

Long Term Resource Monitoring Program FY12 Activities (Living Document)
Current FY 12 Activities Not Listed in the SOW

Presentations/Publications:

Ruebush, Blake C., G. G. Sass, J. H. Chick and J. D. Stafford. 2012. In-situ tests of sound-bubble-strobe light barrier technologies to prevent range expansions of Asian carp. *Aquatic Invasions* 7(1): 37–48. This study was funded by a grant from the National Sea Grant College Program, National Oceanic and Atmospheric Administration, Department of Commerce awarded to GGS, NA08OAR4170913. <http://www.aquaticinvasions.net/2012/issue1.html>

Herzog, D. P., Q.Phelps, D. Ostendorf, J. Ridings, T. Moore, B. Todd, C. Gemming, V. Travnichek and T. Hill. An evaluation of the lake sturgeon (*Acipenser fulvescens*) in Missouri's large Rivers. Midwest Fish and Wildlife Conference. December 4-7, 2011.

Herzog, D. P., Q.Phelps. Sturgeon management in Missouri. UMRCC: Mark twain State Park. Oct 11-13, 2011.

Technical activities and assistance:

Barry Johnson, USGS-UMESC, participated in the USGS Strategy Workshop on Implementing a Monitoring Framework to be held on December 1 & 2, 2011 at the USGS Headquarters Office in Reston, Virginia. This meeting is intended to generate some initial discussion and ideas on what a national biodiversity monitoring framework could look like and what could be done to support its creation.

Several LTRM staff participated in the project: Upper Mississippi River Nutrient Monitoring, Occurrence, and Local Impacts: A Clean Water Act Perspective (September 2011; www.umarba.org/wq/umr-nutrients.pdf). This project, undertaken by the Upper Mississippi River Basin Association (UMRBA) Water Quality Task Force, brought together data and research in order to examine the status of UMR nutrient monitoring and the occurrence of nutrients – both current and historic – on the UMR. The project also investigated nutrient impacts on the UMR's mainstem and how these affect attainment of Clean Water Act (CWA) designated uses. The project was intended to inform the UMR states' ongoing water quality protection and nutrient reduction efforts.

Invited review of manuscript on zooplankton in tropical rivers for the *International Journal of Tropical Biology and Conservation*. (Burdis)

Distributed lab results from August water sample splits for total phosphorus and chlorophyll to all agency participants (UMESC, MPCA, and Met Council Environmental Services). (Burdis)

Coordinated to provide a set of notes to UMESC on the Hydrolab workshop they had attended (Burdis & Giblin)

Distributed 2011 LTRM vegetation frequency summaries and distribution maps to MN and WI DNRs and MPCA. (Moore)

Provided LTRM largemouth bass data to MNDNR Fisheries Management. (DeLain)

Provided LTRM water quality data to a graduate student and zooplankton data to a second graduate student. (Burdis)

Met with staff from the Mississippi Watershed Management Organization to provide them with information on our monitoring operations and advise them on equipment needs for monitoring Pool 1 and above. (Lake City Field Station staff)

Completed 3rd period fish sampling; captured our first lake sturgeon in Pool 13 during LTRM sampling since 1998 (captured via electrofishing) (Bellevue Field Station).

Helped the Iowa DNR's Bellevue Research Team with fall night electrofishing for walleye/sauger in the Lock and Dam 12 tailwaters, this supplements our tailwater sampling information; great indicator of young of year abundance for these important recreational species (Bellevue Field Station).

Completed Vegetation Accuracy Assessment for USGS to ground-truth vegetation classification system developed from aerial photos of Pool 13 (Bellevue Field Station).

Worked with the Iowa DNR's Bellevue Fisheries Research and Management teams, to complete this fall's increment of Pool 12 Overwintering HREP pre-project monitoring (pool-wide electrofishing and netting in specific backwater lakes that will be part of the project) (Bellevue Field Station).

Completed a budget exercise for USGS and USACE LTRM managers to reflect a potential 5.6% reduction in base funding. This is in response to great uncertainty of what the EMP/LTRM budget will be in federal FY12 (All Field Stations).

Worked with USGS and USACE LTRM managers to expand the detail in the FY12 Scope of Work (All Field Stations).

Participated in two conference calls regarding the Pool 12 Overwintering HREP and issues with which backwaters would actually be dredged; it looks like Fishtrap Lake will be dropped from the project due to high zinc levels in the sediment in this area (based on monitoring by Illinois EPA) (Bellevue Field Station).

Provided water quality data collected by LTRM from Rock Creek to staff from Iowa DNR's Contaminated Sites Section (Bellevue Field Station).

Staff continued collection of Asian carp cleithrums on the La Grange Reach for ongoing age/ growth study. (Illinois Rivers Field Station).

Staff provided summarized LTRM fish data from the La Grange Reach to Greg Sass WDNR, concerning ongoing SIU/IDNR Asian Carp Reduction project. (Illinois Rivers Field Station).

Thad Cook conducted the thematic accuracy assessment for the La Grange Pool of the Illinois River.

John Chick took part in the November 9th meeting of the Science Advisory Committee for the State of Illinois. The Science Advisory Committee addresses scientific issues related to the Illinois, Mississippi, Ohio, and Wabash rivers and works directly under the guidance of the Governor's River Coordinating Councils. The Science Advisory Committee is chaired by Dr. Nani Bhowmik and hosted by the National Great Rivers Research and Education Center. Members include experts from the scientific community that are appointed by Lt. Governor Sheila Simon. Additional experts may be invited to temporarily serve on ad hoc committees focused on specific activities. Dr. Chick was appointed to this committee in 2011. During the meeting, Dr. Chick described the scientific information available from the Upper Mississippi River Restoration - Environmental Management Program and Long Term Resource Monitoring project.

Eric Ratcliff provided information on Asian carp to Jacob Lembke, a student at Auburn University working on an independent study on effects of Asian carp on the ecosystem in the UMRS.

Eric Ratcliff provided information on Asian carp to Lisa Adden, a biology major at Webster University working on an independent field study of how to best eliminate Asian carp from the UMRS.

Ben Lubinski has been studying ways of incorporating LTRM electrofishing procedures into the protocols of the Illinois Natural History Survey's Long Term Electrofishing program.

Lori Gittinger demonstrated EMAP zooplankton identification protocols to two Western Illinois University students working on a Mississippi River zooplankton study.

Brian Gray contributed text to a book titled Design and analysis of long-term ecological monitoring studies (eds., RA Gitzen et al) in the chapter "Variance components estimation for continuous and discrete data, with emphasis on cross-classified sampling designs," and is due to be published later this year in. Topics addressed are important for the analysis of LTRM fish, invertebrate, plant and water data that are clustered within years, backwater lakes or both.

Barry Johnson and Eileen Kirsch (UMESC) participated in first meeting of the Minnesota Climate Change Vulnerability Assessment, February 8, in St. Paul, MN. The assessment group has been formed to use a systems mapping approach to evaluate exposure and sensitivity of habitats and species to projected changes in climate and other existing stressors in Minnesota. During this meeting habitat teams were created to assess habitat change maps and evaluate potential impacts to species.

Barry Johnson participated in the La Crosse (Wisconsin) Community Climate Adaptation Workshop, February 28. The workshop introduced local government officials and interested parties to climate change, as well as the planning processes and ideas about adaptation actions and strategies that can help their communities prepare for climate change impacts. Results of the workshop will be included in the City of La Crosse Sustainability Plan.

Dave Bornholdt (MWA) and Barry Johnson (UMESC) participated in the quarterly meetings of the Upper Mississippi River Basin Association (UMRBA) and the Environmental Management Program-Coordinating Committee (EMP-CC), in Davenport, IA, February 28 and March 1. The UMRBA meeting will focus on river and basin issues such as sand mining, Asian carp, and river training structures. The EMP-CC meeting will focus on the management and accomplishments of the Upper Mississippi River Restoration (previously,

Environmental Management Program) in both the Habitat Rehabilitation and Enhancement Component and the Long Term Resource Monitoring Component, which is implemented by UMESC.

Jennifer Sauer and Jeff Houser provided John Wilson (USGS-WRD Hydrologist) with information on macroinvertebrate and water quality sampling on the UMRS. The National Water-Quality Assessment (NAWQA) Program is compiling a multi-state database of available monitoring data for streamflow, water quality (groundwater, streams and rivers), and aquatic biology.

Brian Ickes communicated with Dr. Zhen to assist in coordinating an Asian Carp study with the USGS-UMESC Aquatic Ecosystem Health Branch.

USGS-UMESC and field station fish component staff developed sampling protocols for the LTRM hoop net study looking at alternative bait.

USGS-UMESC and field station fish component staff developed an Electrofishing boat dropper array policy to maintain the standardization of equipment with the new purchases of ES boats.

Brian Ickes responded to a request from Kathryn McCain on depth requirements for overwintering fish habitat in UMRS backwaters. The information will be used in a revision of the EMP design handbook for HREPs.

Barry Johnson (UMESC) will participate in a Minnesota Department of Natural Resources workshop to develop "system maps" (similar to conceptual models) of the potential effects of climate change on different habitats and ecosystems across Minnesota. The maps will be used to consider possible adaptation strategies that can help lessen the predicted effects of climate change on these ecosystems. The workshop will be held April 15 in St. Paul, MN.

Nathan DeJager contributed text to the book *Studies on Environmental and Applied Geomorphology*, Chapter 7.

Houser, JN, SM Giblin, WF James, HA Langrehr, JT Rogala, JF Sullivan, and BR Gray submitted a manuscript on Nutrient cycling and the abundance of duckweed and filamentous algae in backwater lakes of the Upper Mississippi River

Giblin, S.M. , J. Sullivan, J. Houser, H. Langrehr, J. Rogala and B. Campbell submitted a manuscript on temporal and spatial evaluation of factors influencing metaphyton biomass, distribution and composition within Upper Mississippi River backwaters.

De Jager, N.R and J.N. Houser submitted an abstract: Variation In Hydrologic Connectivity Influences Patch Distributions of Nitrogen, Phosphorous and TN:TP Ratios In The Upper Mississippi River, USA. Poster to be presented at the Society for Freshwater Science Annual Meeting. 20-24 May 2012. Louisville, KY.

Houser, J.N., S.M.Giblin, W.F. James, H.A. Langrehr, J.T. Rogala, J.F. Sullivan, and B.R. Gray submitted an abstract: Causes and Consequences of Abundant Duckweed and Filamentous Algae in Backwater Lakes of The Upper Mississippi River Near La Crosse, Wisconsin. Presentation to be made at the Mississippi River Research Consortium. 26-27 April 2012. La Crosse, WI.

Nate DeJager and Jeff Houser submitted a manuscript on patterns of nutrients in the UMR.

Nate DeJager submitted abstracts to two conferences (AFS and ESA).

S.M. Giblin, J.F. Sullivan, J.N. Houser, H.A. Langrehr, J.T. Rogala, and B.D. Campbell submitted an abstract: Temporal And Spatial Evaluation Of Factors Influencing Free-Floating Plant Biomass, Distribution and Composition Within Upper Mississippi River Backwaters. Presentation to be made at the Mississippi River Research Consortium. 26-27 April 2012. La Crosse, WI.

Invited review of manuscript on effects of substrate type and *Lemna* shading on growth of two species of submersed macrophytes for Hydrobiologia. (Moore)

Provided SAV trend data for multiple species in Big Lake to the US Fish & Wildlife Service. (Moore)

Provided graphics showing vegetation trends and the relationship of SAV to TSS in Pool 4 to St. Paul District US Army Corps of Engineers, US Fish & Wildlife Service, and MN DNR Fisheries Management biologists. (Moore)

Provided MN PCA with chlorophyll data from the fixed-site sampling in Lake Pepin. (Burdis)

Provided MN DNR Fisheries Management with Secchi transparency data for summer 2011 from the fixed-site sampling in Lake Pepin. (Burdis)

Provided information on MN listed fish species of special concern from the LTRM database to MN DNR Fisheries Management. (DeLain)

Bierman participated in conference calls for Pool 12 HREP regarding contaminated sediments in Fishtrap Lake – January-February, 2012.

Kueter and Petersen completed monthly WQ fixed site sampling – January-March, 2012.

Bowler assisted Kueter with field collections of winter WQ SRS – January, 2012.

Bierman and Petersen assisted Kueter with lab sample work-ups of winter WQ SRS field collections – January, 2012.

Bierman, Bowler, and Kueter attended quarterly N.E. district fisheries management meeting in Guttenberg, Iowa – January, 2012.

Bowler provided analysis of Pool 12 black and white crappie mortality in six backwater study lakes (2006-2011) for Bellevue Research – January, 2012.

Bowler compiled and submitted the Bellevue LTRM Operational Report for 2011 to N.E. district supervisor – January, 2012.

Bierman and Bowler worked with UMESC on updating the Bellevue LTRM Scope of Work for upcoming year – February-March, 2012.

Bierman participated in A-Team conference call – February, 2012.

Bowler provided analysis of Pool 13 snapping turtle catches in LTRM fisheries sampling (1989-2011) for Bellevue Management – February, 2012.

Bowler wrote SAS programs for Minnesota DNR that calculates CPUE for age-0 fishes in the upper and lower reaches of Pool 4, UMR – February, 2012.

Bowler, Kueter, and Petersen assisted Bellevue Research with MICRA paddlefish netting and tagging – February, 2012.

Bierman, Bowler, Kueter, and Petersen attended LTRM/UMESC/USACE meeting in La Crosse, Wisconsin – February, 2012.

Bowler worked with UMESC and multi-state LTRM staff updating the sampling procedures protocols of the LTRM fisheries component – February, 2012.

Bowler compiled and distributed ‘Pool 13 Fisheries Highlights, 2011’ for UMR personnel – February, 2012.

Bowler provided twenty-year trawling data summations of age-0 shovelnose sturgeon CPUE and age-frequency for Des Moines Research – February, 2012.

Bowler participated in conference call with the Fish and Wildlife Interagency Committee (FWIC) on Pool 12 HREP and regular LTRM activities – February, 2012.

Bierman, Bowler, Kueter, and Petersen extracted 541 bluegill otoliths for Pool 12 HREP project – February, 2012.

Bowler identified age-0 silver chubs for Fairport Management – February, 2012.

Bierman, Bowler, Kueter, and Petersen attended Iowa AFS/Fisheries Statewide in Guthrie Center, Iowa – March, 2012.

Bierman completed exercise to determine staff effort to complete base monitoring for Bellevue’s LTRM activities for the USACE – March, 2012.

Bowler provided spatial coverages (ArcView) of length-specific catch rates of bluegill in Pool 13 (1993-2011) for Bellevue Management and Research – March, 2012.

Bowler provided twenty years of gear-specific L/F’s and CPUE trends of northern pike in Pools 8 and 13 for Bellevue Research – March, 2011.

Bowler attended the UMRCC meeting in Winona, Minnesota – March, 2012.

Bowler gave summaries of the 2011 field season and various fisheries trends for the Pool 12 HREP and regular LTRM activities in Pool 13 to the UMRCC Fish Technical Section – March, 2012.

Bierman, Bowler, Kueter, and Petersen attended CPR training in Dubuque, Iowa – March, 2012.

Bowler completed and submitted annual report “Fisheries Monitoring in Pool 13, Upper Mississippi River, by Long Term Resource Monitoring” for the IDNR Fisheries Management Investigations 2011 Annual Report and to UMESC – March, 2012.

Bierman provided WQ data (Total N, NH₃, DO, and PH) to update water quality assessment on Upper and Lower Rock Creek for the IDNR Contaminated Sites Section – March, 2012.

Kueter summarized 2011 turbidity and secchi data in Pool 13 for Manchester Management – March, 2012.

Petersen digitized and completed initial aging of 541 bluegills for the Pool 12 HREP project – March, 2012. Bierman, Kueter, and Petersen assisted Bellevue Research with collecting and tagging northern pike in Pool 13 – March, 2012.

Bowler provided regression analysis and descriptive stats (i.e., annual fall mean lengths and SE’s – 1993-2011) of age-0 perch in Pools 4, 8, and 13 for Jeff Janvrin, Wisconsin DNR – March, 2012.

Ben Lubinski provided LTRM water quality sampling photos to Scott Yess from the U.S. Fish and Wildlife Service 1/2012.

Eric Ratcliff, Brian Ickes, Eric Gittinger, Joe Ridings, Levi Solomon, Blake Ruebush, Mel Bowler, Andy Bartels, Kraig Hoff, Steve DeLain, and Ben Schlifer held an LTRM fish component conference call to resolve numerous procedural issues pertinent to the ongoing fish procedures manual revision 2/2012.

Eric Ratcliff, Eric Gittinger, and Ben Lubinski participated in an Illinois AFS, “Fish Age and Growth” continuing education workshop 3/2012

John Chick, Eric Ratcliff, Eric Gittinger, Ben Lubinski, and Lori Gittinger attended an LTRM all hands meeting in La Crosse, WI, 2/2012. Each participated in their respective LTRM component break-out meetings.

Outreach

Blake Ruebush provided Asian carp video footage to the Chicago Architecture Foundation.

Blake Ruebush provided mayfly video footage to Red Rock Films for a National Geographic film production.

UMESC hosted U.S. Congressman Ron Kind (D-WI 3rd district) and his Mississippi River Advisory Committee meeting, January 26. During the semi-annual meeting, 30 representatives from state and federal agencies, nonprofit organizations, and private businesses provided updates on their river related activities. During the meeting, Deputy Director Waide provided updates on USGS’s river related activities including LTRM.

Open Rivers and Wetlands Field Station staff working closely with SE Region Outreach and Education staff held our second River Day event in October 2011. As part of the educational event, Dr. Quinton Phelps (chief chef) conducted an Asian Carp taste test.