



KENTUCKY STATE UNIVERSITY AQUACULTURE

ANNUAL REPORT 2008-09

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Compilation by Karla Johnson

**Layout & Photography by
Tod Porter and Charles Weibel**

Edited by Dr. James Tidwell

KSU AQUACULTURE

**EXECUTIVE
SUMMARY**

LIVE-HAULING



CHANNEL CATFISH

by Forrest Wynne & William Wurts

**Kentucky State University
DIVISION of AQUACULTURE
Cooperative Extension Program**

New Live-Haul Manual Now on Web and Shelves

Live-Hauling Channel Catfish, a 30-page manual by Forrest Wynne and Bill Wurts, is complete and on KSU Aquaculture's shelves and Web site.

Go to the www.ksuaquaculture.org Home page and click Publications/Downloads at the top of the page, then select Manuals and you are there.

This manual examines the markets for catfish, preparation for transport, various trucks and methods for moving fish, as well as detailed information on making sure the carriers arrive with live catfish.

KSU Aquaculture Has 7 Videos Online

Go to www.ksuaquaculture.org to see anything from a high definition TV commercial to a one-hour video on how to grow prawns in Kentucky ponds.

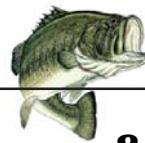
KSU Partners with UK In Exploring Food Products For Hispanic Consumers

"Marketing Potential of Fresh Food Products to Hispanic Consumers: Exploring a New Market Opportunity" was accepted for funding (\$55,870) by the USDA-Federal State Marketing Improvement Program.

This project was developed in collaboration with the Agricultural Economics Dept. at the University of Kentucky. While UK will be using some of these funds to investigate marketing opportunities for processed goat meat, KSU will be focusing on a wide range of agricultural products such as tilapia, catfish and prawns that could be sold relatively unprocessed from the farm to Hispanic consumers in Kentucky. There are good marketing prospects in this area where the strengths of Kentucky's farms — such as proximity to population centers, a large variety of natural resources, and the potential for small-scale diversification into aquaculture — could capture much interest from our large Hispanic population.

www.ksuaquaculture.org

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LMB Big Hit with Consumers & Restaurateurs



Jungle Jim's Market in Cincinnati purchased largemouth bass from KSU for sale to consumers.

As part of marketing and economics instruction, grad students sold largemouth bass. Students reported a total of \$5,442 worth of bass sold, with an average price of \$5/ lb. Freshness was the number one reason that people bought. Sales to six high-end restaurants got rave reviews, but sales were not as strong to Hispanic and Asian markets that noted quality wasn't as important as price and being familiar with the fish species. Funds will be used for graduate students' national conference expenses.

Five KSU Aquaculture Students On Ph.D. Track



Miles



Rafael



Noel



Jamie



Josh

Dr. Miles Lange is KSU's first Aquaculture Master's graduate to earn a Ph.D. From Frankfort, Miles received his doctorate from the University of Mississippi Medical School and is now doing post-doc work at the University of Nebraska in Omaha.

Two other students, Rafael Cuevas-Urbe from Mexico and Noel Novelo from Belize, shared the top-graduate award while at KSU Aquaculture, and are entering their third year of doctoral studies at Louisiana State University in Baton Rouge.

Jamie Greene of Booneville, IN, successfully defended her master's thesis at KSU, and has started Ph.D. work in the University of Kentucky's Animal and Food Sciences Dept.

Josh Patterson, Roanoke, VA, defends his thesis Feb. 2010, and has enrolled in LSU's doctoral program.

KSU AQUACULTURE



Kelly Probst (L) records opinions of shoppers at Franklin County's Farmers Market, while Dr. Jim Tidwell grills shrimp and tilapia, and responds to aquaculture and preparation questions from consumers.

At Farmers Market

Franklin County Residents Pleased with Farm-Raised Products

On Saturday, Aug. 30, 2008, representatives of the KSU Division of Aquaculture, the Kentucky Dept. of Agriculture, and private aquaculture producers conducted a market trial at the Franklin County Farmers Market in Frankfort.

Samples of freshwater prawns, tilapia and largemouth bass were prepared as a marketing component of the research projects on those species at the ARC. Samples of the products were prepared by Leigh Anne Bright, Dr. Tidwell, and Angela Caporelli of the Kentucky Dept. of Agriculture.

KSU graduate student Kelly Probst interviewed a number of participants as part of the evaluation of tilapia bass and prawns. Shelia and Joe McCord, Winchester, sold freshwater prawn tails and fresh tilapia fillets. They were very pleased with the response and sold out of both products (28 packages of frozen prawn tails and 33 packages of tilapia fillets).

KSU AQUACULTURE SAYS "TAKE A LOOK"

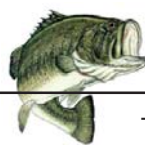


KSU welcomes students who want to make a brief visit to gather aquaculture information and maybe improve their English language skills.

This year, Jose Mariode Aquino Pentead from Sao Paulo, Brazil, spent two months at the ARC. Also working for the summer was Allison Stewart from Maine. Jose is continuing university work in Brazil and Allison is in her sophomore year at the U.of Maine.



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Video-based Online Courses

Fish Reproduction & Spawning Techniques Offered This Fall; *Water Quality* Nearing Completion



The KSU Division of Aquaculture has completed its third video-based online course, *Fish Reproduction and Spawning Techniques*. The fourth course, *Water Quality*, is nearing completion, and the fifth, *Fish Genetics*, will start production in January 2010. A traditional online version of *Fish Genetics* has been available online since 2002. Dr. Boris Gomelsky teamed with Dr. Steve Mims to produce *Fish Reproduction and Spawning Techniques*, and Shawn Coyle contributed a guest lecture. Aquaculture courses may be downloaded to iPods from Apple's iTunes University.

Treatment of Koi eggs with Serra fixative solution to make eggs transparent to visualize the germinal vesicle.



Frankfort graduate student Tiffany Ogunsanya demonstrates a Zune, a handheld audio/video player.

Aquaculture Receives \$80,861 Grant from KSEF/KSTC



Dr. Steve Mims, Rick Onders and Dr. Sid Dasgupta received a grant of \$80,861 to investigate reuse technology of resources at a wastewater treatment plant for increasing fish seed stock availability in expanding the aquaculture industry, to analyze economic viability as an agribusiness, and to bio-monitor fish grown in processed wastewater effluent to insure consumer safety as a food fish. The grant was from the Kentucky Science and Engineering Foundation (KSEF), Kentucky Science and Technology Corporation (KSTC) Research, and the Development Excellence Program under the Council of Postsecondary Education (CPE).

KSU DIVISION OF AQUACULTURE

PERSONNEL

Harold R. Benson, Ph.D., Director of Land Grant Program.

Charles Bennett, Ph.D., Dean of Math, Science, Technology and Health.

James H. Tidwell, Ph.D., Professor, Chair/Division of Aquaculture, Principal Investigator,
freshwater shrimp & largemouth bass.

Sid Dasgupta, Ph.D., Associate Professor, Economics & Marketing.

Robert M. Durborow, Ph.D., Professor, State Specialist for Aquaculture,
Fish Disease Diagnostic Laboratory.

Boris Gomelsky, Ph.D., Associate Professor, Principal Investigator, genetics, crappie and koi.

Steven D. Mims, Ph.D., Professor, Principal Investigator, paddlefish and sturgeon.

Carl D. Webster, Ph.D., Professor, Principal Investigator, aquaculture nutrition.

William A. Wurts, Ph.D., Senior State Specialist for Aquaculture, western Kentucky.

Forrest S. Wynne, M.S., State Specialist for Aquaculture, western Kentucky.

Shawn Coyle, M.S., Co-Investigator, freshwater prawn and largemouth bass projects.

Richard Onders, M.S., Co-Investigator, paddlefish, and sturgeon projects.

Ken Thompson, M.S., Co-Investigator, red claw crayfish & hybrid striped bass nutrition.

Tod Porter, M.A., Multimedia Producer for aquaculture programs.

Nathan Cochran, M.S., Distance Learning Specialist

William Bean, M.S., K-12 Aquaculture Educator/Recruiter for Aquaculture Programs.

William Stilwell, M.S., Manager, Environmental Education Center

Leigh Anne Bright, M.S., Research Assistant

Kyle Schneider, B.S., Research Assistant

Charles Weibel, B.S., Digital Graphics Specialist

Daniel Yancey, B.S., Farm Manager for Aquaculture Research Center

Karla Johnson, A.S., Administrative Assistant II

Carolyn Bolton, A.S., Administrative Assistant II

Robert Janes, Fish Culture Assistant

Pauline Jackson, Maintenance Worker III

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LONG-TERM VISION

Kentucky State University will remain the lead institution for aquaculture in Kentucky, and one of the premier programs in the nation. Involvement of on-site students in relevant, real-world research will continue. Outreach through video and Web-based courses will be expanded.

FACILITIES

KSU's Aquaculture Research Center (ARC) is the only such facility in the Commonwealth of Kentucky. Facilities at the ARC include 33 research ponds (twenty-four 1/10th acre and nine 1/20th acre). A 3,000-square-foot hatchery houses spawning, holding, and experimental tanks. A 4,000-square-foot office/laboratory building includes a state-of-the-art histology laboratory, offices, and conference/classroom space. The 3,500-square-foot nutrition laboratory contains a wet laboratory for aquarium studies, a feed preparation/water quality laboratory, office/computer space, and an analytical laboratory. A 3,000-square-foot greenhouse facility contains temperature-control systems capable of evaluating three temperature levels in eighteen 950-gallon tanks, as well as recirculating shrimp hatchery system. A second 3,000-square-foot greenhouse, built in 1998, contains four 10,000-gallon tanks for broodstock holding and conditioning. A 120,000-gallon, 24-tank facility, designed as a pond microcosm facility, was completed fall 2003. These facilities may be utilized for student research and teaching.

A classroom/multi-purpose building for instruction, research, library resources, and distance learning was completed in 2005. The building also includes a Fish Disease Diagnostic Laboratory that is fully equipped with incubators, microscopes, and video microscopy. It is used to provide

KSU DIVISION OF AQUACULTURE

FACILITIES (CONT)

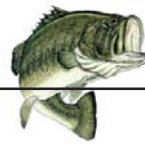
disease diagnostics to producers from across Kentucky and the surrounding region. A new Production Technologies and Genetics Laboratory is currently in the design phase.

ORGANIZATIONAL STRUCTURE

The Division of Aquaculture is the only program at KSU that addresses all three of the traditional Land Grant university roles: research, teaching, and extension. Research and extension responsibilities are administratively housed within the Land Grant Program under the supervision of Dr. Harold Benson, Director of the Land Grant Program. Academics are administratively housed within the College of Math, Science, Technology and Health, administered by the Dean, Dr. Charles Bennett. Both the Land Grant functions and the academic functions are supervised by the Vice-President for Academic Affairs and Provost, Dr. James Chapman, and the KSU President, Dr. Mary Evans Sias.

RESEARCH

The goal of the KSU Aquaculture Research Program is to increase the knowledge-base in aquaculture, and thereby facilitate increases in farm income and the productivity of on-farm water resources in Kentucky and around the world. This is to be accomplished by examining and developing production technologies suitable for the climatic and physiographic conditions prevalent in Kentucky and similar regions. To meet these goals, the KSU Aquaculture Research Program's initial studies were directed toward the development and adaptation of pond and cage-culture techniques for channel catfish and trout. However, the USDA expects newly developing aquaculture species to experience



RESEARCH (CONT)

continued expansion by adapting production and processing systems already developed for traditional species. Development of these new species is expected to occur largely in states, like Kentucky, which do not currently have well-established production, processing, or marketing infrastructures for aquaculture.

The intent of the program's research, extension, and education activities is to assist Kentucky producers in this future development by investigating alternative methods of production and new aquaculture species that can be produced profitably in Kentucky. **The KSU Aquaculture Program is widely recognized as being the lead program nationally and internationally in the areas of paddlefish culture, freshwater prawn culture, production of largemouth bass on-feed, and fish meal replacement research for catfish and hybrid striped bass.**

EXTENSION

Research information is of little practical value unless it is communicated to producers in a useful and understandable form. Training and extension programs serve as the primary means of transferring this knowledge from the researchers to the end users. KSU Aquaculture Specialists are integrated into the UK Cooperative Extension System. Specialists are housed in western Kentucky at the UK Princeton Research and Extension Center (Dr. Wurts), central Kentucky at KSU's main campus (Dr. Durborow), and Mr. Forrest Wynne is in the Purchase Area in western Kentucky to assist and support the catfish industry. Extension specialists recorded over 17,345 direct extension contacts and 250,000 indirect contacts during 2008-2009.

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UNDERGRADUATE AND GRADUATE EDUCATION

Kentucky State University began offering an undergraduate Minor in Aquaculture in 1992 within the Division of Math and Sciences. No other university in the Commonwealth offers an aquaculture curriculum. In 1999, the Council on Post-Secondary Education approved KSU to offer a Master of Science Degree in Aquaculture/Aquatic Science. KSU now has nine full-time graduate students, five part-time graduate students, and had 44 online students during the 2008/09 period. The program awarded its first M.S. degree in May 2002, and has now awarded 21 Master of Science degrees.

CLASSES TAUGHT

FALL 2008

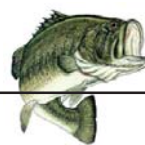
Undergraduate Courses

Gomelsky	AQU 407-V1	Fish Genetics
Gomelsky	BIO 407-V1	Fish Genetics
Durborow	AQU 411-01	Fish Diseases
Tidwell	AQU 422-V1	Principles of Aquaculture
Tidwell	BIO 422-V1	Principles of Aquaculture
Tidwell	AQU 451-01	Survey of Production Methods
Gould	AQU 480-01	Intro to GIS

Graduate Courses

Tidwell	AQU 551-01	Survey of Production Methods
Gomelsky	AQU 507-V1	Fish Genetics
Durborow	AQU 511-01	Fish Diseases
Tidwell	AQU 522-V1	Principles of Aquaculture
Zourarakis	AQU 580-01	Intro to GIS

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UNDERGRADUATE AND GRADUATE EDUCATION (CONT)

SPRING 2009

Undergraduate Courses

Gomelsky	AQU 407-01	Fish Genetics
Gomelsky	BIO 407-01	Fish Genetics
Dasgupta	AQU 409-01	Biostatistics
Dasgupta	BIO 409-01	Biostatistics
Dasgupta	AQU 416-01	Computer Application in Statistics
Durborow	AQU 414-V1	Basics of Fish Diseases
Durborow	BIO414-V1	Basics of Fish Diseases
Tidwell	AQU 422-V1	Principles of Aquaculture
Tidwell	BIO 422-V1	Principles of Aquaculture
Gould	AQU 480-01	Intro to Geographic Information Systems
Tidwell	AQU 491-01	Internship Aquaculture

Graduate Courses

Gomelsky	AQU 507-01	Fish Genetics
Dasgupta	AQU 509-01	Biostatistics
Durborow	AQU 514-V1	Basics of Fish Diseases
Tidwell	AQU 522-V1	Principles of Aquaculture
Zourarakis	AQU 580-01	Intro to Geographic Information Systems
Tidwell	AQU 591-01	Internship to Aquaculture
Dasgupta	AQU 516-01	Computer Applications in Statistics

SUMMER 2009

Undergraduate Courses

Tidwell	AQU 422-V1	Principles of Aquaculture
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Graduate Courses

Tidwell	AQU 522-V1	Principles of Aquaculture
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KSU DIVISION OF AQUACULTURE

K-12 OUTREACH

Overview

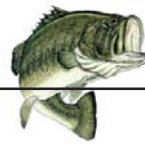
The Aquaculture Education Program serves the educational needs of three distinct groups: (1) K-12 students, (2) their educators, and (3) the general public. The largest service group is the K-12 students which are required to learn specific (core) scientific and mathematical concepts. Because of the nature of aquaculture, its principles clearly demonstrate both the integration and practical applications of biological, chemical, and mathematical core concepts. In addition, many K-12 students have an interest in vocational agriculture, and aquaculture increases the choices among agricultural careers.

K-12 educators are the next service group and the teachers are divided into two categories: traditional science and vocational agriculture. Traditional science educators use aquaculture to reinforce scientific core concepts, illustrate the interactions occurring in “real-world” science, and improve their students’ laboratory skills. Vocational agriculture educators also teach similar core concepts but usually from an animal husbandry perspective. In 2008-09, 61 vocational agriculture educators in Kentucky were teaching aquaculture courses. To assist both sets of educators, the Aquaculture Education Program is constantly updating its selection of aquaculture curriculum and laboratory activities. In addition, 17 educators benefited from professional development programs offered through KSU.

Major Accomplishments of 2008-09

- Aquaculture course now being taught at Northern Kentucky Youth Development Center

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K-12 OUTREACH (CONT)

(NKYDC, an Alternative school in Crittenden, KY), and they have constructed a production pond, received two Dept. of Juvenile Justice grants (totaling \$10,000) to purchase equipment and educational supplies, and they are in the process of building an indoor-production system.

- Presented at the 2008 Kentucky State Fair (in cooperation with the Ky. Soybean Board).
- Transported and chaperoned nine undergraduate students attending the National MANRRS Convention in Indianapolis, IN. The professional organization is designed for minorities with an interest in agriculture and natural resources careers. Two KSU students were awarded national rankings for their research presentations.
- Future Farmers of America (FFA) Aquaculture Impromptu Judge: Bluegrass Region Day hosted at University of Kentucky. This marks the fifth year as an aquaculture judge in the impromptu category.

ENVIRONMENTAL EDUCATION CENTER

Within Land Grant, our Program Area designation is Aquaculture and Natural Resources. With that charge, responsibilities for KSU's Environmental Education Center have been placed within the Division of Aquaculture. This 300-acre property provides opportunities for students to learn about the environment all the way from kindergarten through graduate school. Two Capacity Building Grants utilize these facilities to develop new field courses for KSU students in

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ENVIRONMENTAL EDUCATION CENTER (CONT)

ecology and environmental sciences. This is particularly important to student populations who are extremely under-represented in the natural resources and environmental professions—urban and minority students. Facilities also are designed to ensure access and learning experiences for students who are physically, visually, or hearing impaired. For those who cannot come to the KSU-EEC, the mobile EEC unit can go to them. During the 08/09 year, we had over 1,573 visitors to the EEC (42 groups), and the Mobile EEC unit made over 5,192 direct contacts in 78 classes in 16 counties across Kentucky.

PROFESSIONAL SOCIETIES & TECHNICAL ASSOCIATIONS

Shawn Coyle serves on the Board of Directors for the U.S. Freshwater Prawn and Shrimp Growers Association, Inc.

Dr. Sid Dasgupta and Forrest Wynne are members of the Technical Committee for Kentucky of USDA's Southern Regional Aquaculture Center (SRAC).

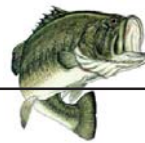
Dr. Jim Tidwell is a Past President of the U.S. Aquaculture Society and the World Aquaculture Society, and serves on the Publications Committee of USDA's Southern Regional Aquaculture Center (SRAC).

Dr. Carl Webster is a Past President of the U.S. Aquaculture Society.

SCIENTIFIC JOURNALS

The Aquaculture Program at KSU plays an integral role in the major scientific aquaculture journals in the United States.

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SCIENTIFIC JOURNALS (CONT)

Dr. Carl Webster is Editor-in-Chief of the “Journal of the World Aquaculture Society.”

Dr. Steve Mims serves as Associate Editor for the “North American Journal of Aquaculture,” and

Dr. Boris Gomelsky also serves as Associate Editor for the “North American Journal of

Aquaculture.” Dr. Jim Tidwell is a member of the Editorial Board of the “Journal of Fisheries and Aquatic Sciences,” published by the Korean Society of Fisheries and Aquatic Science.

INTERNATIONAL ACTIVITIES

Dr. Robert Durbin and Dr. Boris Gomelsky traveled to Krakow, Poland to attend Aquaculture Europe 2008 where they presented a paper dealing with online courses offered at KSU. They then visited Dr. Simon Davies, Chair of the Biology Department of the University of Plymouth in Plymouth, England to discuss possible student exchanges and research collaboration.

Dr. James Tidwell is co-editor of the recently published reference book “Freshwater Prawns: Biology and Farming.” His co-editors are Michael New (England), Wagner Valenti (Brazil), Lou D’Abramo (USA), and Narayanan Kutty (India). The 544-page book was published by Wiley-Blackwell.

Dr. Steven D. Mims has developed a new collaboration with Dr. Hon Ji, College of Animal Science, Northwest Sci-Tech University of Agriculture and Forestry, Yangling, Shaanxi 712100, China. Their university has a paddlefish production program in cages and reservoirs.

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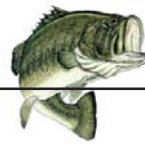
INTERNATIONAL ACTIVITIES (CONT)

He has submitted for funding to bring a group of hatchery professionals to Kentucky State University and have them trained in spawning techniques of paddlefish.

The Division of Aquaculture's online courses have now been taken by students in 17 countries including Zimbabwe, Nigeria, Turkey, Peru, Saudi Arabia, Singapore, Romania, Pakistan, Netherlands and Belize.

DISTANCE LEARNING

Many students from all over the United States and some foreign countries have become involved in KSU's Aquaculture Program by taking online (Internet) courses. During the reporting period, online Fish Genetics was taught by Dr. Boris Gomelsky in the fall semester of 2009 with nine students from seven U.S. states and one foreign nation. Dr. Jim Tidwell taught the online Principles of Aquaculture course in the 2008 fall semester, and spring and summer semesters of 2009 with 36 students from 11 U.S. states and three foreign countries. A new online course was launched by Dr. Robert Durborow for the 2008 summer semester and taught again 2009 spring semester, Basics of Fish Diseases, with a total of 13 students from five U.S. states and three foreign countries. Two new online courses are in development, Fish Reproduction and Spawning Techniques and Water Quality Management, and will be available in the 2009 fall semester and 2010 spring semester. Since offering our first Internet course in 1992 the Division has had a total of 217 online students in 37 U.S. states and 17 countries.



PUBLICATIONS – Journal Articles

PUBLISHED

(Students' Names in **Bold** in all sections)

- Amoah, A.**, S.D. Coyle, C.D. Webster, R.M. Durborow, L.A. Bright, and J.H. Tidwell. 2008. Effects of graded levels of carbohydrate on growth and survival of largemouth bass, *Micropterus salmoides*. Journal of the World Aquaculture Society, 39(3):397-405.
- Chen, G., R.P. Guttman, Y.L. Xiong, C.D. Webster, and R.P. Romaine. 2008. Protease activity in post-mortem red swamp crayfish (*Procambarus clarkii*) muscle stored in modified atmosphere packaging. Journal of Agriculture Food Chemistry, 56:8658-8663.
- Coyle, S.D., **S. Patton, K. Schneider**, and J.H. Tidwell. 2009. The effect of water temperature on growth and survival of largemouth bass (*Micropterus salmoides*) during the feed training phase. North American Journal of Aquaculture, 71(3):256-259.
- Cuevas-Uribe R.**, B. Gomelsky, S.D. Mims and K.W. Pomper. 2009. Progress in studies on hormonal sex reversal and genetic sex control in black crappie. Reviews in Fisheries Science, 17:1-7.
- Joseph, P., S.P. Suman, S. Li, Y.L. Xiong, C.D. Webster, K.R. Thompson, and L.S. Metts. 2009. Fishmeal-based diet decreases red color of sunshine bass (*Morone chrysops* X *Morone saxatilis*) fillets. Journal of Food Science Technology, 42:730-734.
- Novelo, N.D.**, and B. Gomelsky. 2009. Comparison of two methods for measurement of red-area coverage in white-red fish for analysis of color variability and inheritance in ornamental (koi) carp *Cyprinus carpio*. Aquatic Living Resources, 22:113-116.
- Ogunsanya, T.** and S. Dasgupta. (2009) Characteristics of Baitfish Retailers in Kentucky: Evidence of a Market to Support a Regional Industry. Journal of Applied Aquaculture, 21:120-127.
- Onders, R.J., S.D. Mims and S. Dasgupta. 2008. Growth, condition, and size distribution of paddlefish, *Polyodon spathula*, juveniles reared in ponds at three densities. Journal of World Aquaculture Society, 39:565-571.

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PUBLICATIONS – Journal Articles (CONT)

PUBLISHED (CONT)

Pine, H., W. Daniels, M. Jiang, D. Davis, and C. Webster. 2008. Replacement of fish meal with poultry by-product meal as a protein source in pond-raised sunshine bass, *Morone chrysops* X *M. saxatilis*, diets. *Journal World Aquaculture Society*, 39:586-597.

Rawles, S.D., K.R. Thompson, L.S. Metts, A.L. Gannam, R.G. Twibell, Y.J. Brady, and C.D. Webster. 2009. A comparison of two fecal collection methods for protein and amino acid digestibility coefficients for menhaden fish meal and two grades of poultry by-product meals in market-size sunshine bass (*Morone chrysops* X *M. saxatilis*). *Aquaculture Nutrition*, 15:1-10.

Thompson, K.R., Rawles, S.D., Metts, L.S., Smith, R., Wimsatt, A., Gannam, A.L., Twibell, R.G., Johnson, R.B., Brady, Y.J., and Webster, C.D. 2008. Digestibility of dry matter, protein, lipid, and organic matter of two fish meals, two poultry by-product meals, soybean meal, and distiller's dried grains with solubles in practical diets for sunshine bass, *Morone chrysops* X *M. saxatilis*. *Journal of the World Aquaculture Society*, 39(3):352-363.

IN PRESS

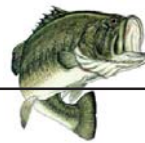
Chen, G., Y.L. Xiong, M.C. Newman, C.D. Webster, K.R. Thompson, and L.S. Metts, In Press. Carbon dioxide atmospheric packaging reduces microbial survival and physiocochemical changes in red claw crayfish, *Cherax quadricarinatus*, tail muscle during frozen storage. *Journal of the World Aquaculture Society*.

Cochran, N.J., S.D. Coyle, and J.H. Tidwell. In press. Evaluation of reduced fish meal diets for second-year growth of the largemouth bass *Micropterus salmoides*. *Journal of the World Aquaculture Society*.

Dasgupta, S., J. Eaton, and **A. Caporelli**. In press. Consumer Perceptions of Kentucky-Grown Chicken Products in Farmers Markets. *Journal of the Kentucky Academy of Science*.

Metts, L.S., Rawles, S.D., Brady, Y.J., Thompson, K.R., Gannam, A.L., Twibell, R.G., and Webster, C.D. In Press. Amino acid availability from selected animal and plant derived feedstuffs for market size sunshine bass (*Morone chrysops* X *M. saxatilis*). *Aquaculture Nutrition*.

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PUBLICATIONS – Journal Articles (CONT)

IN PRESS (CONT)

- Kang, K.H., Z.F. Zhang, Z.M. Bao, B. Zhou, Y.H. Kim, and C.D. Webster. In Press. Effects of clamworm, *Perinereis aibutuhiteusis*, density on acid volatile sulfide, chemical oxygen demand, and loss of ignition in benthic sediment, and on survival of scallop, *Chlamys farreri*, spat. Journal of the World Aquaculture Society.
- Onders, R.J., S. D. Mims, C. D. Webster and A. L. Gannam. In press. Apparent digestibility coefficients of macronutrients in diets of three protein levels fed to paddlefish, *Polyodon spathula*, (Walbaum). Aquaculture Research.
- Thompson, K.R., **T.J. Bailey**, L.S. Metts, Y.J. Brady, and C.D. Webster. In Press. Growth response and fatty acid composition of juvenile red claw crayfish (*Cherax quadricarinatus*) fed different sources of dietary lipid. Aquaculture Nutrition.
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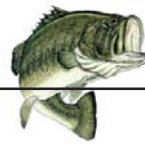
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STUDENT AWARDS

Graduate Students

Tiffany Ogunsanya and **Joshua Patterson** were both recognized as ***Outstanding Graduate Students in Aquaculture/Aquatic Sciences*** at Kentucky State University's Forty-sixth Annual Honors Convocation on Thursday, April 9, 2009.

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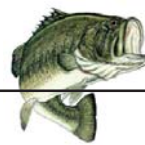
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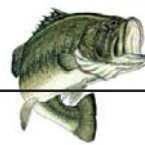
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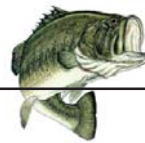
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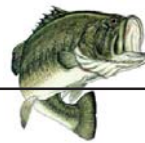
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- Wang, C., L. Huang, C. Butler, R.J. Onders and S.D. Mims. Developing value-added products from paddlefish meat. Aquaculture America 2009, Seattle, WA, February 17, 2009.
- Wang, C., S.D. Mims, L. Huang and R.J. Onders. 2009. Evaluation of preparation procedures for paddlefish caviar. Aquaculture America 2009, Seattle, WA, February 17, 2009.
- Wood, D. R., R.S. Neal**, B.M. Boudreau, S.D. Coyle, and J. H. Tidwell. 2009. Performance of Pacific white shrimp, *Litopenaeus vannamei*, raised in static heterotrophic tank systems under different light and density regimes. Association of Research Directors, Inc., 15th Biennial Research Symposium, Atlanta, GA, March 28 – April 1.

KSU DIVISION OF AQUACULTURE

SCIENTIFIC PRESENTATIONS (CONT)

Wurts, W.A. 2009. Small-scale, low-input aquaculture: return on an investment. General Aquaculture session at *Aquaculture 2009*, the National Conference and Exposition of the U.S. Aquaculture Society, the National Aquaculture Association and the USASA, Seattle, WA, February 18, 2009.

EXTENSION AND LAY PRESENTATIONS

Bean, W. 2009. Cellular Biology presentation that focuses on on the prokaryotic and eukaryotic cells and their organelles, DNA replication, and biotechnologies, Western High School.

Bean, W. 2009. Frankfort Youth Leadership Group (25 students), “Sustainable Agriculture” presentation.

Bean, W. 2009. Jefferson Co 4-H group (27 students) “Introduction to Aquaculture” presentation.

Mims, S.D. 2008. Paddlefish and ranching in municipality water supply lakes. Russellville City Council Meeting. August 12.

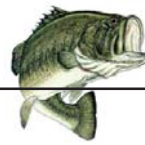
Mims, S.D. 2009 . Aquaculture, paddlefish and wastewater facilities for fish culture. Guest speaker, Campbellsville University, April 13.

Porter, T. 2009. Presentation on the production of online classes for Joe Morgan from the Kentucky Office of Career and Technical Education, February 17.

Schneider, K. 2008. An Update on Freshwater Prawn Genetics Research. U.S. Freshwater Prawn and Shrimp Growers Association, 8th Annual Meeting. Raleigh, NC, December 5-6.

Tidwell, J. H. 2008. Largemouth Bass Culture 101. North Central Regional Aquaculture Center Workshop. Purdue University, West Lafayette, IN, October 18.

Tidwell, J. H. 2008. Substrate revisited. U.S. Freshwater Prawn and Shrimp Growers Association, 8th Annual Meeting. Raleigh, NC, December 5-6.



EXTENSION AND LAY PRESENTATIONS (CONT)

- Tidwell, J.H. 2008. Presented "Distance Education in Aquaculture" at the First KSU GIS Steering committee meeting.
- Wurts, W.A. 2009. Copper sulfate, alkalinity and liming. In-service training for commercial herbicide applicators and County Extension Agents, Princeton, KY, February 6, 2009.
- Wurts, W.A. 2009. Top 10 Aquatic Weeds. In-service training for commercial herbicide applicators and County Extension Agents, Princeton, KY.
- Wurts, W.A. 2009. Copper sulfate, alkalinity and liming. In-service training for commercial herbicide applicators and County Extension Agents, Frankfort, KY, February 27, 2009.
- Wurts, W.A. 2009. Top 10 Aquatic Weeds. In-service training for commercial herbicide applicators and County Extension Agents, Frankfort, KY, February 27, 2009.
- Wurts, W.A. 2008. Low-Input Shrimp Farming. Workshop for land/pond owners, small farmers and potential producers, Frankfort, KY, February 28, 2009.
- Wurts, W.A. 2008. Small-Scale Catfish Farming. Workshop for land/pond owners, small farmers and potential producers, Frankfort, KY, February 28, 2009.
- Wurts, W.A. 2008. Liming Ponds. Workshop for land/pond owners, small farmers and potential producers, Frankfort, KY, February 28, 2009.
- Wurts, W.A. Taped program with UK Agriculture Communications for the Jack Krowner radio show, July 8, 2008.
- Wurts, W.A. 2008. Top 10 Aquatic Weeds. In-service training at 2008 fall ANR Update for all Ag. and Natural Resource and Horticulture County Extension Agents in Winchester, KY, October 22, 2008.
- Wynne F. S. and K. Perry 2008. Aquatic plant control and pond management demonstration program held at J&S Nursery pond near Mayfield, KY, August 14. Sixteen attended.
- Wynne F.S. and W.A. Wurts 2008. Presented programs on pond construction and recreational pond management at the UK Princeton Research and Education Center on August 23. Eleven attended.

KSU DIVISION OF AQUACULTURE

EXTENSION AND LAY PRESENTATIONS (CONT)

Wynne F.S. 2008. Presented an aquaculture display during the Taste of Extension program held at Carson Park in Paducah sponsored by the McCracken County Extension Office on October 14. Approximately 300 attended.

Wynne F.S. 2008. Presented an aquaculture display and conducted a pond-seining demonstrations at the 4-H Center in Dawson Springs during the 7th extension district Extension Extravaganza, October 22. Thirty-six attended.

Wynne F.S. 2008. Presented two sessions on algae and aquatic plant control during a commercial pesticide applicators training session at the McCracken County Extension office on December 15 with local and state horticulture personnel. Thirty-eight attended.

SERVICE TO THE PROFESSION AND UNIVERSITY

Bean, W. 2009. Assisted transfer student with undergraduate enrollment into KSU (biology major, aquaculture minor).

Bean, W. 2009. Future Farmers of America (FFA) Aquaculture Impromptu Judge: Bluegrass Region Day, hosted at University of Kentucky.

Bean, W. 2009. Delivered surplus feed to Jefferson Co. Public School to assist special needs students with fishing activities.

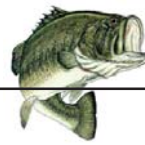
Bean, W. 2009. Transported and chaperoned nine undergraduate students attending the National MANRRS Convention hosted in Indianapolis, IN.

Bean, W. 2009. Represented the Division of Math & Science as well as the Division of Aquaculture at the KSU Spring Open House. Mobile classroom was used to host some 500 persons.

Bright, L.A. 2009. Completed HACCP training and certification.

Cochran, N. 2009. Connected and worked Ribbons of America KSU Summer Transportation Institute meeting with Department of Transportation.

Dasgupta, S. 2009. Served as a Faculty Senate Representative of the Division of Aquaculture.



SERVICE TO THE PROFESSION AND UNIVERSITY (CONT)

Dasgupta, S. 2009. Served on the Kentucky State University Curriculum Committee.

Dasgupta, S. 2009. Served as reviewer for Aquaculture Economics and Management and Journal of the World Aquaculture Society.

Dasgupta, S. 2009. Developed a new course titled Computer Applications in Statistics (AQU 416/516), which is the only KSU course that trains students in the use of SAS.

Dasgupta, S. 2009. Developing a new online course: ENV – 517 Environmental and Resource Economics.

Dasgupta, S. 2009. Assisting Dr. John Sedlacek in a complex experimental design and corresponding statistical analyses related to his research program in entomology.

Durborow, R.M. 2008. Mentored REAP students in USDA summer internship program. (Courtney Howard and Camille Turner).

Durborow, R.M. 2008. Served on Land Grant Review Committee.

Johnson, K.H. 2009. Continues to serve as the Records Management Liaison for the Division of Aquaculture.

Johnson, K.H. 2009. Continues to serve as a member of the Kentucky State University Strategic Plan Task Force.

Gomelsky, B. 2009. Moderated session “Reproduction” at Conference Aquaculture America 2009, Seattle, WA, February, 15.

Gomelsky, B. 2008. Served as Associated Editor in North American Journal of Aquaculture.

Mims, S. D. 2009. Member of the University Faculty Grievance Hearing Panel.

Mims, S. D. 2009. Member of Tenure and Promotion Task Force.

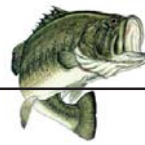
Mims, S. D. 2009. Member of the Professional Concerns Committee (non-senator).

Mims, S. D. 2009. Member of USAS subcommittee for student chapters.

KSU DIVISION OF AQUACULTURE

SERVICE TO THE PROFESSION AND UNIVERSITY (CONT)

- Mims, S. D. 2009. Member of paddlefish committee for Aqua Task Force.
- Porter, T. 2009. Served on Education Dept. Search Committee for IT personnel.
- Porter, T. 2009. Took photos and made prints for Nigerian visitor.
- Porter, T. 2009. Presented at the CPE Scholarship of Teaching Conference.
- Porter, T. 2009. Assisted Environmental Studies with Web & promotion.
- Porter, T. 2009. Submitted text for President Sias's technology speech.
- Porter, T. and Weibel, C. 2009. Designed and printed Attitude banner for ARC lobby.
- Porter, T. 2009. Design and print online tri-fold for WAS conference and ARD in Atlanta.
- Stilwell, W.E. 2009. Certified as a facilitator for Project Learning Tree, Project Wet Project Wild.
- Stilwell, W.E. 2009. Served on the KSU Environmental Education Center Steering Committee.
- Stilwell, W.E. 2009. Served on the Kentucky Association of Environmental Educators.
- Tidwell, J.H. 2009. Serves on the KSU GIS Advisory Board and Steering Committee.
- Tidwell, J.H. 2009. Serving on the Faculty Development Advisory Council.
- Tidwell, J.H. 2009. Continues to serve on the university's Strategic Planning Task Force.
- Tidwell, J.H. 2009. Continues to serve on the university's Biohazard Committee.
- Tidwell, J.H. 2009. Continues to serve on the university's Institutional Research Committee.
- Tidwell, J.H. 2009. Continues to serve on the Deans and Chairs Committee.
- Tidwell, J.H. 2009. Continues to serve on the Graduate Council.
- Tidwell, J.H. 2009. Serves as Co-Chair of Environmental Education Center Steering Committee.
- Webster, C.D. 2008. KSU Health Insurance Advisory Committee, 2002 - present.



SERVICE TO THE PROFESSION AND UNIVERSITY (CONT)

Webster, C.D. 2008. U.S. Aquaculture Society Faculty Liaison, 2000-2008.

Webster, C.D. 2008. Adjunct Professor, Dept. of Animal Sciences, University of Kentucky.

Webster, C.D. 2008. Associate Graduate Faculty, Department of Animal Sciences, University of Kentucky.

Webster, C.D. 2008. Affiliate Professor, Department of Fisheries and Allied Aquacultures, Auburn University.

Webster, C.D. 2008. Editor of the Journal of the World Aquaculture Society.

Webster, C.D. 2009. Elected to Board of Directors, Striped Bass Growers Association.

Webster, C.D. 2009. Served as reviewer for promotion of professor from International Scientist University of Malaysia.

Webster, C.D. 2009. Served as judge at Annual Science Fair, Barret Traditional Middle School, Louisville, KY.

Weibel, C. 2008. Created audio loop for PowerPoint presentation at Purdue University.

Weibel, C. 2008. Assisted Graphics Department with printing, laminating and servicing equipment.

Weibel, C. 2009. Served on the Commencement Committee.

Weibel, C. 2009. Won Second Place in Earth Day Photo Contest.

Wynne, F. 2008. Conducted a television interview with Paducah News Channel 6 regarding mercury bioaccumulation in paddlefish.

Wynne, F. 2008. Conducted a telephone interview with outdoor writer Steve Vantrease of the Paducah Sun regarding the aquatic plant control problems homeowners are experiencing around the shoreline of Kentucky Lake.

Wynne, F. 2008. Attended two Kentucky Department of Agriculture's Division of Environmental Services commercial pesticide applicators training programs.

KSU DIVISION OF AQUACULTURE

SERVICE TO THE PROFESSION AND UNIVERSITY (CONT)

Wynne, F. 2008. Attended an Agriculture Economics Update training session for agents at the UK Research and Extension Center in Princeton.

Wynne, F. 2008. Attended a meeting for the Purchase Area agricultural and horticulture agents at the Graves County Extension office on November 7. Nine attended.

TOURS AND PROMOTIONAL ACTIVITIES

Bean, W. 2009. ARC Tour: Dr. Suh and University of Korea Faculty.

Bean, W. 2009. ARC Tour: Georgetown Group (30 students) "Introduction to Aquaculture."

Bean, W. 2009. ARC Tour: Admissions Group (45 students).

Stilwell, W.E. 2009. Took the Mobile EEC to the North Side Elementary School to address the Science Club (35 contacts).

Stilwell, W.E. 2009. Led a group of students at the Aquaculture Research Center (50 Contacts).

Stilwell, W.E. 2009. Took the Mobile EEC to HBCU Showcase (100 contacts).

Thompson, K.R. 2009. Guided walking tour of ARC facility to Chicago high school students.

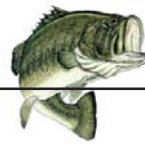
Tidwell, J.H. 2008. Conducted a tour of the ARC for Onaje Jackson, a "green" architect and grandson of a former KSU president.

Tidwell, J.H. 2008. Conducted a tour for 22 people from the University of Kentucky who were new Extension Agents at Core Training.

Yancey, D. 2008. Prepared facility and assisted in coordinating the set-up of classroom for NCRS State Conservationist meeting on September 26.

Yancey, D. 2008. Directed tour for Monte McGregor and interested employees from Fish & Wildlife. Employees were looking at the possibility of entering the graduate program.

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INFORMATION TECHNOLOGY

- Cochran, N. 2009. Created Fish Reproduction and Spawning Techniques teaser video for KSU Aquaculture Web site.
- Cochran, N. 2009. Facilitated Blackboard for online courses Principles of Aquaculture and Fish Diseases.
- Cochran, N. 2009. Converted Basics of Fish Diseases into WMV format for student in Belize.
- Cochran, N. 2009. Placed Basics of Fish Diseases and Principles of Aquaculture on Mobile Me in WMV format.
- Cochran, N. 2009. Produced and edited Water Quality Classes 1-7.
- Cochran, N. 2009. Produced and edited prawn larvae in wet lab hatchery.
- Cochran, N. 2009. Converted K-12 Education videos to Flash format.
- Cochran, N. 2009. Placed K-12 Education videos on Dell server for use on Aquaculture Education Web site.
- Cochran, N. 2009. Exported and converted Fish Reproduction and Spawning Techniques module corrections for classes 1-8.
- Cochran, N. 2009. Facilitated Blackboard courses Principles of Aquaculture and Fish Diseases in spring and summer semesters.
- Cochran, N. 2009. Facilitated Blackboard course Principles of Aquaculture for the summer 2008 semester.
- Cochran, N. 2009. Ripped and converted videos for presentation at CPE Conference in Lexington, KY.
- Porter, T. 2009. Arranged videoconference high definition demonstrations with three vendors.
- Porter, T. 2009. Submitted KSU application in National Campus Innovators Competition.

KSU DIVISION OF AQUACULTURE

INFORMATION TECHNOLOGY (CONT)

Porter, T. 2009. Drafted letter to Amazon CEO Jeff Bezos proposing KSU partner with Amazon in the testing of the Kindle e-Reader.

Porter, T. 2009. Continued work with Program Services Group in the changeover of editing suite to allow for high definition editing.

Weibel, C. 2008. Created YouTube account and uploaded "The Aquaculture Experience."

Weibel, C. 2008. Uploaded "Cleaning Water... Growing Fish" to YouTube.

Weibel, C. 2008. Provided photos for the new KSU Web site.

Weibel, C. 2008. Mentored REAP students and assisted with final presentations.

Weibel, C. 2008. Purchased and tested underwater camera.

Weibel, C. 2008. Set up camera with Macro lens for Andy's thesis project and captured photos for five days.

Weibel, C. 2008. Uploaded over 20,000 audio files to MAC.

Weibel, C. 2008. Installed new software, Prologic, MAC Disc Cover.

Weibel, C. 2008. Installed Skype software and tested.

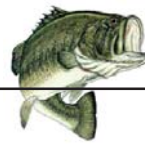
Weibel, C. 2009. Provided A/V support and coordinated Internet access for the CPE presentation in Lexington.

Weibel, C. 2009. Did inventory and gathered old computer equipment to be recycled.

Yancey, D. 2008. Programed electronic gate to provide access for KSU nursing students into the facility.

INTERAGENCY INVOLVEMENT

Coyle, S. 2008. Worked to assist the North Point Correctional Facility with water quality monitoring as well as prawn and fish growth assessment.



INTERAGENCY INVOLVEMENT (CONT)

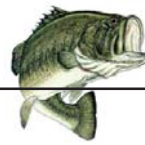
- Durborow, R.M. 2009. Interaction with the Kentucky Department of Agriculture, Angela Caporelli, the Kentucky Aquaculture Association board of directors and the Aquaculture Task Force for Kentucky.
- Durborow, R.M. 2009. Collaborated with Randal Rock with USDI Natural Resources Conservation Service.
- Mims, S.D. 2009. Working with Mt. Vernon (Lake Linville) and North Laurel Water District (Wood Creek) in paddlefish project. Sampling water quality, phytoplankton and zooplankton in lakes stocked with paddlefish.
- Mims, S. D. 2009. Research/Demonstration with the Frankfort Sewer Plant and the City of Frankfort in collaboration with Aquila International and Kentucky State University in testing the raising of paddlefish in decommissioned digester tanks filled with processed waste water and paddlefish culture. Also, 8,500 phase II hybrid striped bass were raised successfully in a digester tank in summer 2008.
- Mims, S. D. 2009. Assisted Winchester Municipal Utilities (WPU) in getting approval from Kentucky Division of Water to incorporate aquaculture into WMU's plan in preventing demolition of their decommissioned sewer plant and allowing its use as an aquaculture hatchery facility.
- Mims, S. D. 2009. Collaboration with Jack Stickney of Kentucky Rural Water Association to identify municipalities that have water supply lakes for reservoir ranching of paddlefish.
- Porter, T. 2008. Presentation on Aquaculture online course production for Joe Morgan, Ky. Office of Career and Technical Education.
- Tidwell, J.H. 2008. Entered into a Memorandum of Agreement with the Kentucky Department of Fish and Wildlife on a project titled, "Kentucky State University Enhancement of Endangered Mussels 2009." \$30,000.
- Tidwell, J.H., L.A. Bright, and **K. Probst**. 2008. Worked with Angela Caporelli, the KDA State Specialist for Aquaculture Marketing, at the Franklin County Farmers Market to survey the public and serve samples of tilapia, largemouth bass and freshwater prawn. Joe and Sheila McCord, producers from Winchester, were in attendance with product for sale.

KSU DIVISION OF AQUACULTURE

INTERAGENCY INVOLVEMENT (CONT)

- Tidwell, J.H. 2008. Sat on the graduate committee and thesis defense of **Peng Li** in the Dept. of Biosystems and Agricultural Engineering at the University of Kentucky. The project was titled, "Evaluation of water evaporation and energy fluxes in controlled environmental saltwater shrimp production systems."
- Tidwell, J.H. 2008. Hosted **Jose Mario de Anquino Penteado**, undergraduate student of Dr. Wagner Valenti, University of Sao Paulo Brazil, at the ARC for six weeks.
- Tidwell, J.H. 2008. Traveled to Mote Marine in Florida with a group interested in sturgeon culture to research current production systems.
- Tidwell, J.H. 2009. Served as Chair for the Production Panel of the USDA-ARS Aquaculture National Program.
- Tidwell, J.H. 2009. Serves on the Southern Regional Aquaculture Center Publication Steering Committee.
- Tidwell, J.H. 2009. Serves as an Ex Officio Board member of the Kentucky Aquaculture Association.
- Tidwell, J.H. 2009. Serves as a member of the World Aquaculture Society and American Fisheries Society education committee.
- Tidwell, J.H. 2009. Serves as a representative for the Translational Research Conference Committee, chaired by U of L President Ramsey, and reports to the Council on Postsecondary Education.
- Tidwell, J.H. 2009. Continues to chair a committee to study the feasibility of intensive recirculating saltwater shrimp production under Kentucky conditions for the Governor's Office of Agricultural Policy. Members include representatives of UK, GOAP, WKU, and Sygen.
- Tidwell, J.H. 2009. Continues to serve on the Governor's appointed Aquaculture Task Force.
- Tidwell, J.H. 2009. Serving on the Economic Stimulus Work Group Sub-Committee on Homeland Security.
- Tidwell, J.H. 2009. Serves as an advisor to the Community River Ecology Project sponsored by the Frankfort Tourism Board and Second Street School.

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INTERAGENCY INVOLVEMENT (CONT)

- Wurts, W. 2009. Coordinated and collaborated with Dr. Peter Perschbacher to organize special session and begin developing speakers list for special session at the Triennial Meeting of the World Aquaculture Society, March 2010.
- Wynne, F. 2008. Attended the Southern Regional Aquaculture Center joint meeting of the technical and industry advisory committees to determine and budget projects for the next three years, at the Atlanta Airport Sheraton Hotel, July 30-31.
- Wynne, F. 2009. Organized two aquatic pesticide commercial applicators In-service training programs held in Frankfort and Princeton during February 2009 through the Kentucky Department of Agriculture's Division of Environmental Services.

SERVICE TO THE COMMUNITY

- Durborow, R.M. 2008-2009. Taught Sunday morning Bible study at Southern Hills United Methodist Church, Lexington, KY.
- Cochran, N. 2009. Took pictures of Frankfort Farmers Market and KAA display with REAP students.
- Mims, S.D. 2009. Treasurer and Volunteer for St. Vincent De Paul Society, Inc. Frankfort.
- Thompson, K.R., 2009. Head Boys Basketball Coach (5th and 6th graders) The Tigers, Anderson County Recreational League, Lawrenceburg, KY.
- Thompson, K.R., 2009. Manager, Little League Boys Baseball (10-12 yrs old) Summer League. Team name: Kansas City Royals, Anderson County Little League, Inc., Lawrenceburg, KY.
- Thompson, K.R., 2009. Manager, Little League Boys Baseball (9-12 yrs old) Fall League, Team name: Navy, Anderson County Little League, Inc., Lawrenceburg, KY.
- Tidwell, J.H. and E. Reed. 2008. Prepared food items for the "7th Annual Grand Taste." All proceeds went toward the restoration of the Grand Theater in downtown Frankfort.
- Tidwell, J.H. 2009. Chairing the Comprehensive School Improvement Committee at Frankfort High School.

KSU DIVISION OF AQUACULTURE

SERVICE TO THE COMMUNITY (CONT)

Weibel, C. 2008. Captured photos and video of Frankfort High School at prawn harvest, edited photos and burned disc.

Weibel, C. 2008. Provided photo and video support to North Point Training Center

Weibel, C. 2008. Worked with Boy Scouts' Weekend Retreat at EEC.

Wynne, F. 2008. Volunteer work with the Greater Paducah/McCracken County Recycling Program's monthly collection of recyclable materials in an effort to establish a municipally funded recycling program.

Wynne, F. 2008/2009. Made five apheresis platelet donations at the Paducah Red Cross Center.

Wynne, F. 2009. Assistant baseball coach, Paducah Tilghman High School, spring 2009.



President Mary Sias, KSU administrators, faculty and staff accept the 2009 Kentucky Heritage Land Conservation Fund Stewardship Award for "Outstanding work of the KSU Environmental Center..." The 2009 Stewardship Award was presented at the Awards Banquet of the Governor's Conference on the Environment.

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2008
&
2009



KSU Division of Aquaculture * A Land Grant Program

KSU Program of Distinction

College of Mathematics, Science, Technology & Health

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