo/Sauk County, Baraboo, Wisconsin. Jan. 22.

- Invited Talk: Climate Change and Waters of Wisconsin. Southern Wisconsin Educational Inservice Organization. Madison, Wisconsin. Feb. 27.
- Keynote: Effects of Climate Change on Wisconsin Lakes. Annual Meeting of the Wisconsin Section of the American Water Resources Association. Stevens Point, Wisconsin. Mar. 5.
- Invited Speaker. Wisconsin Initiative on Climate Change Impacts. Wisconsin Renewable Energy Summit. Milwaukee Area Technical College. Mar. 25,
- Invited talk: Challenges of Climate Change. Energy Summit, Milwaukee, Wisconsin. Mar. 25.
- Luncheon Speaker: Climate Change and Waters of Wisconsin. Spring Conference on Sustainable Infrastructure. Wisconsin Chapters of the American Planning Association and the American Society of Landscape Architects. Sheboygan, Wisconsin. Mar. 26.
- Invited Participant and Speaker: Overview on Disappearance of Lake and River Ice. LTER Workshop on Ecosystem Response to Diminished Snow and Ice in a Warming Climate. Ecosystem Center, Marine Biological Laboratory, Woods Hole, Massachusetts. Mar. 31.
- Invited Speaker. Response of Wisconsin Lakes to Climate Change. Wisconsin Initiative on Climate Change Impacts Seminar, Madison, Wisconsin. Apr. 9.
- Invited Speaker: Climate Change and Waters of Wisconsin. University of Wisconsin-Baraboo/Sauk County. Baraboo, Wisconsin. Apr. 9.
- Invited Speaker: Climate Change: a Pervasive Influence on Wisconsin. Annual State Employee Professional Development Day. Madison, Wisconsin. Apr. 24.
- Invited Seminar Speaker: Climate Change and its Impact on Fisheries. American Fisheries Society Seminar Series. Rayburn House Office Building, Washington D.C. Apr. 27.
- Invited Class lecture: Global Warming and Its Implications for Wisconsin & Great Lakes Waters. Advanced Science Class, Sun Prairie High School, Sun Prairie, Wisconsin. Apr. 29.
- Field Trip: Limnos Cruise along the Lakeshore Nature Preserve for the Friends of the Lakeshore Nature Preserve. Lake Mendota, Madison, Wisconsin. May 6.
- Invited Speaker: Potential Influence of Climate Change on Inland Waters, Fish and Fisheries Ecology. Minnesota Waters, Lakes and Rivers Conference. Rochester, Minnesota. May 7.
- Invited Speaker: Bracing for the Impacts of Climate Change in Wisconsin - Adaptation. Wisconsin Alumni Foundation's Founder's Day in Sheboygan, Wisconsin. May 20.
- Keynote Speaker: Influence of Climate Change on Midwestern Rivers and Lakes. Aitkin County, Minnesota, Rivers and Lake Fair, Aitkin, Minnesota. Jun. 20.
- Keynote Speaker: Ways of Knowing about Lakes. Aitkin County Minnesota Rivers and Lake Fair, Aitkin, Minnesota. Jun. 20.
- Invited Speaker with John Kutzback: Adapting to our Changing Climate - Exploring Opportunities for Collaboration. Board of the Aldo Leopold Foundation, Leopold Memorial Reserve. Baraboo, Wisconsin. May 23.

- Keynote Speaker: Climate Change, Variability, and Extremes, and their Consequences for Large Lakes. European Large Lake Symposium. Campus Roslagen, Norrtälje, Sweden. Aug. 11.
- Invited Speaker: Climate Change Impacts and Adaptation in Wisconsin. Midwest Environmental Advocates, Madison, Wisconsin. Oct. 9.
- Invited Discussant: Taking some temperatures: What will climate change mean for the Great Lakes? Annual Conference of the Society of Environmental Journalists. Madison, Wisconsin. Oct. 10.
- Invited Speaker: Climate Change and Trout in Wisconsin Streams. Dodgeville Chapter of Trout Unlimited, Dodgeville, Wisconsin. Oct. 25.
- Invited Speaker: Climate Change and Impacts in Wisconsin. Staff of Boardman Law Firm, Madison, Wisconsin. Oct. 25.
- Keynote Lecture. Climate Change: Local to Global and Back Again. Annual Meeting Wisconsin Association of Public Libraries. Nov. 5.
- Invited Talk: Global Warming and its Implications for Wisconsin & Great Lakes Waters. Water Matters, Chazen Museum of Art. Madison, Wisconsin. Nov. 18.
- Invited Talk: Wisconsin Initiative on Climate Change Impacts (WICCI). 4<sup>th</sup> Tuesday Club. University of Wisconsin. Madison, Wisconsin. Nov. 24.

## 2010

- Invited Speaker: Is Climate Change for Real? Science Olympiad for High School Students. University of Wisconsin-Madison, Madison, Wisconsin. Apr. 9.
- Invited Speaker: Climate Change and Variability: Lake ice, Fishes, and Water Levels. An Edge of the Lake Seminar. Green Bay Metropolitan Sewage District. Green Bay, Wisconsin. Apr. 13.
- Invited Class Lecture: Climate Change in Wisconsin: Lake Ice, Variability, Fishes, and Adaptation to Change. Advanced Environmental Science Class. Sun Prairie High School, Sun Prairie, Wisconsin. Apr. 26.
- Invited Speaker. Potential Influence of Climate change on Inland Waters, & Fish and Fisheries Ecology. Minnesota Waters Lakes and Rivers Conference, Rochester, Minnesota. May 7.
- Tribute Lead Speaker. Henry Regier Tribute Session arranged by M. Munawar. Magnuson, J. J., B. J. Shuter, & C. K. Minns. Henry Regier - His Science and His Influence on Colleagues. Annual Conference of International Association of Great Lakes Research. Toronto, Ontario. May 18.
- Jack Jones Memorial Lecture: History and Heroes: Thermal Niche of Fishes & Long-Term Lake Ice Dynamics. Annual Symposium of the Fisheries Society of the British Isles. Fish and Climate Change. Queen's University, Belfast, United Kingdom. July. 28.
- Invited Class Lectures: Keeping New Exotics from Entering our Local Lakes- Solutions Require a Longer Term and Broader View - Deb Wetzel Class. Climate Change in Wisconsin; Lake Ice, Variability, Fishes, and Adaptation to Change - Jeff Erickson Class. Middleton High School. Middleton, Wisconsin. Sep. 28.
- Short Talk: with Benson, and Jensen. Extreme Events, Trends, and Variability in

Northern Hemisphere Lake Ice Phenology over the Last 100 and 150 Years. Science in the North Woods sponsored by the Center for Limnology. Camp Manitowish Waters. Boulder Junction, Wisconsin. Oct. 1.

Field Trip: Limnos Cruise along the Lakeshore Nature Preserve for the Friends of the Lakeshore Nature Preserve. Lake Mendota, Madison, Wisconsin. Oct. 13.

Invited Talk: Keeping New Exotic/Invasive Species from Entering our Local Lakes. Four Lakes Scuba Club. Madison, Wisconsin. Nov. 10.

Departmental Seminar: Climate Trends and Variability: What Have and Can We Learn from Lake Ice Records. Department of Atmospheric and Ocean Sciences, University of Wisconsin-Madison, Madison, Wisconsin. Nov. 22.

## 2011

Keynote Speaker: History and Heroes: The Thermal Niche of Fishes and Long-term Lake Ice Dynamics. Lake Erie - Inland Waters Annual Research Review. Aquatic Ecology Laboratory and the Ohio Division of Wildlife. Ohio State University, Columbus, Ohio. Jan 19-20.

Keynote Speaker: Reminiscences about the American Fisheries Society and the Wisconsin Chapter before 1983. Annual Meeting of the Wisconsin Chapter of the American Fisheries Society. Stevens Point, Wisconsin. Feb 1.

Invited Interview with Richard Lathrop: Wisconsin Initiative of Climate Impacts and Adaptation. The Larry Meiler Show. Wisconsin Public Radio. Madison, Wisconsin. Feb 9.

Invited Talk: Wisconsin's Changing Climate: Impacts and Adaptation. Cabin Fever Lectures. Baraboo, Wisconsin. Mar 3.

Plenary Talk and Discussion Moderator: Changing Climate: Impacts and Adaptation. Wisconsin Initiative on Climate Change Impacts (WICCI). Green Energy Summit, Frontier Airlines Center, Milwaukee, Wisconsin. Mar 11.

Invited Speaker: Adaptation Strategies for Wisconsin's Changing Climate. Wisconsin Science Professional Union Professional Development Day. University of Wisconsin-Madison, Madison, Wisconsin. Apr. 29.

Presented paper: Extreme Events, Trends, and Variability in Northern Hemisphere Lake Ice Phenology. Climate Variability in Large Lakes Mediated by Continental-to-Global Scale Forcing. Annual Conference on Great Lakes Research. Duluth, Minnesota. Jun. 1.

Invited Talk: What does lake ice reveal about climate change and variability? Annual Meeting of the Federation of Vermont Lakes and Ponds. Berlin, Vermont. Jul. 25.

Invited Public Talk: Wisconsin's Changing Climate: Impacts and Adaptation, Wisconsin Initiative on Climate Change Impacts. Fairbanks Museum, St. Johnsbury, Vermont. Jul. 26.

Field Trip: Limnos Cruise along the Lakeshore Nature Preserve for the Friends of the Lakeshore Nature Preserve. Lake Mendota, Madison, Wisconsin. Oct. 12.

## 2012

- Keynote Speaker for 2012: Climatic change and variability; the progression from global to regional and local climatic change. Frontiers in Life Sciences Symposium. Biology Department and College of Arts and Sciences. Loyola University, Chicago, Illinois. Apr. 12.
- Invited Talk: Climate Change and Variability: implications for Fish and Fisheries. Ames Angler Group. Iowa State University, Ames, Iowa. Feb. 24.
- Invited Seminar: The Wisconsin Initiative on Climate Change Impacts. Department of Natural Resource Ecology and Management, Iowa State University. Ames, Iowa. Feb. 24.
- Speaker: Extreme Events, Trends, and Variability in Northern Hemisphere Lake Ice Phenology over the Last 100 and 150 Years. CCR/SAG Mini Symposium. Madison, Wisconsin. Mar. 20.
- Invited Talk: Wisconsin's Changing Climate; Impacts and Adaptation. Eau Claire Serra Club. Eau Claire, Wisconsin. May 2.
- Invited Talk: Wisconsin's Changing Climate-Impacts and Adaptation. State Professional Development Day. Madison, Wisconsin. Apr. 27.
- Invited Class Lecture: Wisconsin's Changing Climate; Impacts and Adaptation. Advanced Environmental Science Class, Sun Prairie High School. Sun Prairie, Wisconsin. May 23.
- Field Trip: Limnos Cruise along the Lakeshore Nature Preserve for the Friends of the Lakeshore Nature Preserve. Lake Mendota, Madison, Wisconsin. Jun 6.
- Invited Talk: The Impact of Climate Change (and a few surprises) on the Great Lakes. National Science Foundation workshop for Environmental Journalists and Climate Scientists. Translating Science/Telling Stories: What We Talk About When We Talk About Climate Change. Great Lakes Science Center. Cleveland, Ohio. Jun. 9.
- Invited Talk. Arthur Davis Hasler - Breaking New Waters: Applications and Fish Biology from a Limnologist. In Symposium: Sensing the Environment - Molecules to Populations. International Conference on Fish Biology, Madison, Wisconsin. Jul. 17.
- Invited Talk and Field Trip: Biodiversity of Lake Wingra. Course for Master Naturalist at the University of Wisconsin Arboretum and on Lake Wingra, Madison, Wisconsin. Aug. 4.
- Field Trip: Fishes of Lake Mendota's Picnic Point. Friends of the Lakeshore Nature Preserve with a lot of help from students and post docs. Madison, Wisconsin. Sep. 18.

## 2013

- Speaker: Climate Change. Science on Tap - A series for informal public information arranged by the Center for Limnology. [Minocqua Brewing Company](#), Minoqua, Wisconsin. Mar. 8.
- Briefing: Dane County's Changing Climate and Impacts. Lakes and Watershed Commission. Madison, Wisconsin. Mar. 14.
- Invited Talk: Waters of Wisconsin in a Changing Climate. Waters of Wisconsin 2. A Public Forum. Taking Stock and Looking Forward. Madison, Wisconsin. Apr. 9.

Class Lecture: Wisconsin's Changing Climate; Impacts and Adaptation. Scott Kloehn's Advanced Placement Environmental Science Class. Sun Prairie High School, Sun Prairie, Wisconsin. May 29.

Invited Talks: 1. Climate Trends and Variability. What Have and Can We and Your Students Learn from Lake Ice Records? 2. Do Fishes Care about Climate Change? 3. Wisconsin's Changing Climate: Impacts and Adaptation. Teacher Institute - Changing Climate, Changing Culture. Apostle Islands National Lakeshore. Ashland, Wisconsin. Jul. 15-18.

2014

Public Lecture: Effects of Climate Change on Dane County Lakes - Ice Cover, Fishes, Water Quality. Clean Lakes Alliance. Morning Conversations. Madison Wisconsin. Jan 9.

Briefing Administrators at Wisconsin Department of Natural Resources: Effects of Climate Change Observed Trends & Variability - Lake Ice Cover, Impacts, Use & User Safety, Fish & Fisheries, and Water Quality. Wisconsin Department of Natural Resources, Madison, Wisconsin. Mar. 9.

Keynote: Our Waters: Looking ahead through the Eyes of Wisconsin's Changing Climate. Association for Graduate Students in Biological Sciences, York University, Toronto, Ontario. Mar. 20.

Class Lecture: Do Fishes Care about Climate Change? Sharma Class. Department of Biology, York University, Toronto, Ontario. Mar. 20.

Briefing University's Preserve Committee and Friends Board: Class of 1918 Marsh in Winter 2012-2013 - Ice and Snow, Habitat for Fishes, and Road Salt. University of Wisconsin-Madison. Apr. 1 and 8.