

# ASC

## Aquatic Sciences Chronicle

www.aqua.wisc.edu/chronicle

UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE UNIVERSITY OF WISCONSIN WATER RESOURCES INSTITUTE

### INSIDE:

3  
RESEARCHERS HEAD TO  
THE DELLS



4  
SALVAGING SEDIMENTS



5  
KNOW YOUR WATER LAB:  
WISCONSIN GEOLOGICAL AND  
NATURAL HISTORY SURVEY



UW SEA GRANT RESEARCH

## New Fish Virus Poses Serious Threat



### A FRESHWATER DEBUT

*Muskie fishing, Lake St. Clair, Roseville, Michigan. photo courtesy of Michigan Travel Bureau*

A fish virus discovered in Lake Ontario in 2005 seriously threatens the sport and commercial fisheries of the Great Lakes region, experts say. The highly contagious virus can kill 80 percent of the fish it infects, and it has been found in walleye, smallmouth bass, muskellunge, and many more species, including fish harvested and raised in the baitfish industry. The virus has already caused large die-offs in lakes Ontario, Erie, and St. Clair. Affected species have included yellow perch, freshwater drum, northern pike, and others.

The virus is called viral hemorrhagic septicemia, or VHS. Analysis of frozen fish shows it was in the Great Lakes at least as early as 2003. Prior to appearing in the Great Lakes, VHS was known only in the marine environments of the Atlantic and Pacific, where it infects salmonids.

While Great Lakes scientists and resource managers can learn much about VHS from their colleagues on the Atlantic and Pacific coasts, no one knows exactly what to expect of the virus in a freshwater environment. One difference in the Great Lakes region is heavier lake-to-lake boat traffic, which makes it likely the virus will spread into the region's small lakes.

Infected fish can show no external signs, or they may display bulging eyes, bloated abdomens, decreased or increased activity, hemorrhaging, or lesions. However, these signs are common to many diseases, and a reliable diagnosis of VHS can only be made in a laboratory.

Infectious diseases often claim most of their victims early in an epidemic, according to Phil Moy, Wisconsin Sea Grant fisheries specialist. The most vulnerable individuals fall quickly, but more resistant ones survive and pass their resistance to their offspring, Moy said.

While that general pattern might be expected with VHS, it's not clear how extensive the impacts might be, and many questions remain unanswered, Moy said. Could it infect Great Lakes trout or salmon? How fast might it move through the lakes on its own? How much could movements of ballast water and trailered boats accelerate that movement? Can the virus be effectively cleaned off of boats, live wells, and fishing gear by washing them with a hose, or are stronger measures

*continued on page 5 >>*

University of Wisconsin Aquatic Sciences Center  
1975 Willow Drive  
Madison, WI 53706-1177  
Telephone: (608) 263-3259  
Email: [chronicle@aqu.wisc.edu](mailto:chronicle@aqu.wisc.edu)

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

**Managing Editor**  
Stephen Wittman

**Editor**  
Elizabeth A. White

**Writers**  
John Karl, Kathleen Schmitt

**Librarian**  
JoAnn Savoy

**Art Director**  
Tina Yao

**Layout and Production Artist**  
Amy Kittleson

**Circulation Manager**  
Linda Campbell

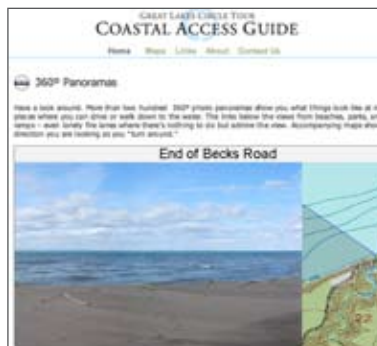
**University of Wisconsin Sea Grant Institute** is part of a national network of 30 university-based programs funded through the National Sea Grant College Program, National Oceanic & Atmospheric Administration, U.S. Department of Commerce, and through matching contributions from participating states and the private sector. [www.seagrant.wisc.edu](http://www.seagrant.wisc.edu)

**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](http://www.wri.wisc.edu)



#### GET ASC NEWS ALERTS BY EMAIL

You can receive email notices about new postings to the **Chronicle Online**. Just sign up at [www.aqua.wisc.edu/chronicle](http://www.aqua.wisc.edu/chronicle). We'll send you occasional links to announcements and news from the Aquatic Sciences Center.



## FEATURED WEB SITE Coastal Access Guide [aqu.wisc.edu/glct/](http://aqu.wisc.edu/glct/)

Driving around the Great Lakes? This new Web site is for you. Promoting the cultural or natural attractions along Great Lakes coasts? This site is for you, too.

For tourists, the site shows where to pull off the state and federal highways of the Great Lakes Circle Tour to explore coastal parks and beaches, lighthouses, shipwrecks and other cultural and natural attractions. "Hot links" on interactive maps connect to other Web sites offering more information about each attraction. More than 200 panoramic photos show locations with public access and/or water views.

For those involved in Great Lakes coastal tourism, the site demonstrates how geospatial and Web technologies can pull together information from disparate sources. The site employs Google Maps, Google Earth, and other interactive map viewers to display categories of attractions. It also describes the Great Lakes Circle Tour, explains the technology behind the Web site, and offers links to related Web sites. The site was built with funding from the Wisconsin Coastal Management Program to demonstrate possibilities for supporting cultural tourism and exploration of coastal attractions.

## programpeoplenews



After 25 years of devoted service as program assistant to Wisconsin Sea Grant and, more recently, the Aquatic Sciences Center, **Gloria Gardner** retired on November 15. "Gloria made tremendous contributions to everything we did, and she was invaluable to the growth of our program," said Assistant Director **Mary Lou Reeb**. "We thank her for her many years of enthusiastic hard work and wish her the best in her new endeavors."

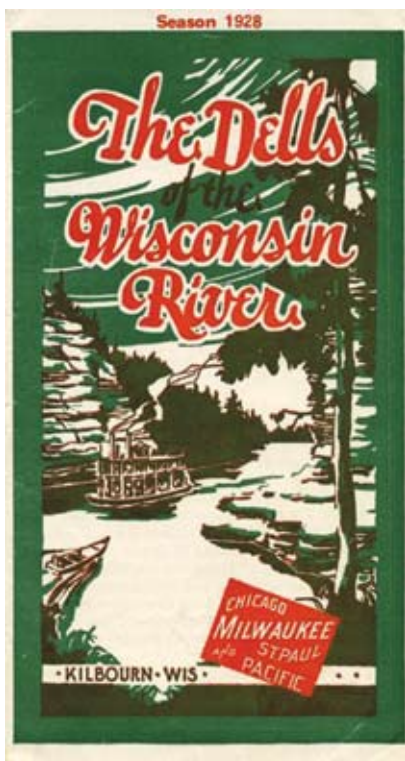
**Laura Braun**, who started at the ASC as a limited-term employee in May 2006, accepted a permanent position as university services associate in November. Welcome Laura!



**N**  
The Wisconsin Historical Society recognized Wisconsin Sea Grant's support of the state's maritime heritage with the Historic Preservation Award for 2006. Wisconsin Historic Society State Preservation Officer Jim Draeger presented the award on Dec. 18 to UW Sea Grant Assistant Director Mary Lou Reeb.

Gloria Gardner (top), Laura Braun

Annual AWRA meeting  
visits the  
“Waterpark Capital  
of the World”



Wisconsin Dells, originally known as Kilbourn, began as a remote scenic destination for railway travelers from St. Paul, Milwaukee, and Chicago.

Thanks to the area's vast water resources, the Dells now boasts the nation's largest waterpark and has launched a new, booming industry of indoor waterpark resorts. (Wisconsin Historical Society images: "Wisconsin Dells Advertisement")

UW WATER RESOURCES RESEARCH

## Researchers Head to the Dells

Wisconsin's vast water resources have played a large role in the state's history, and they continue to shape its future. Some of the most iconic industries in the state depend on dependable, large quantities of clean water. For instance, a dairy cow drinks 45 gallons of water a day to produce 12 gallons of milk, and brewing just one barrel of beer requires 1,500 gallons of water. At Noah's Ark in Wisconsin Dells, America's largest waterpark, it takes five million gallons of water to fill the pools and operate the three miles of waterslides.

For the past three decades, water scientists and managers from all over Wisconsin have met to discuss the latest research on the state's most valuable asset, as well as the impending issues facing it. This year's annual meeting of the Wisconsin section of the American Water Resources Association (AWRA) will take place March 1-2 at the Chula Vista Resort in Wisconsin Dells.

The theme of the meeting is "The Future of Wisconsin's Water Resources: Science and Policy," and it will include over 60 oral and poster presentations addressing a wide range of water resources topics. Students are strongly encouraged to attend the conference to learn, network, and gain experience in presenting their work. As such, AWRA offers a special reduced student registration rate of \$30 (\$45 after February 16), as well as several awards for the best student presentations.

An opening plenary session will highlight the state's recent groundwater legislation, as discussed by speakers Todd Ambs (Wisconsin Department of Natural Resources), M. Carol McCartney (Ayres Associates), and Jodi Habush Sinykin (Midwest Environmental Advocates). In addition, featured evening speaker Jack Waterman, a builder and former operator of Noah's Ark Waterpark, will provide a unique perspective on the local history of the area and how it developed from a remote summer destination of scenic beauty to become "the Waterpark Capital of the World," home to 18 indoor waterpark resorts that operate all year. An active community leader, Waterman will discuss how Wisconsin Dells balances the needs of business development while protecting its water resources.

For more information, including a registration form, please visit [www.awra.org/state/wisconsin](http://www.awra.org/state/wisconsin). The meeting is hosted by the AWRA-Wisconsin Section, UW Water Resources Institute, Center for Watershed Science and Education at UW-Stevens Point, Wisconsin Department of Natural Resources, and the Wisconsin District of the U.S. Geological Survey. —KS

### AWRA session topics:

- Public health and the environment
- Technological advances in water monitoring
- Groundwater and aquifer recharge
- Groundwater and surface water interactions
- Water quality and ecological assessment
- Stream monitoring, restoration, and best management practices
- Hydrogeologic investigations
- Sustainability and use of groundwater resources

**"The Future of Wisconsin's Water Resources: Science and Policy"**  
Chula Vista Resort in Wisconsin Dells, March 1-2.

## Changing Perspectives on the Great Lakes

An exhibit of original Great Lakes maps spanning more than three centuries will be displayed March through June in the special collections exhibit area on the ninth floor of the UW-Madison Memorial Library.

The exhibit will include an illustrated, hand-drawn map of the region made in 1670—one of the first maps to show all five Great Lakes. Nearly 30 more maps will include some of the first ever made of Wisconsin's land surveys, state highways, railroads, geology, native vegetation, and topography. And several maps will illustrate the latest capabilities of satellite remote sensing technology.

The exhibit will trace the artistic and technical evolution of mapmaking over three centuries and the influence of the Great Lakes on Wisconsin's development, according to Mary Lou Reeb, ASC assistant director and one of the organizers of the project.

The exhibit will feature audio commentary on iPods available at the exhibit. The commentary will also be available for downloading in advance to visitors' iPods and other MP3 players, Reeb said.

The exhibit will include a public lecture by David Rumsey. Rumsey is renowned for his personal collection of rare 18th and 19th century maps from all over the world, according to UW Water Resources Librarian JoAnn Savoy. Almost 15,000 of Rumsey's maps are available online ([www.davidrumsey.com](http://www.davidrumsey.com)), and several have recently been added to the "Featured Content" on Google Earth.

Watch [www.seagrant.wisc.edu](http://www.seagrant.wisc.edu) for exhibit and lecture dates.



## Salvaging Sediments

Committee seeks new resting place for dredged materials from the Duluth-Superior Harbor

Every year, dredges remove approximately 100,000 cubic yards of sediment from Duluth-Superior Harbor shipping channels, enough to fill 45 Olympic-size swimming pools. For nearly three decades, most of the dredged material has been placed into Erie Pier, the Confined Disposal Facility (CDF) at the port. However, space is quickly running out, so members of the local Harbor Technical Advisory Committee (HTAC) are working to find ways to salvage much of the material rather than stockpiling it.

The 89-acre Erie Pier facility, owned by the Duluth Seaway Port Authority (DSPA) and operated by the U.S. Army Corps of Engineers, was designed to last 10 years and store one million cubic yards of material. By heightening its sides, the facility has managed to store over twice the expected amount, said Gene Clark, UW Sea Grant coastal engineering specialist. Clark chairs the HTAC dredging subcommittee.

Together with representatives of the Corps and the DSPA, the subcommittee is preparing a management plan that focuses on promoting ways to re-use the dredged material. As a first step, the Corps spent \$500,000 in 2006 to set up a washing operation at Erie Pier that will help separate the material into

*continued on page 5 >>*

*top photo: Dredged material is offloaded from a transfer barge at Erie Pier, located at the end of 40th Avenue West in Duluth. The 80-acre facility is running out of room to store dredged material from the Duluth-Superior shipping channels. (photo credit: John Larson, U.S. Army Corps of Engineers)*

## Call it the Aquatic Stories Center



Thirty Madison kindergarteners and first graders learned how tadpoles turn into frogs – and where frogs go in the winter – when Diane Dempsey, a naturalist from the UW Arboretum, participated in a story hour organized in late November by ASC Librarian JoAnn Savoy.

The children, attending an after-school program at Madison's Allied Drive Learning Center, also listened to three books about frogs read to them by volunteer students in the UW School of Library and Information Studies program.

The event was the fifth Allied Drive story hour organized by Savoy, who initiated the reading program in 2004, after receiving a grant from the Friends of UW Libraries to purchase children's

books for the UW Water Resources Library, housed in the Aquatic Sciences Center. Since then, Allied Drive has partnered with seven other special libraries at UW-Madison to put on a story hour nearly every month, Savoy said.

"It's great how this has taken off," Savoy said. "We really had no idea what we were starting."

The UW Water Resources Library also developed "Wisconsin's Water Library for Kids," a Web site where adults across Wisconsin can check out water-related books for children. The Web site received a "Webbie" award for "Best site for kids" from the Wisconsin Library Association in 2006. See [www.aqua.wisc.edu/waterlibrary/kids](http://www.aqua.wisc.edu/waterlibrary/kids).

# New Fish Virus continued from page 1

needed? Could the virus be transported out of the Great Lakes basin via the Chicago River to infect the Mississippi River?

To help answer questions like these, Wisconsin Sea Grant has established a programmatic priority of supporting research into "improved methods to identify, detect and control diseases, parasites and other pathogens" such as VHS in its recent call for proposals.

"This virus could be a big issue in many of our thematic research areas, including aquaculture, biotechnology, and, of course, fisheries and aquatic invasive species," said James Hurley, UW Sea Grant assistant director for research and outreach. "We're looking for first-rate scientific research into the topic."

To slow the spread of VHS, the U.S. Animal and Plant Health Inspection Service (APHIS) issued a Federal Order in late Octo-

ber prohibiting interstate transport of 37 species of live fish among the eight states bordering the Great Lakes. The order also prohibited imports of those fish from Ontario and Quebec. However, the restrictions prevented many baitfish aquaculture operations from sending their product to established customers across state lines, Moy said. The order has since been modified, and such transfers are now permitted provided the fish are inspected. The virus poses no threat to people, according to APHIS.

If you see a fish kill on the Great Lakes, please contact the Wisconsin Department of Natural Resources at (608) 266-8782 or call your local DNR office. For more information, see <http://seagrant.wisc.edu/fisheries>. —JK

## So long to the stockpile? continued from page 4

different sizes, ranging from fine silts and clays to coarse sand. After sorting is complete, the material can be rechecked to ensure there is no environmental contamination and marketed to local cities, counties, and state agencies involved in construction projects, mine site reclamation, and landfill operations.

The hope is that reusing dredged material will eliminate the need to develop another CDF, which the Corps says may require up to 20 years for obtaining the necessary environmental agency permits and cost as much as \$35 million. The draft plan will be completed in March 2007 and then submitted to the entire HTAC for review and approval.

Harbor maintenance dredging is essential to keep heavily

loaded lakers moving freely into and out of the harbor, which handles the largest total cargo volume in the Great Lakes. For every inch of water depth that a port loses, a ship must reduce its load by about 250 tons.

Clark says developing the management plan for the Duluth-Superior Harbor could benefit other Great Lakes harbors as well. "Continuing to just stockpile this material is an issue at all of the Great Lakes ports," he said. "Storage space is at a premium, and the material has many potential uses. It's just too valuable not to reuse. If we're successful with the implementation of our plan, it could serve as a model for other Great Lakes harbors." —KS



### KNOW YOUR WATER LAB

## Wisconsin Geological and Natural History Survey Madison, Wisconsin

[www.uwex.edu/wgnhs](http://www.uwex.edu/wgnhs)

The Wisconsin Geological and Natural History Survey (WGNHS), part of the University of Wisconsin–Extension, is an interdisciplinary organization that conducts natural resources surveys and research to produce information used for decision making, problem solving, planning, management, development, and education.

The Wisconsin Legislature created WGNHS in 1897. Earlier surveys to catalog the geology of the state, primarily for locating potential mining areas, date back to 1854.

Today, maps, records, and reports produced by the WGNHS provide basic data for resource, land use, and environmental management.

WGNHS also oversees an impressive rock collection, housed in a Mt. Horeb facility. An invaluable (and heavy) reference collection, the 900 tons of rock represent the geology of the entire state.

For additional information, contact WGNHS Director and State Geologist James Robertson, [jmrober1@wisc.edu](mailto:jmrober1@wisc.edu).

*Photo: WGNHS geologist William G. Batten examines core material from Iowa County. (credit: Susan Hunt)*

# ASC

University of Wisconsin Aquatic Sciences Center  
1975 Willow Drive  
Madison, WI 53706-1177

## Aquatic Sciences Chronicle

a joint newsletter from UW Sea Grant and UW Water Resources



### CALENDAR OF EVENTS

**FEBRUARY 24, 2007**

**Sixth Annual Lake Sturgeon Bowl**

Milwaukee, Wis.

[www.glwi.uwm.edu/sturgeonbowl](http://www.glwi.uwm.edu/sturgeonbowl)

**MARCH 1-2, 2007**

**American Water Resources Association-  
Wisconsin Section 31st Annual Conference**

Wisconsin Dells, Wis.

[www.awra.org/state/wisconsin](http://www.awra.org/state/wisconsin)

**MARCH – JUNE, 2007**

**Great Lakes, Great Maps Exhibit**

Madison, Wis.

[www.seagrant.wisc.edu](http://www.seagrant.wisc.edu)

**MAY 28 - JUNE 1, 2007**

**50th Annual IAGLR Conference on Great  
Lakes Research**

University Park, Penn.

[www.iaglr.org/conference](http://www.iaglr.org/conference)

### VISIT THE ONLINE STORE

Now available at the ASC Publications Store  
[aqua.wisc.edu/publications/](http://aqua.wisc.edu/publications/)



**Mercury 2006 T-Shirts**

**Featuring artwork by students  
from around the world  
\$13**

As part of the Eighth International Conference on Mercury as a Global Pollutant, students in Brazil, Canada, China, Japan, Slovenia, Sweden and the U.S. participated in the Youth Art Project, a program designed to educate young people about the problem of mercury pollution.



For more information and T-shirt designs, visit  
[aqua.wisc.edu/publications/](http://aqua.wisc.edu/publications/)

N

A current list of free science journal reprints is available at  
[www.aqua.wisc.edu/chronicle/reprints](http://www.aqua.wisc.edu/chronicle/reprints)