Summer/Fall 2006

ASC
Aquatic Sciences Chronicle
www.aqua.wisc.edu/chronicle
UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE UNIVERSITY OF WISCONSIN WATER RESOURCES INSTITUTE

INSIDE:

UW SEA GRANT RESEARCH

Long Distance Assistance.

Jeff Miller

TIES TO NEW ORLEANS HELP PROFESSOR CHART NEW UW COURSE

David Hart, right, discusses map data with Wintford Thornton, a graduate student in land resources and a student in Hart's course "Rethinking New Orleans after Hurricane Katrina."

Like many others, David Hart watched the destruction caused by hurricane Katrina and wondered how he could help.

Hart is a coastal outreach specialist in geographic information systems (GIS) at UW Sea Grant, but he's never lost touch with his bayou roots. His grandmother grew up in New Orleans, and he lived there for 10 years.

"The first thing you do is write a check to the Red Cross," he says. "So I did that, and then you kind of sit back and wait. I knew I couldn't just hop in a car and go down there because you're just going to be a problem, not an answer for anything."

But Hart had valuable experience to offer. Before moving to Madison to earn his Ph.D., he worked as a city planner in New Orleans, managing its GIS (geographic information system) program.

GIS uses computer software to link maps and databases. Information in the databases can be presented as layers on the map that can be turned on and off. Linking geographic information with data about property taxes, crime statistics, power outages, and health hazards make GIS a powerful tool for analyzing urban and environmental problems.

In fact, GIS proved to be a critical tool in the days immediately following Hurricane Katrina. With many street signs underwater or washed away, rescue teams had difficulty finding locations of people in trouble until they gained access to GIS databases that linked street addresses to specific latitude and longitude coordinates. GIS maps were used by the local, state and federal governments, as well as the media, to understand the extent of damage and loss of life.

But Hart, who has close friends and relatives living in the area, was still 1,000 miles away wondering what he could do. When he was offered the chance to teach a UW-Madison course in urban planning last semester, he decided to design one that used the tools provided by GIS to explore ideas and recommendations of how to rebuild New Orleans

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Aquatic Sciences Chronicle

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The Aquatic Sciences Center is the administrative home of the **University of Wisconsin Sea Grant Institute** & **University of Wisconsin Water Resources Institute.**

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University of Wisconsin Water Resources Institute is one of 54 Water Resources Research Institutes nationwide authorized by the federal Water Resources Research Act and administered through the U.S. Geological Survey. *www.wri.wisc.edu*

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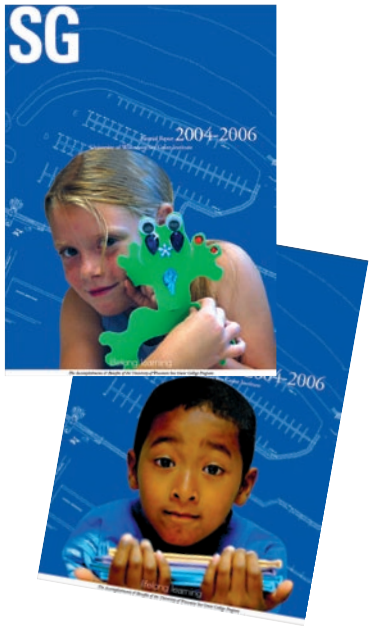
FEATURED WEB SITE
iPro
www.aqua.wisc.edu/iPRO/

Since 2001, the interactive Project Reporting Online (iPRO) system has provided an easy, efficient way for Wisconsin Sea Grant and Water Resources principal investigators (PIs) to manage their projects via a Web site. During the last two years, Aquatic Sciences Center Web Developer **Rich Dellinger** continued to refine and enhance the system based on user feedback.

One of the newest features permits principal investigators and/or designated staff and students to submit project completion reports online, including accomplishments, benefits and student activities. Other recent improvements enable PIs to submit required annual progress report information more easily.

As of February 2006, all project-related printed material (preproposal through final correspondence) had been converted to electronic format and uploaded to individual project files. In addition, all future administrative correspondence regarding projects will be posted electronically in iPRO. –RD

program**people** news



Leon Cammen was named the director of NOAA's National Sea Grant College Program. Cammen has been with Sea Grant since 1990, and he has served as acting director since the February 2006 retirement of former Sea Grant Director Ronald Baird.

James Hurley, ASC assistant director for research and outreach, was appointed chair of program leaders for the Great Lakes Sea Grant Network.

After 34 years of daily broadcasts, ***Earthwatch Radio*** is changing its production schedule to free up time and resources for reorganizing the project. Producer **Richard Hoops** anticipates the program will be back in full service in spring 2007.

The UW Sea Grant Institute 2004-06 biennial report was awarded a Silver Medal in the Council for the Advancement and Support of Education's 2006 Circle of Excellence Awards Program. Congratulations to ASC Communications Manager **Stephen Wittman**, Art Director **Tina Yao**, Science Writers **Kathleen Schmitt** and **John Karl**, Editor **Elizabeth White** and Publications Manager **Linda Campbell**.

We were saddened to learn that **Reuben Lorenz**, an active member of the UW Sea Grant Advisory Council for 20 years, died Sept. 14. He was 84. Before his retirement, Lorenz served 13 years as vice president of the University of Wisconsin System and previously had served as president of the UW Credit Union.

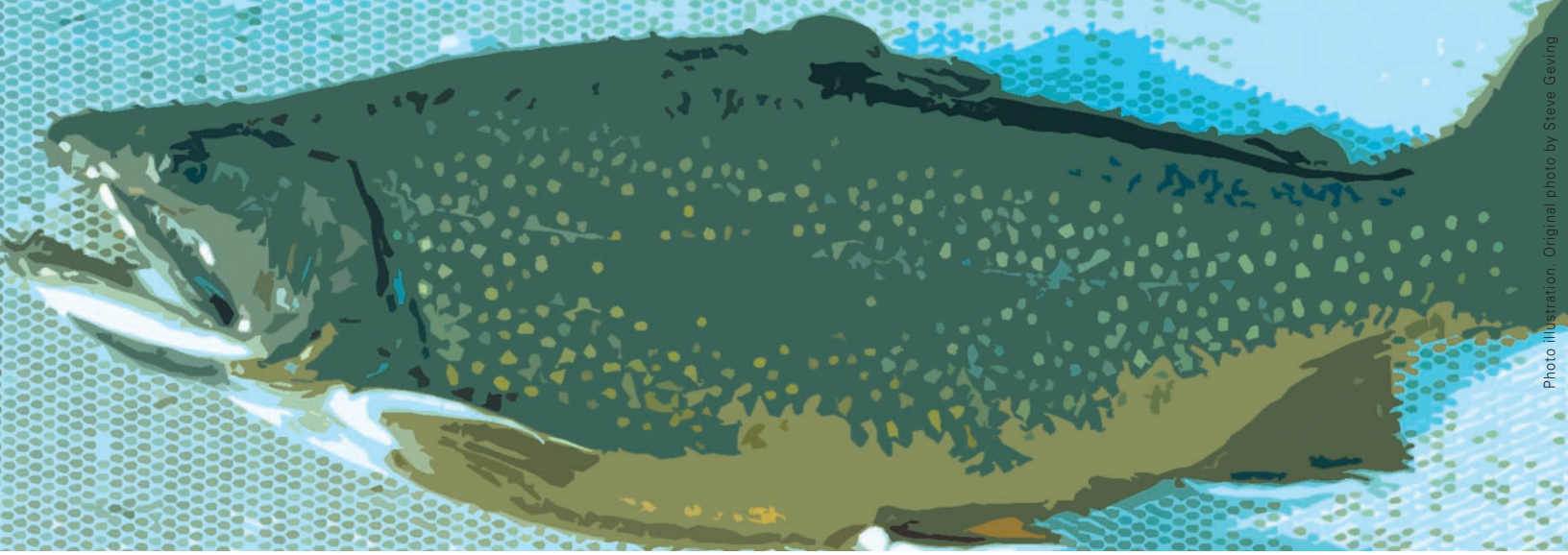


Photo illustration. Original photo by Steve Geving

Keep it cool

PRIZED WISCONSIN TROUT STREAMS NEED STEADY SUPPLY OF GROUNDWATER

Wisconsin is known as a Midwestern mecca for trout anglers, boasting over 10,000 miles of trout streams throughout the state. These streams are gifts of nature, but they've been nurtured for decades with management and restoration. In the past, the focus has been to stabilize shorelines and reconstruct spawning habitat.

Today, researchers are looking upstream and underground to safeguard these prized coldwater streams.

As a hydrogeologist with the Wisconsin Geological & Natural History Survey, Steve Gaffield examined how changes in land use could impact the temperature of trout streams. Trout—especially brook trout, the only type native to Wisconsin—need cold water, and "in Wisconsin, groundwater is what keeps streams cold," he said.

Groundwater enters streams through cracks and crevices in rock. As the cold water moves downstream, its temperature is affected by weather, the width of the stream bed, and the amount of shade provided by shoreline plants.

Gaffield and his colleagues developed several models that use these factors to predict how stream temperature is affected by different types of land use. As subdivisions continue to trickle out into rural areas, buildings and paved surfaces block rainfall from soaking into the soil and replenishing (or "recharging") the groundwater supply.

Using the models, they found that building a large development in a watershed—such as a suburb with pavement and other impervious surfaces that block groundwater recharge—had about the same effect on stream temperature as installing a high-capacity well. They also simulated smaller, widespread residential development—characterized by large lots in rural areas—and found that it produced no appreciable change in stream temperature.

Gaffield cautioned that existing models of groundwater recharge may not be sophisticated enough to tease out the true impacts of developing agricultural land. For example, developments that use best management practices to allow rainwater to soak into the ground will have far less impact than those that do not. Also, the greatest effect on stream temperature in any area with paved surfaces may occur during storms, when large amounts of stormwater run off hot, paved surfaces and enters streams.

Montgomery Associates, a Madison consultancy where Gaffield is now a senior hydrologist, is proposing to use methods from his trout stream research and other studies to help the city of Verona plan future growth in a way that protects water and ecological resources. This study is in the proposal stage and will be considered in the city budget process this fall. Gaffield expects other communities will be interested, too.

"We anticipate an increasing requirement for these types of evaluations to be done as local municipalities apply for the necessary approvals to grow, and this type of temperature analysis will be important to evaluate development near the numerous coldwater streams in the area," he said. —KS

sixth annual lake sturgeon bowl

Up to 20 Wisconsin high school teams are eligible to compete in this regional competition of the National Ocean Sciences Bowl at UW-Milwaukee. Top prizes include a trip to the national finals in Stony Brook, New York, a three-day sail on the schooner Seaward on San Francisco Bay, a behind-the-scenes tour of the Shedd Aquarium, and field trips aboard the R/V Neeskay and S/V Denis Sullivan in Milwaukee. For more information, visit *www.glwi.uwm.edu/sturgeonbowl*. The Lake Sturgeon Bowl is coordinated by the UW Sea Grant Institute, the Great Lakes WATER Institute and the UW-Milwaukee School of Continuing Education.

UW SEA GRANT AND WATER RESOURCES OUTREACH

A Passage for Boats, a Barrier for Invaders

The historic Fox River passage between Green Bay and Lake Winnebago has been closed to boat traffic since the U.S. Army Corps of Engineers shut down most of its 17 locks in 1988. Now, the State of Wisconsin is working to make the waterway navigable again — but to deny passage to the many exotic species that the closed locks have kept out of Lake Winnebago.

Great Lakes Fishery Commission

The Corps transferred operation of the locks to the State of Wisconsin in 2001 (although the Corps continues managing water flow rates). The state then created the Fox River Navigational System Authority (FRNSA) to open 16 of the locks. The Rapide Croche lock, near Watertown, will remain permanently closed so that sea lamprey and other alien organisms can not simply swim upstream into Lake Winnebago and threaten its prized walleye and lake sturgeon fisheries.

That means boats will have to be moved around the lock, and they must be thoroughly cleansed of all exotic species: no zebra mussels clinging to the hull, no sea lamprey larvae hiding in bait wells. Even microscopic eggs of water fleas, which can hide in the tiny passages of bilge pumps or engine cooling systems, must be flushed out.

That's a tall order, and UW Sea Grant Invasive Species Specialist Phil Moy is helping meet the challenge. Moy is a member of the FRNSA's Committee on Invasive Species. He has suggested using the lock chamber as a hot water bath and soaking boats in it to rid them of unwanted – and even unseen – exotic species.

Moy has outlined some details of how such a process might work. The first step would be to remove all live fish and bait from buckets and live wells. Boats would then be lifted out of the water with a forklift, hoist, or other mechanism. While out of the water, their hulls will be visually inspected. They would be turned away if they are excessively encrusted with algae or other organisms. If not, the boats would be set in the lock chamber.

The water would be heated to 145° F. Studies show that contact with water at 145° F for two minutes kills the eggs and larvae of all exotic species currently known to threaten Lake Winnebago.

While in the hot water, engines and bilge pumps could be run to flush out their internal passages with the heated water. Live wells and bilges might be sprayed. Fishing rods, skis, ropes, anchors and other equipment that can harbor eggs or larvae would be placed in mesh bags and soaked in hot water for two minutes.

Only boats moving upstream (i.e., southbound, from the Green Bay side of the barrier toward the Menasha side) would be treated. Because Lake Winnebago contains no exotic species that threaten Green Bay, there's no need to clean boats moving downstream.

Moy stressed that these ideas are in the very earliest stages, and people will have "lots and lots and lots" of opportunities to comment on plans as they develop. Both the FRNSA and the Friends of the Fox River will solicit comments, and the Wisconsin Department of Natural Resources will hold official hearings. These will be conducted after preliminary ideas are assessed, Moy said, which could be "several years" from now.

The committee has hired STS Consultants, Ltd., an environmental engineering firm, to estimate the costs and identify any environmental concerns that a lift-and-soak operation might raise.

Whatever solution is eventually found for the Rapide Croche lock, the work of implementing it will be funded with a combination of private donations and state and federal funds, Moy said. It will also be only part of the total effort needed to keep Lake Winnebago free from the invasive species lurking in nearby waters, he added. Moy notes that there are 48 boat ramps around Lake Winnebago, and all are potential entry points for invasive species. He says boaters need to be aware of the importance of thoroughly cleaning off their boats or leaving them out of water for 24 hours when they go from lake to lake. He says such vigilance, combined with the efforts at the Rapid Croche barrier, can protect the fisheries of Lake Winnebago while once more enabling travel along the historic lower Fox River.

Steve Stewart

educators and scientists connect on Lake Superior

During a very warm week in late July and early August, Wisconsin and Minnesota kicked off their part of a new five-year program that will connect educators and scientists throughout the Great Lakes region. Starting in Duluth, 16 teachers from four Great Lakes states—and one honorary "laker" from North Carolina—joined professional geologists, aquatic scientists, archaeologists, and other specialists for a week of immersion in Great Lakes science along the shores of western Lake Superior.

The workshop was part of the Great Lakes Center for Ocean Sciences Education Excellence (COSEE), an initiative of the National Science Foundation and National Oceanic and Atmospheric Administration (NOAA). Wisconsin is receiving approximately $387,000 to support the five-year, $2.5-million COSEE Great Lakes effort. Wisconsin Sea Grant Education Coordinator James Lubner is coordinating Wisconsin's involvement in the center, the eighth in a nationwide network.

"Public understanding of Great Lakes and ocean sciences is key to helping stakeholders make informed decisions on coastal and ocean management and personal stewardship issues," Lubner said. "COSEE Great Lakes is engaging citizens of all ages in ways that promote a deeper understanding of our inland seas — the Great Lakes — and their influence on our quality of life and our national prosperity."

With specialists guiding, instructing, and inspiring them, the educators in the Lake Superior Exploration Workshop visited aquariums and wetlands and studied the early geology of the continent. They seined for fish, sampled water and sediments in streams, and inferred the structure of food webs by investigating the contents of lake trout stomachs. They also learned about the climate and weather of the Lake Superior region, such special habitats as coastal wetlands and dunes, and human impacts ranging from aquatic invasive species to climate change.

The specialists included:

Nancy and Marty Auer, Michigan Technological University

Betty Dahl, retired Minnesota state archeologist

Valerie Brady and George Host, UM-Duluth Natural Resources Research Institute

Lucinda B. Johnson, UM-Duluth Natural Resources Research Institute

Steve Lozano, NOAA Great Lake Environmental Research Lab

Jim Miller, Minnesota Geological Survey and the University of Minnesota

Bruce Munson, UM-Duluth

Sue O'Halloran, UW-Superior

Matt TenEyck, UW-Superior

Dr. Anett Trebitz, USEPA

In addition to Lubner, the workshop organizing team included Cynthia Hagley of Minnesota Sea Grant, Bruce Munson of the University of Minnesota-Duluth, Steve Stewart of Michigan Sea Grant, and Sue O'Halloran of the University of Wisconsin Extension.

"The workshop went really well," Lubner reported. "The teachers were very enthusiastic participants, and the scientists were terrific. The days were pretty long, but they were full of great learning opportunities."

For more about COSEE Great Lakes, see *www.coseegreatlakes.net*. Click on "weblog" for photos and commentary from the Lake Superior workshop.

Next year's workshop will explore Lake Huron from the Great Lakes Maritime Heritage Center of the Thunder Bay National Marine Sanctuary and Underwater Preserve in Alpena, Michigan.

Photos: Steve Stewart

(Top left) Educators, led by Marty and Nancy Auer of Michigan Technological University, sein for fish in the shallows of Allouez Bay, east of Superior. (Top right) Exposed rocks along the shore in Duluth provide a chance to explore the geological history of the region. (Bottom right) Participants shade their eyes from the morning sun to catch a glimpse of a "laker" heading for the open water of Lake Superior.

Wisconsin's Water Library

AQUACULTURE

a Wisconsin Sea Grant resource guide

www.aqua.wisc.edu/waterlibrary/aquaculture.asp

Aquaculture in Wisconsin is growing at a rate of more than 10 percent per year and has an annual value of almost $9 million. In the Great Lakes region, the commercial aquaculture business has a gross value of more than $76 million and produces more than 50 species of fish. The University of Wisconsin Sea Grant Institute has nurtured the growth of this industry since the early 1970s.

Below are a few of the recommended resources for current and prospective aquaculturists in Wisconsin and the Great Lakes region. A grant from the Friends of UW Libraries helped to purchase several books that are not currently available at other Wisconsin libraries.

Wisconsin residents can check out the materials online for pickup at their local public library. They can also contact JoAnn Savoy, Water Resources librarian, at (608) 262-3069 or 1975 Willow Drive, Madison, WI 53706. Suggestions for additions to the collection are welcome.

Aquaculture Marketing Handbook. Engle, Carole R. and Kwamena Quagrainie. Ames, Iowa: Blackwell Pub. Professional, 2006.

Aquaculture Biosecurity: Prevention, Control, and Eradication of Aquatic Animal Disease. Scarfe, A. David, Cheng-Sheng Lee and Patricia J. O'Bryen, eds. Ames, Iowa: Blackwell Pub. Professional, 2006.

Aquaculture: Principles and Practices. Pillay, T. V. R. and M. N. Kutty. 2nd ed. Oxford; Ames, Iowa: Blackwell Pub., 2005.

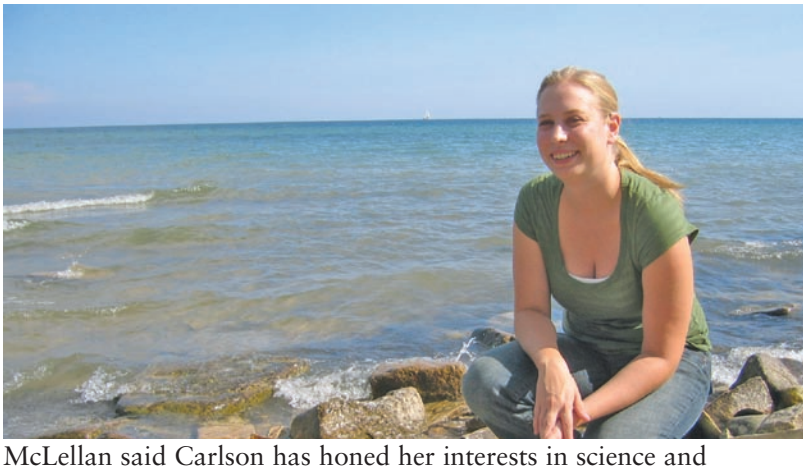
carlson awarded weston fellowship

Caitlin Carlson of Madison, Wisconsin has been awarded the 2006 Carl J. Weston Memorial Scholarship. Carlson is currently working as an undergraduate assistant with Sandra McLellan at the Great Lakes WATER Institute, helping with a UW Sea Grant-funded research project studying the causes of beach closings along Lake Michigan.

"Ms. Carlson has taken on an inordinate amount of responsibility for an undergraduate in terms of coordinating field work, performing the microbiology, and assuring all the data is formatted into a comprehensive database," said McLellan.

Since spring 2005, Carlson has collected and filtered sand samples from area beaches, tested them for *E. Coli, Enterococci* and fecal coliforms, and extracted DNA for polymerase chain reaction (PCR) processing. She said she enjoys the combination of field and lab work, finding it rewarding to follow a research project from beginning to end.

Besides helping with data analysis and field and laboratory work, Carlson has taken on the role of mentor to new undergraduates working in the lab. Over the summer, she taught three undergraduates basic microbiological and molecular techniques, and field collection of samples.



McLellan said Carlson has honed her interests in science and research during her time in the laboratory.

"Her initial interests were in veterinary medicine and animal behavior," said McLellan, "but as she has been exposed to research on the Great Lakes, her interests have broadened."

"I have always been passionate about conservation of the environment," said Carlson. "Lake Michigan is a sizable issue in Milwaukee, and saving the lakes and preserving aquatic ecosystems are very important issues that I am proud to be a part of."

Established in 1995, the Weston Memorial Scholarship supports undergraduate students interested in Great Lakes and ocean issues. If you would like to make a tax-deductible contribution to the UW Sea Grant Undergraduate Scholarship Fund, please contact Mary Lou Reeb at *mlreeb@aqua.wisc.edu* or (608) 263-3296.

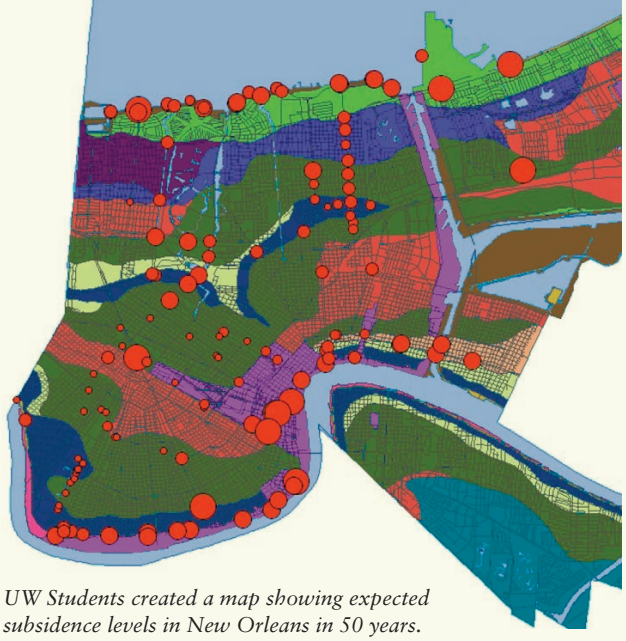
New UW Course *continued from page 1*

in a sustainable and more socially equitable manner. Seventeen graduate students rose to the challenge.

Experts in coastal hazards, disaster response and recovery, sustainable development, public participation and GIS dropped in on the class to share their perspectives. The students also began collaborating with planners in Louisiana, including Hart's colleague John Davis at Louisiana Sea Grant. Using WisLine Web, UW-Extension software that hosts live, interactive meetings, they discussed the current and future GIS needs in the area and how they could be addressed by two class projects.

The first project was developing a GIS template to help neighborhoods in New Orleans plan for their futures. The students looked for ideas from Web-mapping sites around the country and developed a list of GIS data sets needed to support planning on the neighborhood level. As an example of how such a template might work, they assembled GIS information for the Pontilly neighborhood, located just south of Lake Pontchartrain. They produced a few initial maps to identify the neighborhood's assets, such as cultural landmarks, and rebuilding challenges, such as low elevations and damaged infrastructure.

The other project examined subsidence (or sinking land) and elevation data in Orleans Parish to get an idea of what the elevation of New Orleans will be in the future. Hart notes that this project is very exploratory, but it could be a good starting point for other studies to determine where and where not to rebuild.



UW Students created a map showing expected subsidence levels in New Orleans in 50 years. It reveals a loose correlation between subsidence rates (orange circles) and types of soil. For more information, see http://coastal.lic.wisc.edu/urpl969-katrina/.

As the semester ended, students used the Web to present their results to planners working on the front line of reconstruction in Louisiana. Hart posted the class projects and a wide variety of resources at *http://coastal.lic.wisc.edu/urpl969-katrina/*, and he hopes that they might serve as a starting point as the city rebuilds. He also hopes that his students enjoyed exploring the cultural and historical significance of the city, as well as having a chance to help envision its future. —KS

KNOW YOUR WATER LAB
CENTER FOR LIMNOLOGY
University of Wisconsin–Madison

http://limnology.wisc.edu

The Center for Limnology at UW-Madison has grown out of nearly 100 years of lake studies that started with two of the field's North American founders. Today, the center operates two field stations, the A.D. Hasler Laboratory for Limnology, located on the Madison campus, and the Trout Lake Station, near Boulder Junction in Vilas County.

The Madison facility is one of the most widely recognized buildings on campus, extending over Lake Mendota at the eastern end of the Howard Temin Lakeshore Path. The many research projects based at the Hasler lab include studies of food webs in lakes, roles of bacteria in lake ecology, river ecology, apex predators in the oceans, conservation of salmon in Mongolia, and much more.

The Trout Lake Research Station provides easy access to the more than 2,500 lakes in the state's Northern Highland Lake District. The station serves as a field site for the North Temperate Lakes Long-Term Ecological Research Project, which studies how changes in climate and landscape affect the long-term ecology of lakes. Other projects at Trout Lake are studying the effects of shoreline alteration on fish populations and the sources and effects of exotic species, and establishing an international network of researchers to learn more about lakes at continental and global scales.

For more information, please visit *http://limnology.wisc.edu* or contact Director James Kitchell at *limnology@mailplus.wisc.edu* or (608) 262-3014.

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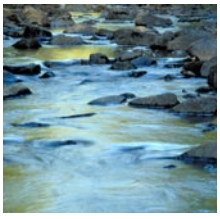
a joint newsletter from UW Sea Grant and UW Water Resources



CALENDAR OF EVENTS

NOVEMBER 1-3, 2006

State of the Lake Ecosystem Conference (SOLEC) 2006
Milwaukee, Wis.
http://cfpub.binational.net/solec/intro_e.cfm

DECEMBER 4, 2006

Call for Papers Deadline
American Water Resources Association – Wisconsin Section
31st Annual Conference
Wisconsin Dells, Wis.
www.awra.org/state/wisconsin

FEBRUARY 24, 2007

Sixth Annual Lake Sturgeon Bowl
Milwaukee, Wis.
www.glwi.uwm.edu/sturgeonbowl

NEW PUBLICATIONS & REPRINTS

Now available at the ASC Publications Store
aqua.wisc.edu/publications/

University of Wisconsin Sea Grant Institute 2004-2006 Biennial Report

Free

Eighth International Conference on Mercury as a Global Pollutant

- *Abstracts CD* $8 plus shipping ($2 U.S., $4 overseas)
- *Conference Program booklet* free plus shipping cost ($14.75 U.S. global priority mail where available)
- *Abstract book with CD* $20 plus shipping ($5 U.S., $10 overseas)
- *Mercury Student Art T-shirts* $12 shortsleeves, $14 longsleeves, plus shipping ($2 U.S., $4 overseas)

A current list of free science journal reprints is available at *www.aqua.wisc.edu/chronicle/reprints*

Conference on
Mercury
UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE & UNIVERSITY OF WISCONSIN WATER RESOURCES INSTITUTE

EIGHTH INTERNATIONAL
CONFERENCE ON
MERCURY
AS A GLOBAL
POLLUTANT
MADISON WISCONSIN
AUGUST 6–11, 2006

TOP RESEARCHERS ISSUE DECLARATION

1,150 Mercury Scientists Meet in Madison

Wisconsin Sea Grant was pleased to co-host and sponsor the largest gathering of mercury scientists ever assembled Aug. 6–11 in Madison, Wis. The Eighth International Conference on Mercury as a Global Pollutant, attended by 1,150 scientists, government policymakers, and industry representatives, culminated in a "Conference Declaration," issued by 37 leading researchers and summarizing current scientific understanding of mercury in the environment—where it's emitted, how it affects people and wildlife, and what harm it does to societies and economies.

"The bottom line of the declaration is that mercury pollution is a problem of global magnitude," said James Hurley, co-chair of the conference and assistant director for research and outreach at UW Sea Grant.

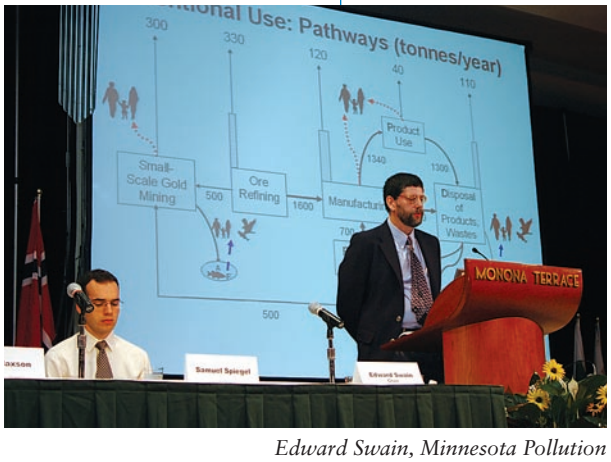
"The declaration was intended to succinctly convey to governments, policy makers, and the public around the world what scientists know about mercury in the environment," said James Wiener, technical chair of the conference and Wisconsin Distinguished Professor at the UW–La Crosse River Studies Center.

The Conference Declaration summarizes a year-long effort of four panels of scientists who critically reviewed the last decade of mercury science, according to David Krabbenhoft, a research scientist at the U.S. Geological Survey and co-chair of the conference with Hurley. All 37 scientists on the panels endorsed the declaration in full, Krabbenhoft said.

The declaration also received strong support from participants at the conference, who were invited to express their opinion of the evidence supporting the experts' findings in an on-line survey. Every point of the declaration was strongly supported by at least two-thirds of the respondents, and most individual "bullet points" garnered more than 90 percent support, Krabbenhoft said.

The technical portion of the conference featured four plenary sessions, more than 200 oral presentations and more than 800 poster presentations. The conference theme, "toward integration of science,

continued >



Edward Swain, Minnesota Pollution Control Agency, delivering the socioeconomic plenary presentation.


Flag Ceremony


Dr. Komyo Eto

Global Student Art Project


Student Artists

1,150 Mercury Scientists Meet in Madison

continued

policy, and socioeconomics," was brought out in the four plenary sessions, which examined societal consequences of mercury pollution, recovery of mercury-contaminated fisheries, health risks and toxicological effects of methylmercury, and source attribution of atmospheric mercury deposition.

Videos of the four plenary sessions, the opening and closing ceremonies, and declaration news conference can be viewed on the conference Web site, *www.mercury2006.org*.

Five years of planning for the Conference Organizing Committee paid off handsomely in the many compliments the committee received about the technical content, logistics, and social events at the conference, Hurley said.

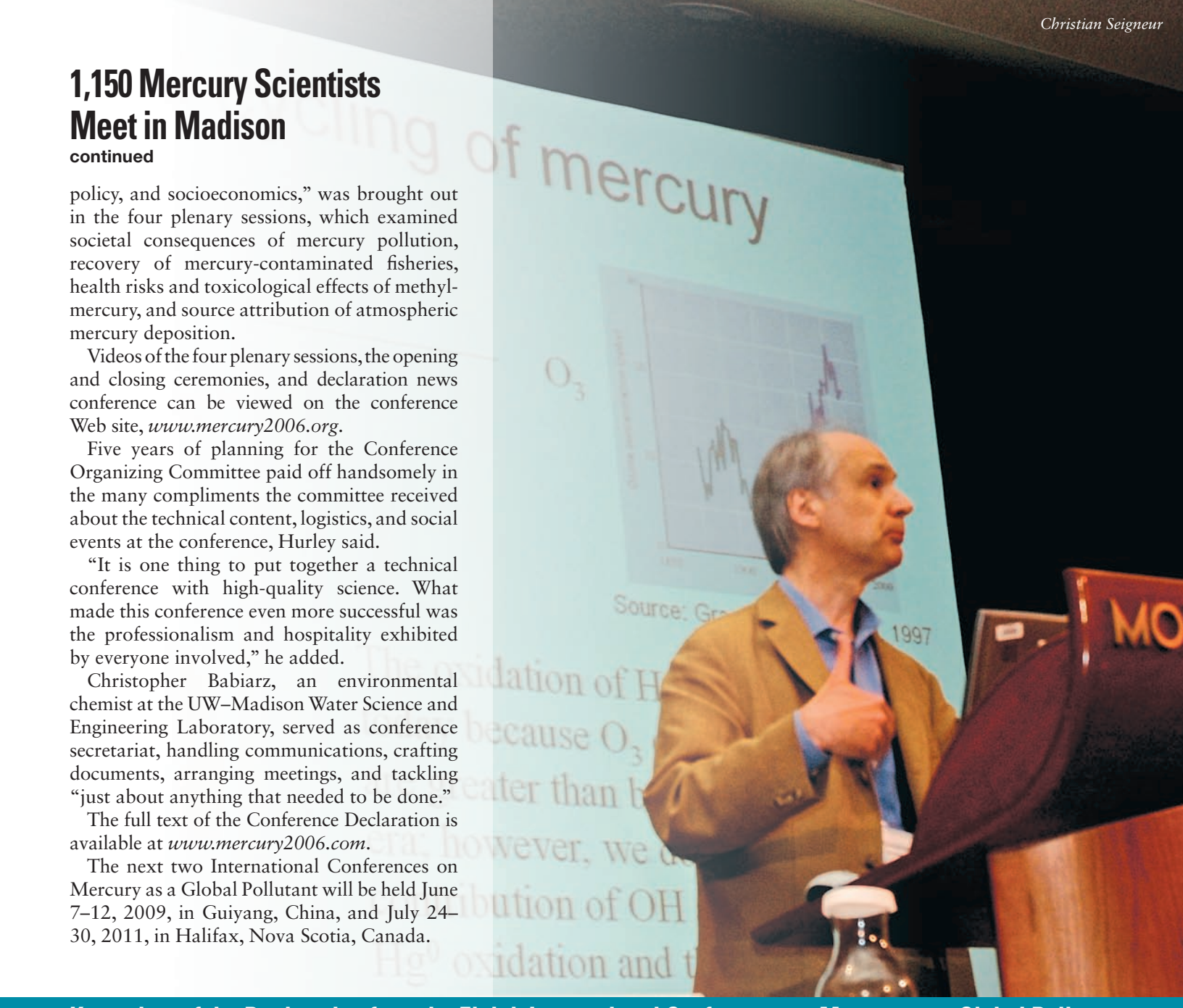
"It is one thing to put together a technical conference with high-quality science. What made this conference even more successful was the professionalism and hospitality exhibited by everyone involved," he added.

Christopher Babiarz, an environmental chemist at the UW–Madison Water Science and Engineering Laboratory, served as conference secretariat, handling communications, crafting documents, arranging meetings, and tackling "just about anything that needed to be done."

The full text of the Conference Declaration is available at *www.mercury2006.com*.

The next two International Conferences on Mercury as a Global Pollutant will be held June 7–12, 2009, in Guiyang, China, and July 24–30, 2011, in Halifax, Nova Scotia, Canada.

Christian Seigneur



Key points of the Declaration from the Eighth International Conference on Mercury as a Global Pollutant

- mercury pollution can threaten the health of people, fish, and wildlife everywhere, from industrial sites to remote corners of the planet;
- reducing mercury use and emissions would lessen those threats;
- a significant portion of the mercury deposited near industrial sources comes from those sources rather than from the global atmospheric pool or from natural sources;
- evidence of mercury's health risks is strong enough that people, especially children and women of childbearing age, should be careful about how much and which fish they eat;
- the social and economic costs of mercury are probably higher than currently estimated because they don't consider mercury's impact on wildlife.

Plenary Sessions

Russ Feingold and James Hurley

Tribal Drums

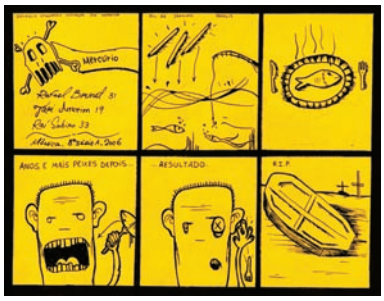
Through the Eyes of Young People

In a new initiative for the Madison conference on mercury, young people around the world created and submitted imaginative, vivid art work about mercury pollution.

Students from seven countries, aged 10 to 18, sent hundreds of pieces of beautiful, impressive, and often moving pieces of art they created after learning about mercury and mercury poisoning. The resulting collection was displayed in a video montage during the Opening Ceremony and then lined the corridors and public areas of the meeting space throughout the week.

Eight of the hundreds of pieces of art work submitted to the conference were chosen to be reproduced on T-shirts and sold at the conference. They sold so briskly that, on the third day, North American attendees were asked to postpone their purchases until after the conference (see back page for ordering information.)

Conference organizers conceived of the Youth Art Project as a way of educating young people throughout the world about the problem of mercury pollution that their generation will inherit. They studied the concepts in their classrooms and were



then asked to use what they learned to create a piece of art work. In the end, however, it was a two-way flow of ideas, according to Nancy Hurley, who coordinated the project.

"While the intent was to teach the students, the organizers really learned from them, from seeing the world through their eyes and through their artwork," Hurley said.

The project t-shirts, including two new designs not available at the conference, are now available for purchase by people worldwide at *www.mercury2006.org*. Proceeds from the shirt sales will be used to produce an educational booklet featuring the artwork.

OPENING NOTES

The international nature of the mercury problem—and of the people working on solutions—were abundantly evident in the opening ceremony.

- A procession of local students presented each of the flags of the 69 countries represented by participants in the conference. Many flagbearers from Evansville, Wisconsin, participated in the student art project.
- George Goggleye, chairman of the Leech Lake Band of Ojibwe, detailed the significant impact mercury contamination has on the cultural life of American Indians and asked all governments and citizens to come together to address the problem of mercury pollution.
- Members of the Sokaogon Band of Lake Superior Chippewa performed songs and drumming and offered a prayer for children and for the success of the conference and the work of the participants.
- Dr. Komyo Eto of Japan's National Institute for Minamata Disease described the memorial ceremony commemorating the 50th anniversary of the Minamata, Japan, mercury poisoning disaster and called upon his colleagues to ensure that such incidents "never occur again anywhere in the world."
- U.S. Senator Russ Feingold expressed pride that Wisconsin was hosting the conference and noted that "Wisconsin was the place where scientists discovered the modern problem of atmospheric emissions of mercury." Feingold stressed the importance of making regulatory decisions about public health issues based on science rather than politics or industry interests.

INCREASING PARTICIPATION

Conference organizers made new efforts to increase participation by previously under-represented groups, including graduate students and beginning professionals, members of nongovernmental organizations, representatives of developing nations, and leaders from indigenous and subsistence fishing communities.

More than $50,000 was awarded to 70 individuals from 24 nations to help with travel expenses. Visa information, letters of support, and orienting sessions were offered for international travelers. Logistical support was given to anyone wanting to organize a workshop relating to under-represented groups. One such workshop was called "Minority Angling in Urban America: Subsistence Anglers' Perspectives on Fishing, Fish Consumption, and Fish Advisories."

Recognizing and Encouraging Students

As a means of increasing students' participation in the conference and recognizing their contributions to the field of mercury research, the Madison conference featured a student award program involving more than 200 student presentations that were judged by 130 scientists.

It was hoped that the program would encourage students as they work their way toward becoming professionals, according to Mark Sandheinrich, a biologist at the University of Wisconsin-La Crosse who organized the awards program as a member of the conference Regional Planning Committee.

"I think this generation of scientists is looking to help develop and nurture the next generation," Sandheinrich added.

Awards for outstanding presentations were presented to: Jill Van Walleghem, Freshwater Institute, Winnipeg, Canada; Carrie Miller, University of North Carolina at Wilmington; Melitza Crespo-Medina, Rutgers University; Maria Andersson, Göteborg University, Sweden; and K. Kritee, Rutgers University.

TAKING A BREAK

Opportunities for socializing and relaxing punctuated the many academic posters and PowerPoint® presentations at the conference.

The Sunday evening opening reception was held on the rooftop of the Monona Terrace Convention Center and featured hors d'oeurves and jazz standards from Michelle Duvall and Doug Brown.

Many participants let loose their inner rock star Tuesday night at Madison's High Noon Saloon. A favorite local band, the Gomers, backed up conference participants as they took the stage and belted out tunes by bands from Aerosmith to ZZ Top.

Attendees got a feel for other local attractions Wednesday afternoon, when

they toured Frank Lloyd Wright's Taliesen, checked in at the headquarters of the International Crane Foundation in Baraboo, hiked around Devil's Lake State Park, canoed the scenic Wisconsin River, enjoyed a dinner cruise on Lake Mendota, or visited a farmer's market, a community food cooperative, and a renowned Madison restaurant.

The closing reception was also held outdoors on the Monona Terrace rooftop and featured the soulful blues of the Westside Andy and Mel Ford Band.

CONFERENCE ITEMS STILL AVAILABLE

The following items are still available from the Eighth International Conference on Mercury as a Global Pollutant. They can be ordered at *http://aqua.wisc.edu/publications*.

- **Abstracts CD**
  $9 plus shipping and handling
- **Conference Program Booklet**
  free for cost of shipping and handling
- **Abstract Book with CD**
  $23 plus shipping and handling
- **Mercury Student Art T-Shirts**
  $13 shortsleeves, $15 longsleeves, plus shipping and handling

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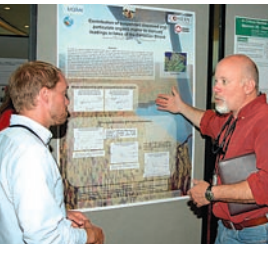
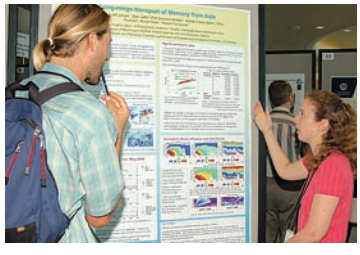
MADISON WISCONSIN
AUGUST 6–11, 2006

Conference photos by John Karl.



Poster Sessions



T-Shirt Sales