

**Long Term Resource Monitoring Program**  
**An element of the Upper Mississippi River Restoration–Environmental Management Program**  
**FY12 Additional Activities Beyond the SOW (Living Document)**

**Presentations/Publications**

**1<sup>ST</sup> Quarter**

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>

**2<sup>nd</sup> Quarter**

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.

**3<sup>rd</sup> Quarter**

Mike Jawson, Barry Johnson (UMESC), and Dave Bornholdt (MWA) participated in the quarterly partner meetings of the Upper Mississippi River Basin Association and the Environmental Monitoring Program Coordinating Committee, May 23-24 in St. Louis, MO. The meetings focused on communication and actions regarding navigation infrastructure, Asian carp, water quality, habitat rehabilitation, and issues related to strategic planning and program management.

John (JC) Nelson and Larry Robinson (UMESC) presented posters of their LIDAR and 3D mapping projects at the 16th annual Digital Mapping Techniques 2012 conference in Urbana-Champaign, IL, May 20-23. This workshop on digital mapping techniques is an invitation-only event designed to bring together scientists, cartographers, and GIS specialists, primarily from State and Federal agencies who are using digital techniques to create and manage geologic maps. Among the topics discussed was the use of LIDAR or other advanced terrain models for field work and map/database preparation, 3D databases and/or visualization techniques, and information management and delivery.

Ken Lubinski (UMESC) led the workshop, "Information Needs Related to Lateral (Floodplain) Connectivity: a Workshop for River Scientists, Managers, Policy Analysts, and Advocates," in St. Louis, MO, June 5-8, attended by forty-six participants from federal, state and private institutions. Results of an e-survey distributed by Steve Gillespie (USGS-Reston) were summarized and discussed. The resulting list of information needs will be a key reference document during the development of a 5-year science plan written by UMESC and other river science institutions (selected at the workshop). Other USGS participants

included Robb Jacobson (CERC), Kevin Richards (IA WSC), Craig Paukert (MO Co-op Unit), and Jeff Houser (UMESC).

Gray, B. 2012. Variance components estimation for continuous and discrete data, with emphasis on cross-classified sampling designs. In: Gitzen, R.A., J.J. Millspaugh, A.B. Cooper, D.S. Licht, editors. Design and analysis of long-term ecological monitoring studies. Cambridge University Press. 584 pgs.

UMESC Director Mike Jawson and Randy Hines participated in a conference call with Paula Sunde, the new Legislative Assistant for Representative Betty McCollum (MN 4th) June 13th. Ms. Sunde requested to learn more about UMESC science that might be useful in her focus area, including Energy, Environment, Agriculture, International Ag Development, and Telecommunications.

Amato, K.R., B. Martin, A. Pope, C. Theiling, K. Landwehr, J. Peterson, B. Ickes, J. Houser, Y. Yin, B. Hannon & R. Sparks. 2012. Spatially explicit modeling of productivity in Pool 5 of the Mississippi River. Pages 151-170 in J.D. Westervelt and G.L. Cohen [eds.] Ecologist-developed spatially explicit dynamic landscape models. Springer. New York. pp. 280

John Chick gave a presentation at the UMRR-EMP Coordinating Committee quarterly meeting on May 24. He presented information about NGRREC's assessment of the accuracy and precision of LTRMP electrofishing methods.

John Chick hosted a meeting between Marv Hubbell, other UMRR-EMP representatives, and NGRREC personnel to discuss potential interactions between UMRR-EMP and NGRREC. May 22.

Janvrin, J. and Heidi Langrehr. Assessment of Aquatic Vegetation Response to Island Restoration in Lower Pool 8 of the UMR. Platform presentation, Mississippi River research Consortium. La Crosse, WI April 27, 2012

Houser, J.N., S.M. Giblin\*, W.F. James, H.A. Langrehr\*, J.T. Rogala, J.F. Sullivan\*, and B.R. Gray. Causes and Consequences of Abundant Duckweed and Filamentous Algae in Backwater Lakes of the Upper Mississippi River near La Crosse, Wisconsin. Presentation made at the Mississippi River Research Consortium. 26–27 April 2012. La Crosse, WI.

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

De Jager, N.R., and J.N. Houser\*. Variation in hydrologic connectivity influences patch distributions of total nitrogen (TN), total phosphorous (TP) and TN:TP ratios in the Upper Mississippi River, USA. Poster presentation. Society for Freshwater Science Annual Meeting 2012. 20–24 May 2012. Louisville, Ky. NOTE: Jeff Houser also acted as moderator for a session, and a judge for student posters at this meeting.

Gray, B.R\*, J.R. Rogala, D.M. Robertson, and J.N. Houser. Modeling river and stream temperature using data collected at different spatial locations and irregular points in time. Upper Mississippi River Research Consortium 44th Annual Meeting. 26–27 April 2012. La Crosse, Wisconsin.

Solomon, L., B. Ruebush, and T. Cook. Trawling on the Illinois River: A brief Summary of 18 years of LTRMP trawling and the Introduction of the Mini Missouri Trawl. Upper Mississippi River Research Consortium 44th Annual Meeting. 26–27 April 2012. La Crosse, Wisconsin.

#### 4th Quarter

Chick, J.H. \*, C.R. Dolan, and G.G. Sass. An assessment of the relationship between electrofishing and catch-per-unit-effort data and fish abundance. August, 22, 2012. Presented as part of the symposium “Upper Mississippi River Restoration: Combining Habitat Rehabilitation, Monitoring, and Research to Enhance Fish Communities.” Annual Meeting of the American Fisheries Society, St. Paul, MN.

B. Ickes, Y. Yin, J. Houser, and C. Theiling contributed a chapter to the book: Ecologist-Developed Spatially-Explicit Dynamic Landscape Models (Modeling Dynamic Systems).

Brian Gray, James Rogala, and Xiaoqiao Wei. 2012. Modeling clustered river water temperature from haphazard times and random spatial locations. Joint Statistical Meetings, San Diego, CA, July 2012.

Jun Park, Katherine St.Clair, and Brian Gray. 2012. Spatially modeling occupancy for detection data collected using alternating survey methods. Joint Statistical Meetings, San Diego, CA, July 2012.

Burdis, R. Spatial and Temporal Distribution of Zooplankton in Pool 4 of the UMR. Poster American Fisheries Society 142nd Annual Meeting, August 19-23, 2012, St. Paul, MN

Burdis and DeLain attended the American Fisheries Society 142nd Annual Meeting on August 20-21 in St. Paul, MN

Kevin Kenow and Larry Robinson (UMESC) delivered presentations for the 5-year review of the U.S. Fish and Wildlife Service (FWS) Region 3’s Aviation Program, August 30. UMESC has worked with FWS Region 3’s aviation program since the late 1980s, more notably during the last few years as UMESC in partnership with the Upper Mississippi Restoration Long term Resource Monitoring Program has assisted them with the purchase, configuration, and use of their Applanix DSS 439 medium-format digital camera system. Robinson and Kenow have been working with the FWS Region 3 pilot Brian Lubinski for several years, collecting aerial photography and conducting waterfowl surveys throughout the Midwest. The 5-year reviews are used to identify areas of excellence and areas requiring improvement, and are designed to increase aviation safety, efficiency, effectiveness, and economy.

Larry Robinson (UMESC) delivered the presentation, “Land Cover/Land Use and LiDAR Products Update,” at the Upper Mississippi River Restoration (UMRR) program’s Environmental Management Program-Coordinating Committee (EMP-CC) meeting, August 30 in La Crosse, WI. UMESC is working with the Upper Mississippi River Restoration-Environmental Management Program’s (UMRR-EMP) Long Term Resource Monitoring Program (LTRMP) creating 2010/2011 aerial photo mosaics, 2010/2011 land cover land use data sets, and high-resolution elevation products for the UMRR-EMP LTRMP. Robinson’s presentation provides an update on the status of these projects, along with product availability, and FY 2013 work plan. As the

data sets become available UMESC serves them through the Center's Web site, at <http://www.umesc.usgs.gov/ltrmp.html>.

Barry Johnson presented, "Peak River Discharge and Climate Change: A Review of Recent Work," at the workshop Methods of Projecting Hydrologic Impacts of Climate Change, sponsored by NOAA's Great Lakes Environmental Research Laboratory, August 27-29 in Muskegon, MI. The workshop will focus on factors associated with climate change that are likely to affect hydrology and hydrologic cycling, and on methods of predicting changes in hydrology based on predicted changes in climatic factors.

The Upper Midwest Environmental Sciences Center is hosting a symposium and giving a series of presentations at the [142<sup>nd</sup> Annual Meeting of the American Fisheries Society](#), August 19-23 in Minneapolis, MN.

- [Application of Wind Fetch and Wave Models for Habitat Rehabilitation and Enhancement Projects](#), by Jason Rohweder.
- [Detecting the Lasting Effects of Water Level Drawdown on Aquatic Vegetation in a Impounded Stretch of the Upper Mississippi River near La Crosse, Wisconsin](#), by Yao Yin.
- [Fish Assemblages in off-Channel Areas of the Upper Mississippi River System: Implications for Restoration](#), by Brent Knights, Brian Ickes, Jeff Houser, and Yao Yin.
- [Hydrodynamic Modeling as A Tool for Ecologists on the Mississippi River](#), by Douglas Schnoebelen (*Univ. of IA*), Barry Johnson (*UMESC*), and Larry Weber (*Univ. of IA*).
- [Spatial Patterns of Aquatic Habitat Richness in the Upper Mississippi River Floodplain](#), by Nathan De Jager and Jason Rohweder.
- [Terrestrial Lidar and Bathymetric Data Integration and Potential Application for the Upper Mississippi River](#), by Jason Rohweder
- [Vegetation Response to Pool-Wide Drawdowns on the Upper Mississippi River](#), by Kevin Kenow, Larry Robinson, and James Rogala.
- [Visualizing Fish Community Trajectories and Ecosystem Health Indicators to Aid Management Goal Setting in the Upper Mississippi River System](#), by Brian Ickes, Benjamin Schlifer, and Ken Lubinski.

Nate De Jager gave a presentation, "Variation in water mediated connectivity influences patch distributions of total nitrogen (TN), total phosphorous (TP) and TN:TP ratios in the Upper Mississippi River, USA" by Nathan De Jager and Jeffrey Houser, at the 97th Ecological Society of America meeting in Portland, OR, August 9. The study's results suggest that spatial and temporal variation in connectivity and hydrologic exchange, indicated by proximity to channels and local current velocities, alter rates of nutrient delivery and biochemical transformation across the riverine landscape. A series of maps and empirical relationships will be presented that reveal important locations, scales, and degrees of hydrologic exchange, sufficient to create patchy nutrient distributions in a large river.

Levi Solomon, Blake Ruebush, Thad Cook, and Collin Hinz presented "Asian Carp in the Upper Mississippi River Basin" at the American Fisheries Society National Meeting in St. Paul MN 8/22/2012

## Technical activities and assistance

### 1<sup>ST</sup> Quarter

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 LTRMP staff participated in the project: Upper Mississippi River Nutrient Monitoring, Occurrence, and Local Impacts: A Clean Water Act Perspective (September 2011; [www.umbra.org/wq/umr-nutrients.pdf](http://www.umbra.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 LTRMP vegetation frequency summaries and distribution maps to MN and WI DNRs and MPCA. (Moore)

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

Provided LTRMP 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 LTRMP 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 LTRMP managers to reflect a potential 5.6% reduction in base funding. This is in response to great uncertainty of what the EMP/LTRMP budget will be in federal FY12 (All Field Stations).

Worked with USGS and USACE LTRMP 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 LTRMP 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 LTRMP 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 9<sup>th</sup> 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 LTRMP 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 a chapter titled "Variance components estimation for continuous and discrete data, with emphasis on cross-classified sampling designs," to the book titled Design and analysis of long-term ecological monitoring studies (eds., RA Gitzen et al) that was published in June 2012. Topics addressed by the chapter are important for the analysis of LTRMP fish, invertebrate, plant and water data that are clustered within years, backwater lakes or both.

## **2<sup>nd</sup> Quarter**

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 Project and the Long Term Resource Monitoring Program, 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 LTRMP 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, J.N., S.M. Giblin, W.F. James, H.A. Langrehr, J.T. Rogala, J.F. Sullivan, and B.R. 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.

De Jager, N.R., and J.N. Houser. In press. Variation in water-mediated connectivity influences patch distributions of total N, total P, and TN:TP ratios in the Upper Mississippi River, USA. *Freshwater Science*.

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 LTRMP 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 LTRMP Operational Report for 2011 to N.E. district supervisor – January, 2012.

Bierman and Bowler worked with UMESC on updating the Bellevue LTRMP 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 LTRMP 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 LTRMP/UMESC/USACE meeting in La Crosse, Wisconsin – February, 2012.

Bowler worked with UMESC and multi-state LTRMP staff updating the sampling procedures protocols of the LTRMP 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 LTRMP 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 LTRMP 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 LTRMP 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 LTRMP 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 Schliker held an LTRMP 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 LTRMP all hands meeting in La Crosse, WI, 2/2012. Each participated in their respective LTRMP component break-out meetings.

Participated in a "Multivariate Community Analysis using PC-ORD" training webinar through Penn State, March 5-9. (Burdis and Moore)

### **3<sup>rd</sup> Quarter**

Larry Robinson (UMESC) met with staff from U. S. Fish and Wildlife Service (FWS) Region 3 and Applanix Corp. in Minneapolis, MN, for the FWS aerial photography program's annual review, April 11. The FWS Region 3 uses an Applanix DSS 439 digital aerial camera system to collect high-resolution aerial imagery throughout the Midwest, in support of federal mapping efforts. Recently, the DSS 439 system was upgraded to increase the sensitivity of the sensor and to offer greater control of camera settings via software. In addition, the aerial photography program was able to purchase a 60mm lens for collecting waterfowl imagery, and a gyroscopic mount to ensure the camera remains vertical to the ground and to isolate it from plane-induced vibrations. These enhancements have substantially increased the efficiency and quality of aerial photography collected with the Applanix DSS system.

Yao Yin (UMESC) and John Beeman (WERC) traveled to China to discuss fish passage at hydroelectric dams with Chinese scientists, June 16-30. Yin and Beeman were invited by The Nature Conservancy (in Beijing) and the Chinese Academy of Sciences (in Wuhan) to share information about the proper design, construction, and evaluation of fish passes in the United States in an effort to transfer the concepts to hydroelectric dams in China. Most dams in China currently either have no provisions for fish passage or

have ineffective ones. The USGS and Chinese colleagues plan to develop a series of workshops to further share information on these topics, culminating with demonstration projects at one or more hydroelectric dams in China. The goal is to show that, with proper consideration of the biological and physical requirements of the fish species of interest, successful fish passage measures can be implemented in China. China currently has more hydroelectric dams than any other country on earth, and has plans to build many more in the near future to help meet its growing need for electricity.

Jim Rogala assembled data and modified program code to apply the Pool 8 submersed aquatic vegetation (SAV) model to the Starved Rock Pool in the Illinois River. In collaboration with Yao Yin, the model will be used to predict SAV changes that might result from a proposed 519 project in the Starved Rock Pool.

Jim Rogala developed a sampling design, and selected random sites, for sampling Asian carps in the Illinois River. The study is being conducted by the U.S. Fish and Wildlife Service determine relative distribution, abundance, and age structure of small Asian carp in the middle and upper Illinois River.

Nate De Jager completed 2012 L3, "beta-version of a graphical browser of landscape pattern indicators", with Jason Rohweder.

Nate De Jager completed drafts of: 2012L4, "Regional flood selection by white-tailed deer in floodplain forest restorations of the UMR valley"; and 2012L5, "White-tailed deer herbivory increases flood-induced tree mortality in an UMR floodplain forest" with Ben Cogger and Meredith Thomsen of the University of Wisconsin La Crosse.

Nate De Jager Initiated field sampling for the project: 2012L6, "Reciprocal effects of alternative vegetation management techniques on soil nutrients and nitrification rates along an elevation gradient in an Upper Mississippi River floodplain forest" with Eric Strauss and Whitney Swanson of the University of Wisconsin La Crosse.

Assisted Jeff Stewart, Fish Biologist, USFWS Carterville, IL with several study design issues for sampling Asian Carp in the upper Illinois River. [Rogala and Ickes]

Brian Ickes: Provided Dr. Curt Meine, Aldo Leopold Foundation Director and pre-eminent Leopold biographer, historic details relating to changes in Great Lakes fisheries. He is using this information in a book chapter he is authoring, presently in production.

Fish Component staff: In field quality assurance assessment of the entire LTRMP electrofishing fleet completed. This included continuity tests on all major components of the boats' circuitry and *in situ* direct measurements of the effective fishing field of each rig, fishing under standardized protocols.

Brian Ickes: Provided solicited input to Mr. Gene Sperry, Jr., a citizen of Chillicothe, IL, seeking content for a presentation he is preparing on Asian carp.

Brian Ickes: Assisted Dr. Quentin Phelps with several questions pertaining to effort allocation within the LTRMP Fish Component sampling scheme and its relevancy for his intended data uses.

Brian Ickes: Communicated with Mr. Rob Maher, Illinois DNR and longtime A-Team rep for IL, answering his questions concerning what is measured and why (specifically fish weights) within the LTRMP Fish Component.

Brian Ickes: Assisted Ann Runstrom (USFWS, La Crosse, WI) with database issues, population estimation analytic methods, and statistical issues related to a rather impressive lake sturgeon mark-recapture database she has assembled (indeed, it may be unique in scope and scale in North America). This would be fun to work with, but this is not a program study, so my input was minimal and simply meant to get her off on the right foot.

Responded to Ms. Amy Deweese (Eckardt), who was seeking insights on Asian carp in relation to a planned fish processing plant in Peoria, IL.

Kueter, Bowler, Meier, Petersen, and Reed completed monthly WQ fixed site sampling – April-June, 2012.

Bowler assisted the Wildlife Bureau with spring spotlight surveys in Jackson County, Iowa – April, 2012.

Bowler compiled and submitted summaries of 2<sup>nd</sup> quarter station activities for FY12 for UMESC and USACE staff – April, 2012.

Bierman attended A-Team meeting in La Crosse – April 2012.

Bierman, Bowler, and Kueter met with Chuck Theiling of the USACE to discuss monitoring revisions to the Pool 12 HREP project with respect to new lake selection and construction schedule – April, 2012.

Petersen assisted Bellevue Research with freeze branding of northern pike fingerlings at the Fairport Hatchery – April, 2012.

Bowler assisted Kueter with field collections of spring WQ SRS – April, 2012.

Bierman, Kueter, and Petersen assisted Mississippi River Research team with northern pike collections on Pool 13, UMR – April, 2012.

Bierman and Petersen assisted Kueter with lab sample work-ups of spring WQ SRS field collections – April/May, 2012.

Bierman, Kueter, and Petersen assisted Bellevue Management with shovelnose sturgeon collections on the Cedar River – May, 2012.

Bowler submitted summary of LTRMP fisheries sampling in Pool 13, 2011 for the UMRCC Proceedings – May, 2012.

Bierman, Bowler, Petersen, Kueter, and Reed attended NE District Fisheries Management quarterly meeting at Backbone State Park – May 2012.

Bowler reviewed crappie telemetry draft from Bellevue Research for the USACE – May 2012.

Bierman and Bowler participated in conference calls and met with the USACE and Bellevue Research to discuss adaptive management plans for the Pool 12 HREP project with respect to analysis and future sampling directions – May and June, 2012.

Bowler provided metadata and coordinated with USACE, UMESC, and Fairport Management to house and enter multiple years of fisheries monitoring data from Pools 16-19 and the Huron Island HREP on LTRMP data server – May and June, 2012.

Bierman, Bowler, and Kueter assisted USGS personnel with mapping electrical field on electrofishing boat – June, 2012.

Bowler assisted with Hy-Vee fishing derby at Bergfeld pond in Dubuque – June, 2012.

Bowler plotted 2012 fisheries sampling points in ArcView, uploaded points into Garmin, loaded points into Access application, and made schedule for 1<sup>st</sup> period sampling – June, 2012.

Bowler reviewed the new version of the LTRMP Fisheries Procedures Manual for USGS – June, 2012.

Petersen completed 2<sup>nd</sup> and 3<sup>rd</sup> reads for aging of bluegills for the Pool 12 HREP project – June, 2012.

Bowler, Brashears, Kueter, and Reed conducted normal LTRMP fisheries sampling in Pool 13 – June-August 2012.

Bierman sent water quality data from Sunfish Lake fixed-site sampling from 2003-2011 to Dave Bierl, USACE Hydrologist, to aid in development of the Pool 12 HREP Definite Project Report – June, 2012.

Brashears and Meier assisted Maquoketa Wildlife Unit with Canada geese round-up and banding – June, 2012.

Bowler entered bluegill age data into the Pool 12 HREP project database – June, 2012.

Bowler applied aged bluegill data to unaged fishes and calculated mortality in the six backwater study lakes for the Pool 12 HREP – June, 2012.

Bowler tabulated and submitted the Pool 12 HREP project budget to the USACE for work completed in FY 2012 – June, 2012.

Bowler compiled and submitted summaries of 3<sup>rd</sup> quarter station activities for FY12 for UMESC and USACE staff – June, 2012.

Eric Ratcliff and Eric Gittinger submitted the first draft of the revised LTRMP Fish Procedures Manual for review. 5/2012

Eric Ratcliff, Eric Gittinger, and Ben Lubinski assisted Brian Ickes and Randy Burkhardt with inspection and testing of the electrical field of the LTRMP electrofishing boat. 6/2012.

John Chick participated in a workshop about floodplain connectivity information needs, at Powder River Nature Center, Kirksville, MO. June 6-8.

Megan Moore (MNDNR) and Heidi Langrehr coordinated a demonstration and evaluation of technology for mapping SAV. CI BioBase, uses automated cloud processing of sonar log files recorded to SD card using today's Lowrance brand depth finders to produce bathymetric and % biovolume vegetation maps. May 30, 2012. Other UMRR LTRMP participants included Jennifer Sauer, Yao Yin, Josh Petersen, Barry Johnson, and Jim Rogala.

Andy Bartels and Kraig Hoff completed outfitting and testing of a new electrofishing boat for routine LTRMP sampling.

Fischer co-chaired the River Resources Forum meeting #93 April 17th, 2012 at Winona, MN - Winona State University. The River Resources Forum is a state and federal agency partnership for addressing resource issues concerning the Upper Mississippi River system within the St. Paul District jurisdiction.

Fischer participated in the third of four strategic planning sessions for the Upper Mississippi River Basin Association, May 22 2012. UMR States' priorities for the next one to five years are being evaluated and refined.

Gray, B.R., A.M. Ray, J.R. Rogala, M.D. Holland and J.N. Houser. Accepted. Spatial and temporal variation in duckweed and filamentous algal levels in contiguous floodplain lakes of the Upper Mississippi River. Journal of Aquatic Plant Management.

Invited review of a LTRMP Completion Report on metaphyton by the WI Field Station water quality specialist. (Burdis and Moore)

Worked on numerous problems over several months that needed to be fixed on the new electroshocking boat prior to use. Transported the boat to the Nevin Fish Hatchery in Madison, WI on April 18th where Burke O'Neil checked the wiring and electric field and made necessary corrections. Assisted Randy Burkhardt in mapping the electrical field of the new boat on June 4th in Lake City. (DeLain)

Provided information to UMESC on GPS programs that more easily facilitate converting and transferring UTM files to Garmin chart plotters. (DeLain)

Communicated with Hydrolab regarding procedures for calibration and provided the information to UMESC. (Burdis)

Monthly WDNR meetings with Water Quality Board (statewide), Water Resources Policy & Management Team (statewide), & Western District Management Team, intended to provide a link and increased integration of UMRR-EMP science and restoration activities with inland WDNR (Fischer)

Levi Solomon provided Round Goby LTRMP data to Ann Runstrom, FWS. 4/30/2012

#### 4th Quarter

Ben Lubinski, Ed Culver, and Kim Ovitz participated in the 18th Goby Round-Up run by the U.S. Fish and Wildlife Service. Sampling was conducted during September 17-21 on the lower portion of the Illinois River to detect the presence/absence of the round goby.

Eric Ratcliff spoke to Charlie Deutch of the St. Louis District USACE Rivers Project Office about local effects of the summer drought on Pool 26 fish and water quality. 8/12.

John Chick, Eric Ratcliff, Eric Gittinger, Lori Gittinger, Megan Cowan, and Ben Lubinski participated in a meeting of the three southern LTRMP field stations and Kat McCain and Chuck Theiling of the USACE. Updates on field station activities were presented and common research interests were discussed. 8/12.

Eric Gittinger attended and presented a brief field station and LTRMP update on the St. Louis District, Corps of Engineer's 2012 RRAT (River Resource Action Team) site visit trip. The 2 day trip included travelling on a barge to visit, observe and discuss past, current and future construction projects, primarily of the pooled sections of the Mississippi River from Saverton, MO to St. Louis, MO.

Lori Gittinger gave information to a PhD student at Texas A&M University about turbidity, dissolved organic matter, connectivity and impoundment on the Mississippi River near Grafton. 7/12.

Brian Ickes responded to Ms. Amy Deweese (Eckardt), who was seeking insights on Asian carp in relation to a planned fish processing plant in Peoria, IL.

Solicited to participate in a large NSF collaboration / grant (Michael Bessert, Chenhong Li, Jay Walker, Bill James). Informed and guided the effort up to this point. Have yet to commit or withdraw my full participation. The project relates to the environmental biology/ecology of rare and endemic fish species in the upper reaches of the Yangtze, Yellow, and Mekong rivers, PRC. [Ickes]

Assisted Patricia Ries (USGS/UMESC) with an information request related to temperature tolerances for UMRS fishes. I provided the LTRMP fish life history database and some basic insights and lessons on thermal tolerances in poikilothermic beasts (esp, fishes). [Ickes]

Provided Dr. Quentin Phelps, MDoC, several years' worth of fisheries data from Pool 18, collected by Iowa DNR under LTRMP Fish Component Procedures, for consideration and use in a project analysis (Huron Islands HREP) [Ickes and Schlifer]

Provided a solicited peer review of a manuscript titled: "Assessment of chevron dikes for the enhancement of physical-aquatic habitat within the Middle Mississippi River, USA" [Ickes]

Reviewed a UMRR-EMP Ad Hoc Committee report titled "Indicators of ecosystem health for the Upper Mississippi River System" [Ickes]



Provided LTRMP data, graphics, and presentation material to Duane Chapman, Cindy Kolar, and Mark Gaikowski, who were seeking information on Asian carp populations in the UMRS to share with Congressional staff in Congresswoman Marcy Kaptur's (OH) office. [Ickes]

Provided technical consultation to acting field station director David Herzog (MDoc, Open River), on the feasibility of continued use of the Kann shocking rig in lieu of a retrofit in 2013. I shared empirical results and conclusions from a recent quality assurance audit on the full LTRMP electrofishing fleet and provided some additional thoughts and guidance. [Ickes]

Provided a solicited peer review of a manuscript titled "The relationship between thermal regime alteration and spawning delay of the four major Chinese carps in the Yangtze River below Three Gorges Dam" [Ickes] Provided Levi Solomon, fish specialist Havana, empirical animations of fish community responses over 20 years, both in the presence (La Grange) and absence (Pool 4) of Chinese carps for use in a presentation at AFS [Ickes]

Technically consulted on prospective fish sampling methods for a pre-project study on flathead catfish overwintering sites in Pool 2, Aaron McFarlane via David Potter, USACE St Paul. [Ickes]

Provided Dr. Yang Bo, TNC China (Beijing), a summary of the history of UMRR-EMP and several major program documents for her to study and assimilate. Establishing a systemic monitoring program on the Yangtze remains a key priority in the US State Department's US-Sino Ecopartnership agreement. These documents and this communication stand in service to that intention. [Ickes]

Provided Dr. Yao Yin, currently on travel status in China, documents and ideas for US-Sino science exchanges 2013-2016, to be incorporated into a proposal submitted to the Chinese Ministry of Agriculture. [Ickes]

Invited review of manuscript on zooplankton in Missouri River for Aquatic Ecology (Burdis)

Participated as crew leaders in UMRCC-sponsored SAV sampling effort on Pool 7 (Moore and intern)

Provided ten years of LTRMP mean summer Secchi transparency for main channel in Pools 4, 5, and 8 to MPCA for development of nutrient criteria for UMR pools in MN (Burdis)

Provided LTRMP water quality data from lower end of Whitewater River to Olmstead County Environmental Resources (Burdis)

Provided Lake Pepin summer temperature and dissolved oxygen depth profiles to MNDNR Fisheries (Burdis)  
Provided MPCA with Lake Pepin SAV data (Burdis)

Provided the WIDNR with information on areas in upper Pool 4 that had sufficient water depth to sample fish (DeLain)

Provided young-of-year shovelnose sturgeon to MNDNR for mussel propagation (DeLain)

Provided University of MN sediment sampling crew with maps of wild rice in Pool 4 (Popp)

Participated in FY2013 funding discussions as a member of the ad hoc low funding group (Popp)

Jason Rohweder (UMESC) gave a webinar presentation September 24, for scientists and managers from the U.S. Army Corps of Engineers' Mississippi Valley Division. The presentation discussed updates Rohweder is making to the geospatial Wind Fetch and Wave modeling tools created by UMESC.

Barry Johnson (USGS-UMESC) participated in a workshop on large river fisheries monitoring in Hood River, OR, October 10-11. The workshop meeting will bring together USGS staff engaged in large river research and monitoring across the county to consider the potential to combine data from separate river monitoring programs for evaluating the status of river fishes across multiple systems. The group will develop an initial draft of a Powell Center proposal on this topic. Travel funding through USGS.

Jenny Hanson and Erin Hoy (UMESC) conducted field reconnaissance for the UMRR Long Term Resource Monitoring Program's 2010/2011 land cover/land use mapping project, September 10-15. UMESC collected 16-inch/pixel digital color-infrared aerial photography within Mississippi River navigation Pools 15-17 (Moline to New Boston, IL) and 20-25 (Keokuk, IA to Winfield, MO). Hanson and Hoy compared the on ground vegetation to the aerial photography, then linked those data to positional information using ruggedized field laptops. These data will be used to develop a template of spectral photo-signatures for identifying patterns and types of vegetation. These data, along with others collected in other areas of the Upper Mississippi River System (UMRS), will be used to create a digital vegetation/land cover map for of the entire UMR (the Mississippi River floodplain from Minneapolis, MN to Cairo, IL and the entire length of the Illinois River).

Barry Johnson (UMESC) participated in a work session for the Upper Mississippi River Basin Association, Water Quality Task Force, Clean Water Act Monitoring Strategy Project, September 18-19, in Davenport, IA. The Project is designed to help the states of Illinois, Iowa, Minnesota, Missouri and Wisconsin develop an assessment strategy that can be used to meet the requirements of the Clean Water Act, in a consistent manner along the full length of the Upper Mississippi River.

Barry Johnson participated in a Science Council meeting of the Wisconsin Initiative on Climate Change Impacts (WICCI), September 10 in Madison, WI. The meeting will focus on results of downscaled climate modeling for the eastern U.S., and on developing new working groups to explore adaptation to climate change for specific areas of interest within Wisconsin and the Upper Midwest.

John (JC) Nelson (UMESC) hosted a visit from Sebastian Martinuzzi (Univ. of WI-Madison) July 23 to discuss LiDAR data collected in partnership with the UMRR LTRMP within the State of Wisconsin and along the Upper Mississippi River. Nelson and Marinuzzi are working on developing a study of LiDAR and birds on federal lands in Wisconsin.

The Upper Midwest Environmental Sciences Center (UMESC) completed the color infrared Orthophoto mosaics of the Upper Mississippi River, for the Long Term Resource Monitoring component of the Upper Mississippi River Restoration-Environmental Management Program. Navigation Pools 1 through 13

(Minneapolis, MN to Clinton, IA), were collected at a resolution of 8-inches per pixel, and Lock and Dam 13 (near Clinton, IA) to the Ohio River (near Cairo, IL) and the Illinois River were photographed at 16-inches per pixel. Both sets of images were collected using a mapping-grade Applanix DSS439 digital aerial camera. The flights occurred during times of peak vegetation biomass, from late August through early September. UMESC is using the photography to develop its third systemic Land Cover/Land Use (LCU) data set for the UMRS. Both data sets are available to download at UMESC's Web site, [www.umesc.usgs.gov](http://www.umesc.usgs.gov). For additional information contact John (JC) Nelson ([jcnelson@usgs.gov](mailto:jcnelson@usgs.gov), 608-781-6370).

Jennifer Sauer participated in a Department of Interior Motorboat Safety Instructor webinar on August 27, 2012. The webinar introduced new training material for classroom use.

Barry Johnson participated in a work session for the Upper Mississippi River Basin Association, Water Quality Task Force, Clean Water Act Monitoring Strategy Project, September 18th-19th, in Davenport, IA. The Project is designed to help the states of Illinois, Iowa, Minnesota, Missouri and Wisconsin develop an assessment strategy that can be used to meet the requirements of the Clean Water Act, in a consistent manner along the full length of the Upper Mississippi River.

Provided Pool 8 vegetation SRS data to Dr. Susan Romano, Western Illinois University (Langrehr)

Distributed preliminary 2012 Pool 8 SRS vegetation frequency summaries and distribution maps to USFWS and WI DNR managers (Langrehr)

Participated in UMRRCC vegetation day collecting aquatic vegetation information on Pool 7 using UMRR-EMP LTRMP methods (Langrehr)

Demonstrated SRS vegetation sampling methods in the field to several USFWS personnel and Kevin Freaney, a college student involved in modeling carbon sources (Langrehr)

Provided locations of wild rice beds in Pool 8 to Gerald Blaha (MPCA) for possible collection of water and sediment samples - a wild rice project including all of MN (Langrehr)

Met with WDNR Central Office Section Chiefs and Staff scientists from WQ Bureau (Madison) to discuss a draft CWA monitoring strategy for the Mississippi River (Fischer & Sullivan)

Monthly WDNR meetings with Water Quality Board (statewide), Water Resources Policy & Management Team (statewide), & Western District Management Team, intended to provide a link and increased integration of UMRR-EMP science and restoration activities with inland WDNR (Fischer)

Jennifer Sauer provided information to Kirk Lambrecht of the American Bottoms Regional Wastewater Treatment Facility in Sauget, Illinois. Kirk is working on a research project to describe fish and macroinvertebrates near the facility's outflow.

Jennifer Sauer provided macroinvertebrate information to two UW-La Crosse students. They are working on an independent research project "Acute of toxicity of Zequonox to macroinvertebrates in static exposures."

Levi Solomon assisted the FWS with the annual Goby Roundup on the La Grange Reach of the IL River. No round gobies were sampled despite extensive field sampling 9/17/2012- 9/21/2012

Bowler compiled and submitted summaries of 3rd quarter station activities for FY12 for UMESC and USACE staff – July, 2012.

Bierman, Bowler, and Petersen assisted with UMRCC vegetation sampling in Pool 14 – July, 2012.

Bowler, Brashears, and Reed assisted Kueter with field collections of summer WQ SRS – July, 2012.

Bierman and Kueter collected zebra mussel veliger samples in the Maquoketa River – July, 2012.

Bierman participated in a conference call regarding potential federal FY13 budget shortfalls for the LTRM program. Bierman also submitted revised budgets under both a 4.27 and 9.11% cut in funding for the program – July, 2012.

Brashears and Reed assisted Guttenberg Management with fish collections in Pool 10, UMR – August, 2012.

Kueter and Petersen collected zebra mussel veliger samples in the Maquoketa River – August, 2012.

Bierman, Bowler, and Petersen attended NE District Fisheries Management quarterly meeting at Big Springs Fish Hatchery – September, 2012.

Bowler provided catch rates of age-1 shovelnose sturgeon from Pool 13 trawling to Manchester Management – September, 2012.

Bowler provided metadata and coordinated with UMESC and Guttenberg Management to house and enter fisheries monitoring data from Pools 9-11 on LTRM data server – September, 2012.

Brashears assisted Bellevue Management with trammel netting and tagging of shovelnose sturgeon on Pool 13, UMR – August, 2012.

## Outreach

### 1<sup>ST</sup> Quarter

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.

### 2<sup>nd</sup> Quarter

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 LTRMP.

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.

### 3<sup>rd</sup> Quarter

Barry Johnson (UMESC) and partners from the U.S. Army Corps of Engineers' Upper Mississippi River Restoration - Environmental Management Program (UMRR-EMP) were interviewed by John Flesher (Associated Press, Traverse City, MI) June 11, regarding the Asian carp invasion in the Mississippi River and their effects on other fish species. Flesher is also planning to use online data summaries for fish provided through the Long Term Resource Monitoring component of the UMRR-EMP conducted by UMESC on the Upper Mississippi River System. This particular interview was a preliminary interview, a follow-up may occur. The story is expected to be completed and released by the end of June.

Brian Ickes: Attended an outreach activity at the invitation of the Aldo Leopold Foundation. Toured Coon Creek watershed in Vernon County, WI (the nation's first watershed project) with advanced study students from UW Madison, NRCS staff, and Leopold Foundation board members, interpreting the environmental and conservation history of this watershed. I shared thoughts on how such lessons translate to the entire Mississippi watershed and how they may also translate more globally. It was a good day.

Brian Ickes: Provided a solicited phone interview to Mr. Chris Hubbuch of the La Crosse Tribune (newspaper) for a story on the commercial fisheries of the UMRS.

Brian Ickes: Delivered an invited lecture at the annual Mississippi River Forum, at the Minnesota State Science Museum in St. Paul, MN. The wider program for the forum, my talk, and associated multimedia content files can be regarded on the following National Park Service website:

<http://www.nps.gov/miss/naturescience/rf0518.htm>

B. Ickes and Yao Yin: Mississippi and Yangtze basin pages: <<http://www.greatriverspartnership.org/en-us/NorthAmerica/Mississippi/Pages/USChinaScienceExchange.aspx>>

Bierman gave a Mississippi River fish and wildlife talk to Kindergarten class at Preston Elementary as part of their "fish week" activities – May 2012.

Eric Gittinger provided information and granted video rights to use Asian carp footage to October Films, an award winning television production company based in London, who are working on a new science program for Discovery International.

John Chick, Eric Ratcliff, and Eric Gittinger provided interviews and a sampling demonstration for Associated Press reporter John Flesher, who was gathering information for various articles related to Asian Carp. 6/2012. One of the articles produced can be found at <http://www.usnews.com/science/news/articles/2012/07/12/research-murky-on-danger-of-asian-carp-invasion> .

Eric Ratcliff and Eric Gittinger had a booth at The Nature Institute's "Dive In, Water Festival"> They gave presentations on the fishes of the Mississippi River to about 500 second and third graders, parents, and teachers. 5/2012.

John Chick, Eric Gittinger, and Ben Lubinski conducted hands on demonstrations of fisheries sampling techniques, fish identification and natural history to approximately 30 college students from around the country and one from India, as part of the National Great Rivers Research and Education Center's intern program. 6/2012.

Eric Ratcliff taught fish identification of common fishes from the Illinois and Mississippi Rivers during the USFWS' annual Two Rivers Family Fishing Fair at Pere Marquette State Park, IL (attendance of 4000+ people).6/2012.

Eric Ratcliff presented an overview of LTRMP fish sampling to a Chinese businessman representing a group of Chinese investors interested in an Asian carp processing plant planned for Grafton, IL. 4/2012  
Eric Ratcliff made a presentation about fishes of the Mississippi River to about 30 Cub Scouts from Carlinville, IL. 5/2012

Ben Lubinski, Megan Cowan, Kristopher Maxson, and Ed Culver presented "Biology, Ecology, and Identification of Fishes of the Mississippi River" to FOCH (Families of Christian Home Educators) homeschool group. The group consisted of 15 families and about 30 children ages 4-16. The demonstration was conducted at the Audubon Center at Riverlands, West Alton, MO. April 12.

John Chick gave a talk to visiting faculty from Leeds University, United Kingdom. He presented information about UMRR-EMP and aquatic research at NGRREC. April 20.

Heidi Langrehr, Shawn Giblin, Ben Campbell, Kraig Hoff gave talks to Logan Middle School students about Water Quality on the Mississippi River. May 21, 2012

Heidi Langrehr and Ben Campbell gave talks about aquatic invertebrates and vegetation to students at Eagle Bluff Elementary School, May 18, 2012.

Rob Burdis presented a river ecology program to high school students from the Red Wing Environmental Learning Center on June 22nd and to middle school students from the Lake City Environmental Learning Program on June 25th.

Walt Popp coordinated and chaired a meeting of the MN DNR's Mississippi River Team on May 31st.

#### **4th Quarter**

John Chick served as an expert on invasive species for a high school symposium about current river-related environmental issues. Experts at the event presented environmental issues, helped student work-groups develop strategies to solve the issues, and evaluated each group's solution. The event was coordinated by NGRREC, the Sierra Club, and Living Lands and Waters, and was held on the Living Lands and Waters floating classroom, moored on the Mississippi River at St. Louis. Approximately 60 students and teachers from St. Louis area high schools participated. 9/12.

Eric Ratcliff, Eric Gittinger, and Ben Lubinski collected fish for a 4,000 gallon display tank, and presented Mississippi River fish and freshwater mussel identification and ecology to 530 fifth-grade students attending the WaterFest 2012 event at Lewis and Clark Community College. 9/12.

Eric Gittinger, Ben Lubinski, Ed Culver, and Kim Ovitz presented Mississippi River fish and freshwater mussel identification and ecology to members of the public during the 6th Annual Mississippi River Earthtones Festival held at the Alton Riverfront Amphitheater in Alton, IL on September 15, 2012. Over 1000 people attended the festival.

Ben Lubinski presented "Fishes of the Mississippi River" to 2nd and 3rd grade students at Parkside Elementary School in Bethalto, IL on September 27, 2012.

Eric Ratcliff, Eric Gittinger, and Kris Maxson gave a presentation about fishes of the Mississippi River and LTRMP fish sampling for a group of 30 area high school teachers participating in the NGRREC Water Festival Teacher Workshop. 9/2012.

Eric Ratcliff provided a lecture on large river fish ecology, endangered species, fishing regulations, and fishing ethics for a Carlinville, IL Boy Scouts of America Venturing Crew. 9/2012.

Eric Gittinger was interviewed for The Economist regarding Asian carp and his personal experiences with injuries sustained from the jumping fish (<http://www.economist.com/node/21559641>).

Dr. Yao Yin interacted with USACOE General and his staff, including Major Robin Scott (Executive Officer to DCG-CEO), Mr. James Beresson (USACE Director of Regional Business), and Mr. & Dr. Jerome Priscoli (Editor in Chief, USACE institute for Water Resources). While the General's main focus during the trip was Sino-US partnership, our conversation frequently came back to the Mississippi River basin (flood and ecology, 200-year vision) and the Great Lakes (Asian carps).

Launch of the new The Nature Conservancy's Great Rivers Partnership website, including past multimedia presentations of China work and an invited blog. [Ickes]

A blog was published by TNC's Great Rivers Partnership titled "Telescopes for Ecosystems" authored by Brian S. Ickes (<http://www.greatriverspartnership.org/en-us/NewsAndCommunity/Lists/Posts/Post.aspx?List=70a7462c-0940-4602-ab68-f87fdad1d537&ID=16&Web=41c81e50-eadd-4d65-b67e-f88f3c522957>) [Ickes]

Empirically pondered upon "Where have all of the white bass gone?" with the UMRCC mail list. The question initiated from a citizen / resource user on Pool 8 and was put to the practitioners across the basin by Ms. Heidi Keuler (FWS). I tried to demonstrate how quickly and easily LTRMP could be brought to bear on such a question and how LTRMP also adds regional and even systemic perspectives to such insights. [Ickes and Schlifer]

Organized and chaired the UMRCC Wildlife Technical Section fall meeting (Moore)

Demonstrated LTRMP fish sampling for David Potter, St. Paul District COE, who spent a day electrofishing in upper Pool 4 (DeLain)

Jason Rohweder and Larry Robinson (UMESC) gave presentations on how high-resolution elevation and vegetation datasets are being created and used by the Upper Midwest Environmental Sciences Center and its program partners, for a group of visiting USDA-Natural Resources Conservation Service agricultural engineers and Wisconsin Department of Agriculture Trade & Consumer Protection staff, September 12-13 in La Crosse, WI.

The USGS Upper Midwest Environmental Sciences Center (UMESC) in La Crosse, Wisconsin hosted a dedication ceremony August 24 to celebrate the completion of several facility upgrades and renovation projects. Several of the upgrades addressed critical space needs which have existed since the late 1990s, when the USGS Science Center in La Crosse, WI merged with the Science Center in Onalaska, WI. Dignitaries attending the event include U.S. Congressman Ron Kind (WI), Wisconsin State Senator Jennifer Schilling, Department of the Interior Deputy Secretary for Water and Science John Tubbs, and USGS Deputy Director Suzette Kimball. Following the ribbon-cutting ceremony attendees will be provided with an opportunity to interact with UMESC's scientists including UMRR LTRMP staff to learn about their projects and tour the facility.

Yao Yin, Heidi Langrehr and Jennifer Sauer responded to a question by Gary Wester (citizen) of O'Fallon, Missouri on emergent vegetation trends near West Alton.

UMESC Director Mike Jawson and Randy Hines provided an overview of UMESC science activities including UMRR LTRMP and a facility tour for State Representative Jill Billings (WI 95th District) July 16th.

Set up fish tank display and participated in the UMESC Open House event (Bartels & Hoff)

Provided a tour and discussion of the Pool 8 Islands and LTRMP data collection and web tools to WDNR Water Division Leaders and Fisheries Board (Fischer, Bartels, and WDNR staff).



Participated in the UMRR-EMP Pool 8 Islands dedication ceremony with special guest WDNR Executive Assistant to the Secretary, Scott Gunderson (Fischer)

Participated in the UMESC wing dedication event with special guests, WDNR Executive Assistant Scott Gunderson, and Regional Director, Dan Baumann (Fischer)

The U.S. Geological Survey's Upper Midwest Environmental Sciences Center (UMESC) had an Open House on Saturday, September 8, 2012 from 10:00 a.m. to 4:00 p.m. The Open House celebrated the UMESC's 53rd year of service on the Upper Mississippi River, Great Lakes, and in the upper Midwest. Visitors also learned about the Upper Mississippi River Restoration-Environmental Management Program's (EMP)—monitoring and restoring of the Upper Mississippi River. USGS is the scientific lead of the Long Term Resource Monitoring Program in partnership with the Corps of Engineers and the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

Bierman and Petersen hosted a visit by over 30 Chinese high school students and their parents as part of a coordinated effort between Iowa DNR and the Environment and Public Health Network for Chinese Students and Scholars. Information was shared about the Long Term Resources Monitoring Program and our sampling methods – July 2012.

Bowler worked the fish aquarium at the Iowa State Fair – August, 2012.