Upper Midwest Environmental Sciences Center
December 2010 Activity Report

American Recovery and Reinvestment Act

- Jack Waide and Linda Ott *(UMESC)* hosted a visit from evaluators with the Department of Interior's Office of Inspector General's (OIG) Recovery Oversight Office in Albuquerque, NM. OIG staff are visiting ongoing projects funded under the 2009 American Recovery and Reinvestment Act (ARRA). The visit to UMESC was made to review the ongoing construction of a new wing addition to the current office-laboratory complex, focusing on project oversight, project status, progress monitoring techniques, and fraud awareness.

Aquaculture Chemicals and Drugs

Aquatic Sedatives

- Jeff Meinertz and Mark Gaikowski *(UMESC)* met with representatives of Aqui-S New Zealand, Ltd., the U.S. Fish and Wildlife Service (FWS) Aquatic Animal Drug Approval Partnership Program, and the Association of Fish and Wildlife Agencies (AFWA) Drug Approval Working Group in Portland, OR, December 9-10, to plan the research program for the development of AQUI-S E(R) as an immediate-release sedative for freshwater finfish. The intent of this research is to achieve the approval of AQUI-S E(R) to provide fishery managers access to a drug which will sedate freshwater fish to allow them to be handled for weighing, measuring, tagging, and other operations followed by immediate release back to the water with no drug withdrawal period. Scientists at UMESC will determine the residue depletion of eugenol *(the active ingredient in AQUI-S E(R))* to help the U.S. Food and Drug Administration (FDA) ensure that released fish do not contain drug residues of concern to people that might catch and eat recently sedated fish. This work is an on-going collaborative effort to support the development of drugs for use in public fish management and production between the USGS, FWS, and AFWA.

Aquatic Invasive Species – Sea Lamprey

Meetings

- Terry Hubert and Mike Boogaard *(UMESC)* attended the Great Lakes Fishery Commission (GLFC) Lampricide Control Task Force meeting to discuss technical assistance projects slated for the upcoming field season. The meeting was held December 8-9 in Escanaba, MI.

Emerging Contaminants

Antihistamines and Antibiotics

- Jeffery Meinertz, Theresa Schreier, Jeffry Bernardy *(UMESC)*, and Jeanne Franz *(Winona State University)* published the results from chronic toxicity testing of the effects of a commonly used antihistamine *(diphenhydramine hydrochloride)* and a commonly used antibiotic *(erythromycin thiocyanate)* on *Daphnia magna*. During their study, *Daphnia* were continually exposed to the compounds for 21 days at environmentally relevant concentrations. These compounds may be continually introduced into the aquatic environment from a number of sources, including wastewater treatment plants. The study was conducted as part of a larger project to assess the potential of pharmaceuticals and personal care products to effect sensitive species in aquatic environments.
    - Meinertz, J.R., T.M. Schreier, J.A. Barnardy, J.L. Franz. 2010. Chronic Toxicity of Diphenhydramine Hydrochloride and Erythromycin Thiocyanate to Daphnia, Daphnia magna, in a Continuous Exposure Test System. Bull Environ Comtam Toxicol. 85:447-451. DOI 10.1007/x00128-010-0117-7.

Great Lakes Restoration Initiative (GLRI)

Project #82, Characterization of Rivermouth Ecosystems

- William Richardson and James Larson *(UMESC)* participated in a Core Team planning workshop for the Great Lakes Rivermouth Collaboratory, to build on collaborative research being conducted by UMESC, GLSC, MI WSC, and WI WSC, for the GLRI project supporting restoration of Great Lakes Rivermouth ecosystems. The meeting was held Dec. 6-7 at the Great Lakes Commission office, Ann Arbor, MI.

Gulf of Mexico

Deepwater Horizon Oil Spill

- Kevin Kenow *(UMESC)* met with Minnesota Department of Natural Resources managers and biologists to discuss a future research opportunity titled, "Assessment of the Impact of the Gulf Oil Spill on Common Loons and American White Pelicans in Minnesota," December 3, St. Paul, MN. The Minnesota Legislative Citizen's Commission on Minnesota Resources recently approved a $250,000 proposal which included a $120,000 effort led by UMESC to evaluate migration patterns, wintering distribution, and blood chemistry of common loons that breed in Minnesota.

Landscape Conservation

Presentations

- Wayne Thogmartin *(UMESC)* presented, "Integrating Potentially Conflicting Species Needs in Designing Conservation Landscapes," the 71st Midwest Fish and Wildlife Conference, Minneapolis, MN, 12 Dec. 12.

Meetings

- Jason Rohweder *(UMESC)* supplied information to the Land Stewardship Project for a presentation at the "Chippewa 10% Project Full Team Meeting," December 15 in Morris, MN. The Chippewa 10% Project is testing a new strategy for building a multi-beneficial agriculture system to help find viable ways for farmers to make money from agriculture while doing their part to improve land and water resources. Rohweder is proposing the use of UMESC's existing ArcGIS interface program "LINK" to assess the conservation potential of the Chippewa River watershed in western Minnesota. LINK was developed by UMESC to support the FWS with long-term resource management planning. The program uses remotely-sensed land cover data to quantify the amount and quality of priority species habitat. Rohweder performed hypothetical alterations to the landscape and then used LINK to predict how these changes may affect potential species abundance.

Large Rivers

Mississippi

- Barry Johnson and Jennifer Sauer *(UMESC)* attended the Long Term Resource Monitoring Program's (LTRMP) Analysis Team meeting in Alton, IL, December 1-2. The meeting focused on developing indicators of ecosystem health for the Upper Mississippi River, and research needed to address issues related to native mussels, aquatic vegetation, and landscape patterns.

Rio Grande

- Barry Johnson *(UMESC)* was contacted by Elizabeth Kistin *(Audubon, New Mexico)* regarding efforts to initiate the Rio Grande Environmental Management Program, December 9. Kistin wanted to learn more about the Environmental Management Program (EMP) on the Upper Mississippi River System and relevant lessons and experiences that could inform the effort to begin a similar program on the Rio Grande. This discussion is a follow up to an initial meeting in February 2006 in New Mexico at which staff from UMESC presented information regarding the LTRMP and habitat restoration efforts on the Upper Mississippi River System.

Migratory Birds

Common Loons

- Kevin Kenow *(UMESC)* gave an invited presentation on common loon migration research at the Minnesota Ornithologists' Union Annual Paper Session, at the Bell Museum of Natural History, Minneapolis, MN, December 4.

National Fish Habitat Partnerships

Meetings

- Ken Lubinski *(UMESC)* and Nancy North *(NewGround, Inc.)* gave a presentation on the Fishers and Farmers Partnership for the Upper Mississippi River Basin, at the 71st Midwest Fish and Wildlife Conference, Minneapolis, MN, December 14-15. While in Minneapolis Lubinski joined with Jason Rohweder to participate in a FWS organized workshop on the National Fish Habitat Partnership assessments of fish and fish habitats. Progress on one Midwestern Partnership was reviewed, with the expectations that its methods will be incorporated into other assessments.

National Park Mapping

Appalachian National Scenic Trail (APPA)

- Andrew Strassman *(UMESC)* received the 2010 Appalachian National Scenic Trail Vegetation Mapping Project (APPA) imagery from Photo Science Geospatial Solutions. This data set contains 602, 1-by-2 mile aerial images captured along the Appalachian Trail collected during the Fall of 2010 from the New York/New Jersey border north to Rutland, VT. These images will be reprocessed and uploaded for conversion into 3D, desktop stereo pairs for use in vegetation mapping for the APPA project.

Remote Sensing

Landcover Mapping

- Larry Robinson *(UMESC)* and representatives from the Applanix Corporation and FWS met to discuss lessons learned or applied, and improving the acquisition process, December 21, Fort Snelling, MN. The FWS camera is an Applanix DSS 439 medium-format digital camera system. UMESC is using the camera to collect 2010/2011 aerial photography of the Upper Mississippi River System, to be used to develop a 2010/2011 Land Cover/Land Use floodplain vegetation dataset *(Minneapolis, MN to Cairo, IL and the Illinois River)*.

Other

Acronyms

AFWA – Association of Fish and Wildlife Agencies
APPA – Appalachian National Scenic Trail
ARRA – American Recovery and Reinvestment Act
EMP – Environmental Management Program
EPA – U.S. Environmental Protection Agency
FDA – U.S. Food and Drug Administration
FWS – U.S. Fish and Wildlife Service
GLFC – Great Lakes Fishery Commission
GLRI – Great Lakes Restoration Initiative
GLSC – Great Lakes Science Center
LTRMP – Long Term Resource Monitoring Program
MI WSC – Michigan Water Science Center
OIG – Office of Inspector General
UMESC – Upper Midwest Environmental Sciences Center
USGS – U.S. Geological Survey