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U.S. Department of Agriculture <b>Accomplishments Report AD-421</b> U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions			Date (Month, Day, Year)  01/18/2013
1. Accession  0212730	Agency Identification No.  2. SAES 3. LAB	5. Work Unit/Project No.  LAB03878	6. Status  Final Report
7. Title  Factors Affecting the Structure and Function of Aquatic Communities in Louisiana Freshwater Habitats			
12. Investigator Name(s) (Last Name and Initials)  Kelso, W. E.			
20. Termination Date 09/30/2012		40. Period Covered (mo/da/year): 10/01/2007 TO 09/30/2012	
Outputs:  During the term of this project, results of several research projects were disseminated to several stakeholder groups in both written and oral presentation formats. Twenty-eight presentations were made to participants in the Annual Meeting of the Louisiana Chapter of AFS, the Annual Meeting of the Southern Division of AFS, the Annual Meeting of the American Fisheries Society, Annual Meeting of the Southeastern Association of Fish and Wildlife Agencies, Annual Meeting of the Society of Wetland Scientists, Fall Meeting of the American Geophysical Union, and the Aquaculture America Annual Meeting. Seven thesis and dissertations were completed from 2007 to 2012 (now accessible in pdf format online through the LSU Library), with four additional projects nearing completion dealing with a diversity of topics ranging from aquatic plants to zooplankton and fish growth, movement and habitat use.			
Outcomes/Impacts:  Results of monitoring activities in the ARB have contributed significantly to planning activities for water management activities conducted by the U.S. Army Corps of Engineers (USACE) and the Louisiana Department of Natural Resources (LDNR). Specifically, our assessments of water quality patterns in the Buffalo Cove management unit were used as the basis for large restoration maintenance dredging projects that have increased inputs of Atchafalaya River water into the unit, resulting in substantial increases in flow and water quality in the eastern Buffalo Cove area. Monitoring efforts related to that activity are continuing, although progress has been hindered by unusually low water levels and tremendous increases in invasive aquatic plant populations. Similar activities in the Henderson Lake management unit are providing background information for the development of water management projects focusing on dredging more deep-water habitats to improve fish habitat and reduce the negative effects of exotic hydrilla on habitat and water quality characteristics, and reducing flow restrictions throughout the unit. In addition, our inputs have helped LDWF operate the Lake Henderson outflow in a much more ecologically effective manner, reducing the incidence of hypoxia during 2012 to the lowest level we have observed over the last decade. During our meetings with the ARB management group, we are incorporating all of the information that we have gathered over the last decade into a GIS-based system to better understand where and why water quality problems develop, and the most effective remedies to habitat and water quality problems in the ARB. Results of continuing studies on largemouth bass are being reviewed by the Louisiana Department of Wildlife and Fisheries (LDWF) in conjunction with ongoing assessment of fish management programs, specifically largemouth bass, in the state. The Mollicy Farms project on the Ouachita River has essentially been completed, with the data being used by the Audubon Society and the Louisiana Department of Environmental Quality to monitor the success of the re-establishment of the Mollicy tract as a functional bottomland hardwood floodplain. Data collected on macroinvertebrate assemblages in the eastern and western floodplains of the river indicate that biotic assemblages in the newly-created floodplain are slowly evolving to resemble the older western floodplain, at least regarding species richness and functional group composition.			
Publications:  Fisher, J. C., W. E. Kelso, and D. A. Rutherford. 2012. Macrophyte-mediated predation on hydrilla-dwelling macroinvertebrates. <i>Fundamental and Applied Limnology</i> , 181(1):p25-38.  Bonvillain, E. P., D. A. Rutherford, W. E. Kelso, and C. G. Green. 2012. Physiological biomarkers of hypoxic stress in red swamp crayfish <i>Procambarus clarkia</i> from field and laboratory experiments. <i>Comparative Biochemistry and Physiology (Part A)</i> 163:15-21.			



Green, C. G., W. E. Kelso, M. D. Kaller, K. M. Gautreaux, and D. G. Kelly. 2012. Potential for naturalization of nonindigenous blue tilapia *Oreochromis aureus* based on salinity and thermal tolerances and the integration of predictive mortality through GIS modeling. *Wetlands* 32:717-723.

Kelso, W. E., M. D. Kaller, and D. A. Rutherford. 2012. Collection, processing, and identification of fish eggs and larvae, and zooplankton. A. V. Zale and D. Willis, editors. *Fisheries Techniques*, 3rd. edition. American Fisheries Society, Bethesda, Maryland. In press - September 2012.

Vazquez, J. A., M. D. Kaller, and W. E. Kelso. 2012. Fish assemblage diversity and revetted banks in the Pearl River and the response of these assemblages to 2011 Temple Inland Fish Kill. Annual Meeting of the Louisiana Chapter of the American Fisheries Society. Abstract.

Fitzgerald, A.F., M.D. Kaller, and W.E. Kelso. 2012. Effects of varying in-stream habitats on headwater stream fish assemblages in southwestern Louisiana. Southern Division of the American Fisheries Society. Abstract.

Harlan, A.R., W.E. Kelso, and M.D. Kaller. 2012. The 2011 Mississippi River flood: Atchafalaya Basin water quality during the Morganza Spillway opening. Southern Division of the American Fisheries Society. Abstract.

Miller, B.A., W.E. Kelso, and M.D. Kaller. 2012. Differences in Centrarchid condition factor among macro- and meso-habitats in the Atchafalaya River basin, Louisiana. Southern Division of the American Fisheries Society. Abstract

Oliver, D.C., W.E. Kelso, and M.D. Kaller. 2012. Southeastern blue sucker (*Cycleptus meridionalis*) in the Louisiana waters of the Pearl River: Low catches and limited range of targeted habitats suggest continued concerns. Southern Division of the American Fisheries Society. Abstract.

Pasco, T.E., W.E. Kelso, and M.D. Kaller. 2012. Ecosystem management in the Atchafalaya River basin: Still arranging deck chairs on the Titanic. Southern Division of the American Fisheries Society. Abstract.

Participants:

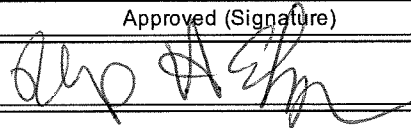
W. Kelso, (PI), R. Harlan, A. Piehler, D. Kelly, T. Pasco, E. Knight, and J. Herron, R. Walley, B. Ward, P. Markos, K. DiBenedetto, M. Fries, C. Murphy, C. Bonvillain, D. Oliver, B. Miller, A. Fitzgerald, J. Vazquez, and J. West, M. Kaller, LSU AgCenter; Partner organizations and contacts included the Nature Conservancy (Brian Piazza), Louisiana Department of Natural Resources (Charles Reulet), Louisiana Department of Wildlife and Fisheries (Bobby Reed), U.S. Geological Survey (Daniel Kroes), U.S. Fish and Wildlife Service (Glenn Constant), and the U.S. Army Corps of Engineers (Melanie Labiche).

Target Audiences:

All fisheries research undertaken in the School of Renewable Natural Resources under this 5-year project was targeted for state and federal agencies responsible for management of aquatic resources in Louisiana. These audiences included the LDNR, LDWF, U.S. Geological Survey, USFWS, and USACE. Ultimately, the citizens of Louisiana benefit from our research in the form of better management and improved productivity of Louisiana freshwater fisheries, improved habitat and water quality conditions in the ARB leading to increased harvests of commercial and recreational fishes and invertebrates, and improved water quality throughout the state leading to reduced numbers of waterbodies listed as impaired and not meeting their designated uses by LDEQ.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date
		1-25-2013