

# Upper Midwest Environmental Sciences Center

## July 2011 Activity Report

### Aquatic Ecosystem Health

#### Project Updates

- Maren Tuttle-Lau, Sue Schleis, Aaron Cupp and Chris Gladosky (*UMESC*) initiated a field effectiveness trial at the Iowa Department of Natural Resources (DNR) Spirit Lake Fish Hatchery to evaluate the effectiveness of florfenicol or oxytetracycline dihydrate to control mortality associated with motile aeromonad septicemia. The study is funded in part through funds from the U.S. Department of Agriculture North Central Regional Aquaculture Center. Data generated in this study will be used to support the expansion of the labels for these two antibiotics and provide much needed tools to fish hatchery managers to control disease in cultured fish.

### Aquatic Invasive Species – Asian Carp

#### Presentations

- Steve Gutreuter (*UMESC*) was invited to give a presentation on options for endpoints in studies of methods to suppress and attract the invasive Asian carps at the Asian Carp Suppression Workshop, Cleveland, OH, June 27-28.

#### Outreach

- Mark Gaikowski and Jon Amberg (*UMESC*) were interviewed by Don Bluhm (*Wisconsin Outdoor News*), on USGS research on the control of Asian carp, specifically silver and bighead carp. When published, the article will be available at [www.wisconsinoutdoornews.com](http://www.wisconsinoutdoornews.com).

### Aquatic Invasive Species – Zebra and Quagga Mussels

#### Outreach

- Mark Gaikowski (*UMESC*) was invited by the Otter Tail County's Coalition of Lakes Association to be the featured speaker at the July 23 meeting in Ottertail, MN. The presentation focused on USGS research on aquatic invasive species, including zebra mussels, and future field experimental uses of biocides to control aquatic invasive species like zebra mussels.

### Assessing Environmental Risks

#### Indiana Bats

- Wayne Thogmartin and Patrick McKann (*UMESC*) released the beta version of a single hibernaculum model of Indiana bat demography, July 28. This decision support tool, written in the freeware statistical software R, allows U.S. Fish and Wildlife Service (FWS) biologists to assess impacts of wind energy development and white-nose syndrome (*a fungal disease spreading across populations of eastern hibernating species of bats*) on Indiana bat population size and risk of extirpation. A multi-hibernaculum version of the tool, available in mid-August, will allow users to evaluate species-wide consequences of these population threats.

### Climate Change

#### Native Mussels

- Teresa Newton (*UMESC*) was interviewed by Steve Rosium (*Wisconsin Public Radio*) on July 19 regarding the recent press release, "[Endangered Mussels Further Threatened by Rising Water Temperatures in the Upper Mississippi](#)." Teresa Newton and Alissa Ganser (*University of Wisconsin-La Crosse*) are estimating the temperatures at which reproductive traits are altered in native mussels. In preliminary tests, native mussels exposed to elevated water temperatures did not experience premature release of mussel larva. However, when pregnant pocketbook mussels (*Lampsilis cardium*) were exposed to elevated water temperatures (30 and 35 degrees

*Celsius, 86 and 95 degrees Fahrenheit*), they experienced higher mortality. Results from these tests will be used by USGS to support management agencies forecasting species responses to climate change, and develop adaptation strategies to mitigate adverse effects.

- Randy Hines (*UMESC*) and Alissa Ganser (*University of Wisconsin-La Crosse*) were interviewed by Mike Hayes (*WIZM Talk Radio*) on July 26, regarding the press release, “Endangered Mussels Further Threatened by Rising Water Temperatures in the Upper Mississippi,” which documents research being conducted by Teresa Newton (*UMESC*) and Ganser to evaluate effects of elevated water temperatures on reproductive traits in native freshwater mussels.

## Great Lakes Restoration Initiative (GLRI)

### Project #80, Birds as Indicators of Contaminant Exposure

- Thomas Custer and Christine Custer (*UMESC*) received the last chemical analysis results from AXYS Analytical and have begun the process of data summarization and analysis for GLRI Project #80. These data will provide temporal, spatial, and ecosystem assessment of biologically-available contaminants in sediments, and form the basis of an extensive database of contaminant concentrations from the same species, across the entire Great Lakes. The data set will include information for legacy contaminants (*polychlorinated biphenyls (PCBs), dioxins and furans, mercury, lead*) as well as classes of emerging chemicals for which there are currently limited biological data, including Polybrominated Diphenyl Ethers (*PBDEs, e.g., flame retardants*) and Perfluorinated Compounds (*PFCs, e.g., stain and water repellants*).

### Project #73, Avian Botulism in Distressed Great Lakes Environments

- Wisconsin DNR Secretary Cathy Stepp observed Kevin Kenow, Kenow's field crew (*UMESC*), and Darryl Heard (*University of Florida, College of Veterinary Medicine*) as they captured, banded, and radiomarked loons near Boulder Junction, WI, July 27. Kenow and his field crew are in the midst of an intensive field effort to capture and radiomark common loons in Minnesota, Wisconsin, and Michigan as part of an effort to document the distribution and foraging patterns of loons on the Great Lakes.

## Mississippi River

### Floodplain Forests

- Eileen Kirsch (*UMESC*) participated in the Navigation and Ecosystem Sustainability Program (NESP) Forest Management Team meeting in West Alton, MO, July 27-28. The Team reviewed comments on the Forest Management Plan (FMP), and discussed forest bird monitoring for the Upper Mississippi River. Forest bird monitoring may be incorporated into the FMP in the future.

### Resource Mapping

- Erin Hoy, Jenny Hanson, John (JC) Nelson, and Larry Robinson (*UMESC*) completed 2010 Land Cover/Land Use (LCU) data sets for Mississippi River navigation Pools 8 and 13, and the Illinois River's La Grange navigation pool. These data are associated with the 2010/11 systemic LCU database under development at *UMESC* for the U.S. Army Corps of Engineers-funded Long Term Resource Monitoring Program (LTRMP), a component of the Environmental Management Program (EMP). The data are available to download at [http://www.umesc.usgs.gov/data\\_library/land\\_cover\\_use/2010\\_lcu\\_umesc.html](http://www.umesc.usgs.gov/data_library/land_cover_use/2010_lcu_umesc.html).

## National Park Mapping

### Appalachian National Scenic Trail (APPA)

- Andrew Strassman, Kevin Hop (*UMESC*), James Vanderhorst (*WV Division of Natural Resources*), and Gary Fleming (*VA Department of Conservation and Recreation*) conducted field work along

the Appalachian Trail in southern Virginia and southern West Virginia, July 7-20. This was the first of three field visits to the Central Appalachians (CAP) ecoregion this summer.

### **Cuyahoga Valley National Park (CUVA)**

- Erin Hoy, Andrew Strassman (*UMESC*), Jim Drake (*NatureServe*), Luke Biscan, Sonya Bingham (*National Park Service*), and Rob Curtis (*Summit County Metro Parks*) conducted field work to tie together aerial imagery collected by UMESC staff with ground vegetation classified to the National Vegetation Classification Standard 2.0 (NVCS 2), July 27-August 2. The data are being used to produce a complete NVCS 2 - compatible map of Cuyahoga Valley National Park.

## **National Wildlife Refuges**

### **Conserving the Future conference**

- UMESC scientists presented the following posters at the FWS's "Conserving the Future Wildlife Refuges and the Next Generation Conference," July 13 in Madison, WI. The conference was organized to learn about and discuss the work of the National Refuge System, and update the System's vision document for tackling complex and large-scale threats during the next decade.
  - Kenow KP, Gray BR, Boma PJ, Houdek SC, Larson J, and Dummer P. "Evaluation of a Voluntary Program to Curtail Boat Disturbance to Migrating Waterfowl Using the Wisconsin Islands Closed Area, Pool 8 of the Upper Mississippi River".

A voluntary avoidance (*limited entry*) area was established in the Wisconsin Islands Closed Area (WICA) in Navigation Pool 8 of the Upper Mississippi River in 2007 to reduce boating disturbance to migratory waterfowl. Objectives of this study were to determine boater compliance with the WICA Voluntary Avoidance program, determine changes in boater compliance with construction of a major island restoration project, identify the types of watercraft and boating activities involved in intrusions into the WICA, and document waterfowl disturbance resulting from intrusions. Results of this study will be used to determine if it will be necessary to implement more restrictive regulations to maintain an effective waterfowl refuge area.
  - Houdek SC, Kelling CJ, Kenow KP, McKann PC, Gray BR, Rogala JT, and Boma PJ. "Evaluation of Shorebird Response to Changes in Vegetation on Newly-constructed Islands within the Wisconsin Islands Closed Area, Navigation Pool 8 of the Upper Mississippi River".

A major island restoration project is being completed within Navigation Pool 8 of the Upper Mississippi River as part of the EMP Pool 8 Phase III Habitat Rehabilitation and Enhancement Project. When the islands were initially constructed, shorebirds responded to experimental habitat features that were incorporated into the island design. However, changes in vegetation with island age have the potential to enhance or reduce the capacity of islands to support nesting and migrating shorebirds. In an ongoing effort to better understand the relation between the shorebird use and temporal change in vegetation, shorebird surveys were conducted during 2009 and 2010. Bird abundance of the most common shorebird species were modeled as a function of habitat feature, plant succession, and year. Results linking biotic response to island project elements are being used to inform resource managers of the efficacy of project features.

## **The International Environmetrics Society**

### **North American Regional Meeting**

- Brian Gray and Wayne Thogmartin (*UMESC*) organized the North American Regional Meeting of [The International Environmetrics Society](#), July 18-20 in La Crosse, WI. Over 65 environmental scientists and statisticians attended the meeting. This year's theme was, "Quantitative Methods for the Analysis of Long-Term Monitoring Data."

## Other

### Outreach

- Randy Hines (*UMESC*) showcased USGS Citizen Science activities at the [Youth Outdoor Fest](#) event in La Crosse, WI, July 16. Over 1,000 adults and children participated in the annual festival sponsored by the City of La Crosse Parks Department to learn about outdoor recreation, natural resources, and environmental organizations while enjoying family fun in the outdoors.
- Randy Hines (*UMESC*) was invited by Trout Unlimited to provide a presentation on aquatic invasive species during the annual Coon Creek Trout Fest 2011, Coon Valley, WI, July 23. The annual festival provided over 500 adults and children with hands-on fishing, fly tying, casting, and fish identification activities, along with presentations from fishing and resource organizations.

### Acronyms

APPA - Appalachian National Scenic Trail  
 CAP – Central Appalachians  
 CUVA – Cuyahoga Valley National Park  
 CVCS 2 – National Vegetation Classification Standard 2.0  
 DNR – Department of Natural Resources  
 EMP – Environmental Management Program  
 FMP – Forest Management Plan  
 FWS – U.S. Fish and Wildlife Service  
 LCU – Land Cover/Land Use  
 LTRMP – Long Term Resource Monitoring Program  
 NESP – Navigation and Ecosystem Sustainability Program  
 PBDEs – Polybrominated Diphenyl Ethers  
 PCBs – Polychlorinated Biphenyls  
 PFCs – Perfluorinated Compounds  
 TFM– 3-trifluoromethyl-4-nitrophenol (a lampricide)  
 UDP-GT – Uridinediphosphate Glyuronytransferase  
 UMESC – Upper Midwest Environmental Sciences Center  
 USGS – U.S. Geological Survey  
 WICA – Wisconsin Islands Closed Area