Upper Midwest Environmental Sciences Center
February 2011 Activity Report

Aquaculture Chemicals and Drugs

Presentations

- Maren Tuttle-Lau, Susan Schleis, and Steve Redman attended the Mid-continent Warmwater Fish Culture Workshop at Eugene T. Mahoney State Park in Ashland, NE, February 7-9. This annual workshop rotates to a different mid-western state each year and provides a forum for the exchange of up-to-date information among personnel from the U.S. Fish and Wildlife Service, state department of natural resource hatchery programs, researchers, and private aquaculture producers. Tuttle-Lau gave the presentation, "Efficacy studies to expand label claims." Schleis presented, "Use of florfenicol in recirculating aquaculture systems."
- Mark Gaikowski presented information on the drug approval process and drugs presently in development for aquaculture and fish pathogens, at the U.S. Department of Agriculture North Central Regional Aquaculture Center (NCRAC) Annual Meeting, February 12-13 in Columbus, OH. Gaikowski is a member of the technical committee for research and provides advice in the areas of aquaculture drugs, invasive/nuisance species control, and disease management.

Reports

- Jeff Meinertz and Mark Gaikowski (UMESC) worked cooperatively with Viterbo University faculty and students to conduct a study to generate data for the potential approval of a sedative that allows for the immediate release of fish that have regained equilibrium after sedation. The study examined feeding behavior and the susceptibility of freshwater fish to angling after electroshocking and chemical sedation with benzocaine or eugenol. If approved this sedative would provide resource and hatchery managers with a new tool for fisheries restoration efforts.
  - Fredricks, K.T., J.R. Meinertz, M.P. Gaikowski, R.D. Ambrose, L.M. Jackan, and J.K. Wise. 2011. The availability of freshwater fish to the angling public following electrical immobilization and sedation by benzocaine or eugenol. Final report submitted to the Association of Fish and Wildlife Agencies, February 25, 2011. 146 pages.

Aquatic Invasive Species – Asian Carp

Presentations

- Jon Amberg presented an overview of UMESC's facilities and capabilities that will assist in the calibration of eDNA, at the eDNA Calibration and Transition Meeting hosted by the U.S. Army Corps of Engineers in Vicksburg, MS, February 9-10. The purpose of this meeting was to discuss the tasks associated with the calibration and eventual transition of eDNA technologies.
- Jon Amberg, Jim Luoma and Teresa Schreier provided updates on past and present Asian carp research activities funded through the Great Lakes Restoration Initiative, at the USGS Asian carp partner coordination meeting and the USGS Asian carp science coordination meeting, February 23-24 in Chicago, IL. Mike Jawson, Mark Gaikowski, Terrance Hubert, and Randy Hines also represented UMESC at these meetings.

Aquatic Invasive Species – Sea Lamprey

Coordination Meetings

- Mike Boogaard attended the Great Lakes Fishery Commission Lampricide Control Task Force meeting in Traverse City, MI, February 9-10. Boogaard provided updates on completed and on-going technical assistance projects conducted during the 2010 and 2011 field seasons. The Task Force was created to define lampricide control options for near- and long-term stream selection and target setting, improve the efficiency of lampricide control, and maximize

sea lampreys killed in individual stream and lentic area treatments, while minimizing lampricide use, costs, and impacts on stream/lake ecosystems.

Chemical Registration

- Jane Rivera gave the presentation, “Sea lamprey pheromone regulatory actions Sep 2010 to Feb 2011,” at the Great Lakes Fishery Commission Reproduction Reduction task force biannual meeting in Ann Arbor, MI, February 22-23. The task force provides current data and information on alternate sea lamprey controls including barriers, traps, sterile males, and sea lamprey phermones as attractants.

Climate Change

Meetings & Presentations

- Kevin Kenow met with the Wisconsin Department of Natural Resources on February 7, to discuss development of a common loon breeding habitat model for the project, "Potential effects of climate change on inland glacial lakes and implications for lake-dependent biota in Wisconsin."
- Wayne Thogmartin presented, “A demographic model of Indiana bats subject to White-nose Syndrome,” to the Department of Fisheries and Wildlife, University of Missouri, February 9. While in Missouri, Thogmartin also met with Sybill Amelon *(Indiana bat researcher, US Forest Service)* and participated in a PhD committee meeting for doctoral candidate Jaymi Lebrun. Lebrun is modeling and mapping forest bird responses to changing climate and land cover composition and configuration.
- Walt Sadinski presented, “Measuring effects of global change on interconnected wetlands and uplands along North American environmental gradients: The Terrestrial Wetland Global Change Research Network,” at Department of Natural Resource Ecology and Management , Iowa State University, February 11.

Congressional Relations

- Jack Waide attended U.S. Congressman Ron Kind’s *(Wisconsin 3rd District)* River Advisory Board meeting on February 24 in La Crosse, WI. The Board meets periodically to inform the Congressman and his staff about activities and issues related to the Upper Mississippi River (UMR) and tributaries. Waide provided an update on recent accomplishments and activities in the Long Term Resource Monitoring Program (LTRMP), and on construction of a new wing addition to the UMESC facility (ARRA funds). Other updates focused on ongoing Habitat Rehabilitation and Enhancement Projects (HREPs) on the UMR (WI DNR, USFWS), and on Driftless Area restoration efforts led by Trout Unlimited. Congressman Kind provided an update on recent legislative actions related to the UMR.

Geospatial Technology

Data

- UMESC has begun serving Tier 2 LiDAR products for the Upper Mississippi River floodplain. Tier 1 products were designed to make LiDAR data available publically as soon as possible; Tier 2 LiDAR products were developed using additional processing/data editing steps designed to smooth out data irregularities and identify/correct any data errors. The LiDAR products are available via the UMESC web site (http://www.umesc.usgs.gov/), with a complete listing of available products at http://www.umesc.usgs.gov/data_library/gis_data/lidar.html. (contact: Jennifer Dieck, jdieck@usgs.gov)

Meetings

- Mike Jawson, John (JC) Nelson, Tim Fox *(UMESC),* Charles Peters *(WI WSC),* and geospatial staff from the WI WSC and the Center for Integrated Data Analytics (CIDA) met to discuss strategies for working together on geospatial projects in WI, February 10.

- John (JC) Nelson attended the Wisconsin Land Information Association (WLIA) annual meeting in Madison, WI, February 16-18. Several federal and state partners gave presentations on topics of high interest to UMESC, including Light Detection And Ranging (LiDAR), the Great Lakes Restoration Initiative (GLRI), and Federal partnerships.

Great Lakes Restoration Initiative (GLRI)

Project #80, Birds as Indicators of Contaminant Exposure in the Great Lakes

- Chris and Tom Custer attended a U.S. Environmental Protection Agency meeting for federal agencies working at Areas of Concern (AOCs) in the Great Lakes, February 2 in Chicago, IL. The meeting involved individuals collecting data on Beneficial Use Impairments (BUIs), with the objectives to coordinate agency efforts and field work, and enhance communication.
- Chris and Tom Custer shared results from their projects to use birds as indicators of contaminant exposure at the St. Louis River Estuary Summit, University of Wisconsin–Superior, February 7-8.

Project #82, Characterization of Rivermouth Ecosystems: Foodweb Linkages Among Watersheds, Wetlands, and Lakes Supporting Great Lakes Fisheries

- James Larson, William Richardson, John (JC) Nelson *(UMESC),* and scientists from the GLSC, MI WSC, WI WSC, Grand Valley State University, and the University of Michigan participated in a workshop to facilitate collaborative research on the Muskegon River and other Lake Michigan tributaries at the Annis Water Resource Institute (AWI), Grand Valley State University, Muskegon, MI, February 4. Researchers from AWI have developed substantial expertise and knowledge about the biogeochemistry, biology, and productivity of the Muskegon River and Lake Michigan. The goal of the workshop was to establish communication and research links between scientists working on GLRI Project #82, and outline research proposals for specific funding opportunities.

Native Mussels

Outreach

Teresa Newton was interviewed by Maureen McCollum *(Wisconsin Public Radio)* regarding the U.S. Fish and Wildlife Service's proposal to add the sheepnose and spectaclecase mussels to the endangered species list, and discuss the important roles native mussels play in river ecosystems. The interview took place January 20 and is available at http://www.wpr.org/webcasting/playmp3.cfm?pagename=/news/newsstories.cfm&FileName=nws110210mm.mp3.

Mississippi River

Meetings

- Several UMESC scientists are scheduled to attend the 2011 Bottomland Ecosystem Restoration Conference, March 7-10 at the National Great Rivers Research and Education Center in Collinsville, IL. The conference was designed to bring together natural resource managers, scientists, decision-makers, non-governmental organizations, and other stakeholders from the Upper Mississippi River System and the Lower Mississippi Alluvial Valley. Oral presentations will include:
    - "The Ecological Setting," by Ken Lubinski.
    - "Disturbance and its Impact on Vegetation – Legacy of the 1993 Flood," by Yao Yin.
    - "Bird Community Supported by Upper Mississippi River Floodplain Forests and Associated Habitats," by Eileen Kirsch.
    - "Interactive Effects of Flooding and Herbivory on Tree Recruitment in Upper Mississippi River Floodplain Forest," by Ben Cogger, Meredith Thomsen *(Univ. of WI-La Crosse)*, and Nathan De Jager *(UMESC)*.

- William Richardson participated in a research planning meeting for Cycle 3 of the NAWQA Nutrient Enrichment Effects Team, February 13-15 in New Orleans, LA. Discussions centered on ways to integrate studies of nutrient loading and biogeochemical cycling of nutrients and effects on aquatic foodwebs and productivity of agricultural streams. The planning group also included team lead Mark Munn, hydrologists John Duff and James Tesoriero, and biologist Terry Short.
- Eileen Kirsch attended the US Army Corps of Engineers Forest Coordination Meeting for Mississippi River navigation Pools 9-10 *(St Paul District)* and navigation Pools 11-14 *(Rock Island District)* in Makoqueta, IA, February 15.

Water-level Drawdowns

- Teresa Newton was invited to participate as a member of the Upper Mississippi River's Water Level Management Task Force's team to evaluate the potential for drawing down water levels in Navigation Pools 3 and 8. The team is tasked with looking at physical, ecological, and social concerns regarding drawing water levels down in these reaches of the Mississippi River. The group held their first meeting February 7 at the U.S. Fish and Wildlife Service Upper Mississippi National Wildlife Refuge headquarters in Winona, MN.

Wildlife Diseases

White-nose Syndrome

- Wayne Thogmartin presented, "A demographic model of Indiana bats subject to White-nose Syndrome," to the Department of Fisheries and Wildlife, University of Missouri, February 9. While in Missouri, Thogmartin also met with Sybill Amelon *(Indiana bat researcher, US Forest Service)* and participated in a PhD committee meeting for doctoral candidate Jaymi Lebrun. Lebrun is modeling and mapping forest bird responses to changing climate and land cover composition and configuration.

Trematodiasis & Bythnia Snails

- Jennifer Sauer, Jim Rogala, Kevin Kenow, and staff from the U.S. Fish and Wildlife Service Upper Mississippi River National Wildlife and Fish Refuge and the Wisconsin Department of Natural Resources met to discuss study designs for improving waterbird mortality estimates, February 14. Since 2002, there have been major waterbird mortality events in Mississippi River Navigation Pools 7 through 11 *(Trempealeau, WI to Dubuque, IA)*. Total mortality within the Refuge has been estimated at 58,000-75,000 birds. While Refuge staff estimate mortalities on a weekly basis, they feel these estimates are low due to scavenger removal, search efficiency, and other factors. (contact: Jennifer Sauer, jsauer@usgs.gov)

Wildlife Ecology

Publications

- Thogmartin, W.E., B. Potter, and G. Soulliere. 2011. Bridging the conservation design and delivery gap for wetland bird habitat maintenance and restoration in the Midwestern United States. Journal of Conservation Planning 7:1–12.

  This publication introduces a regional prioritization scheme for North American Wetlands Conservation Act funding which explicitly addresses Midwest regional goals for wetland-dependent birds. Decision-support maps were developed to guide conservation of breeding and non-breeding wetland bird habitat. This exercise suggested ~55% of the Midwest consists of potential wetland bird habitat, and areas suited for maintenance (protection) were distinguished from those most suited to restoration. Areas with greater maintenance focus were identified for central Minnesota, southeastern Wisconsin, the Upper Mississippi and Illinois rivers, and the shore of western Lake Erie and Saginaw Bay. The shores of Lakes Michigan and Superior accommodated fewer waterbird species overall, but were also important for wetland bird habitat maintenance. Abundant areas suited for wetland restoration occurred in agricultural regions of central Illinois, western Iowa, and northern Indiana and Ohio. Use of this prioritization scheme

can increase effectiveness, efficiency, transparency, and credibility to land and water conservation efforts for wetland birds in the Midwestern United States.

Other

Acronyms

DNR – Department of Natural Resources
EMP-CC – Environmental Management Program Coordinating Committee
EPA – U.S. Environmental Protection Agency
FIFRA – Federal Insecticide, Fungicide, and Rodenticide Act
FWS – U.S. Fish and Wildlife Service
GLFC – Great Lakes Fishery Commission
GLRI – Great Lakes Restoration Initiative
LTRMP – Long Term Resource Monitoring Program
NECC – Navigation and Ecosystem Coordinating Committee
TFM – a type of lampricide
TNC – The Nature Conservancy
UMESC – Upper Midwest Environmental Sciences Center
UMRBA – Upper Mississippi River Basin Association
USACE – U.S. Army Corps of Engineers
WICCI – Wisconsin Initiative on Climate Change Impacts