

**Travis Waldemar Brown, Ph.D.**  
*Curriculum Vitae*

Brunswick Community College Center for Aquaculture and Biotechnology  
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**EDUCATION**

**Auburn University**

Doctor of Philosophy in Aquaculture & Fisheries, 2010 (Major Professors: Claude Boyd and Jesse Chappell) Department of Fisheries & Allied Aquacultures, Auburn University, Auburn, Alabama.

Dissertation: *Intensive Culture of Channel Catfish *Ictalurus punctatus* and Hybrid Catfish *Ictalurus punctatus* x *Ictalurus furcatus* in a Commercial-Scale, In-pond Raceway System*

Master of Aquaculture, 2007 (Major Professor: Jesse Chappell)

Department of Fisheries & Allied Aquacultures, Auburn University, Auburn, Alabama.

Project(s) focus: *Improvement of energy and production efficiencies in aquaculture production systems*

**University of North Carolina Wilmington**

Bachelor of Science in Marine Biology with marine aquaculture focus, 2004 (Advisor: Scott Quackenbush) Department of Biology, University of North Carolina Wilmington  
Wilmington, North Carolina.

**Brunswick Community College**

Associate in Applied Science in Aquaculture Technology, 2001 (Advisor: Doug Holland)  
Center for Aquaculture Technology, Brunswick Community College, Supply, North Carolina.

**AREA OF SPECIALIZATION**

Aquaculture production systems and technology; aquacultural engineering; water quality; aquaculture economics

**RESEARCH INTENT**

I believe in utilizing all aspects of existing, new, and developing technology to enhance the producer's ability to maximize production and individual growth of all cultured aquatic organisms in a feasibility manner. This may involve using my research and experience towards the education of commercial producers or the use of biological, physical, or chemical practices to aid in the management of the control of water quality and productivity in aquaculture environments.

## PROFESSIONAL EXPERIENCE

**Director**, Aquaculture Technology, Brunswick Community College, Supply, North Carolina (2016 – present). Under general direction, performs professional tasks at the managerial level to oversee the Aquaculture Technology curricular program. Performs administrative tasks and leads instruction activities. Responsibilities include but are not limited to: Maintains lab and field facilities; Instructs assigns and reviews the work of subordinates; maintains standards through the effective coordination of activities; allocates personnel; acts on employee problems; provides recommendations and approval regarding promotions, disciplinary action, termination procedures and salary issues; Performs various tasks to advise prospective, incoming, and current students; reviews incoming student materials; develops and monitors student plan of study; conducts individual advising sessions with students; provides information regarding financial assistance; monitors student progress; completes pre-registration and registration paperwork; assists students with job-seeking activities; maintains database and files on all advised individuals; oversees co-op opportunities for students; Prepares and plans curricula; assists in organizing program information for catalog; develop course requirements; develops semester course schedules, Hires and assigns instructors to semester classes; conducts meetings for adjunct faculty; provides assistance to adjunct faculty in developing and delivering courses; develops general and instructor syllabi; observes and evaluates adjunct faculty; Reviews and validates courses and rosters for all program classes; Selects and ensures ordering and availability of textbooks. Instructor materials, class materials and equipment. Monitors set-up and instructional readiness of classrooms; monitors suitability of additional classrooms; Determines technological resources and related supplies suitable for programs; obtains pricing and purchases materials; Provides recommendations regarding program budgets; monitors expenditures; balances program budget; develops and submits grant proposals and applications; Performs routine administrative tasks; completes requests and requisitions for travel reimbursements, purchases; prepares and executes various reports and agreements; Participates in professional development activities; attends statewide meetings; ensures collaboration between college, community and other stakeholders; Performs various instructional tasks; reviews and monitors class rosters; prepares instructor syllabus and course planning for multiple classes; identifies and prepares course materials and lessons; coordinates guest speakers for classes; participates in classroom and online instruction; provides support to students in the learning process; prepares and implements evaluation materials including quizzes and exams; ensures integrity of student course completion; Establishes grades and provides student feedback; maintains and monitors the grade book; calculations and submits final grades

**Research Fish Biologist and Aquacultural Engineer**, USDA-ARS Warmwater Aquaculture Research Unit, National Warmwater Aquaculture Center, Stoneville, Mississippi (2010 – 2016). Responsibilities include, but were not limited to: Development of aeration and oxygenation equipment through design, fabrication, modification, and final testing trials; conduct aeration efficiency tests with innovative aeration/oxygenation equipment for proof of concept to the industry; implement equipment into field conditions and assist farmers with proper operational protocols for successful delivery; compile data and interpret results through the use of peer review publications, fact sheets, farm tours, and presentations;

preparation of proposals, grants, and annual reports; preparation of inventions-patent docket disclosures applications for inventions that display patent potential and meet with representatives from the National Mechanical and Measurements Patent Committee concerning specific issues; manage catfish production studies through collaborative research with Mississippi State University, Auburn University, and University of Arkansas at Pine Bluff; assist farmers and other researchers with the design of production systems and use of technology to improve efficiency and reduce production costs; manage research personnel as needed with projects to assure objectives and goals are met on time; perform engineering tests to determine efficiency of different water circulation devices used in intensive partitioned pond-based aquaculture systems; advance the development of slow-rotating paddlewheels and other pumps used in split-pond aquaculture systems; manage a series of large industry impact related projects funded by the Southern Regional Aquaculture Center assuring all objectives are met on time.

***Graduate Research and Teaching Assistant/Ph.D. Candidate***, Department of Fisheries & Allied Aquacultures, Auburn University, Auburn, Alabama (2008 – 2010). Responsibilities included, but were not limited to: Managed the constant development of a commercial-size, in-pond raceway system (IPRS) as a demonstration project located on a 430-water acre catfish farm in west Alabama; improved the IPRS through design modifications, maintenance and repairs, installed state of the art monitoring systems; conducted animal husbandry and detailed water quality analysis; worked directly with farmers interested in advanced production technology; hosted field days; supervised student and technical personnel and trained new personnel; compiled data and interpreted results through the use of peer review publications, fact sheets, farm tours, and presentations; assisted with the design, construction, and production of a commercial-size, integrated fish recirculating aquaculture system and plant greenhouse production system in west Alabama; collected aerator performance data using standard engineering tests, interpreted test results, converted test results to field conditions, and compared results of different aerator designs.

***Agriculture Program Assistant II***, Alabama Black Belt Initiative, Department of Fisheries & Allied Aquacultures, Auburn University. Stationed at the Alabama Fish Farming Center, Greensboro, Alabama (2007 – 2008). Responsibilities included, but were not limited to: Conducted on-farm field trials to produce various marine fish and shrimp species; coordinated availability of equipment, materials, labor and support services needed to conduct trials; performed professional tasks related to research protocols and plans, provided documentation, and made observations and data collection; recorded, processed, interpreted, and presented data through the use of peer review publications, fact sheets, farm tours, and presentations; installed and maintained equipment needed to conduct field trails; conducted routine water sample collection and performed analysis; maintained general animal husbandry.

***Graduate Research Assistant***, Department of Fisheries & Allied Aquacultures, Auburn University, Auburn, Alabama (2005 – 2007). Responsibilities included, but were not limited to: Monitored, maintained, evaluated, and compared oxygen monitoring equipment (remote sensors) which were believed to reduce energy and labor costs while improving efficiency in commercial channel catfish culture ponds; managed the ‘night crew’ responsible for

monitoring dissolved oxygen in all fish production ponds at the E.W. Fisheries Research Station; designed, maintained, and constructed a demonstration project for an energy efficient integrated aquaculture-vegetable greenhouse production system; conducted water quality collection and performed analysis; maintained animal husbandry.

**Research Assistant (Professional Internship for Auburn University)**, MOTE Aquaculture Research Park, MOTE Marine Laboratory, Sarasota, Florida (2007). Responsibilities included, but were not limited to: Assisted with the design and construction of multiple commercial-sized, recirculating aquaculture systems (RAS) used to produce various marine finfish and crustacean species; assisted with the design and fabrication of various biological, mechanical, and chemical filters used in RAS; assisted with fish and shrimp sampling, feeding, water quality analysis, and general animal husbandry; assisted with intra-ovarian biopsies for various marine species (e.g., Florida Pompano and Common Snook); assisted with sex determination via incision/suture technique and punch biopsy procedures for Siberian Sturgeon cultured to produce caviar.

**Undergraduate Research Assistant and Research Associate**, Center for Marine Science, University of North Carolina Wilmington, Wilmington, North Carolina (2001 - 2002 and 2004 - 2005, respectively). Responsibilities included, but were not limited to: Daily data collection of carapace size and molting status of juvenile blue crab as well as water quality analysis such as salinity and temperature and interpretation of their effects on molting; designed, maintained, and constructed recirculating aquaculture systems; assisted with research projects for graduate students by designing and building production systems for broodstock management, spawning, nursery, live foods, enrichments, and growout of various marine finfish species; conducted water quality collection and performed analysis; maintained animal husbandry.

**Aquaculture Technician and Aquaculture Instructor**, Center for Aquaculture Technology, Brunswick Community College, Supply, North Carolina (2000 – 2001 and 2001-2005, respectively). Responsibilities included, but were not limited to: Assisted with the design, construction, and maintenance of all recirculating and flow through systems; recorded and maintained water quality during weekends and holidays including feeding and disease treatments of fish and/or shellfish when necessary; managed the culture of all *Centrarchid* fishes and aquatic vegetation at the facility.

**Field Manager and Co-Owner**, Aquatic Odyssey, LLC, Wilmington, North Carolina (2001-2003). Responsibilities included, but were not limited to: Designed and installed water gardens for commercial and residential areas; performed tasks related to aquatic vegetation management in lakes and ponds in residential areas and commercial facilities using biological, chemical, and mechanical control; performed routine water quality analysis and made corresponding recommendations for water quality improvement; managed personnel to ensure deadlines were met on time; assisted with budgeting and economic feasibility analysis.

***Aquaculture Technician and Assistant Manager***, Carolina Perch Company, LLC, Winnabow, North Carolina (1999 – 2002). Responsibilities included, but were not limited to: Designed, constructed, and maintained flow through raceway tank systems; managed all aspects of yellow perch fingerling production including collection of egg ribbons from brood ponds, hatching and collection of fry for pond stocking, fertilization of ponds, zooplankton qualitative and quantitative analysis, analysis and management of water quality, harvesting and grading fingerlings, feed training, disease management, transport, and marketing; managed all personnel at the facility to ensure deadlines were met on time.

## **PUBLICATIONS**

### **Peer Reviewed Journal Articles**

Roy LA, Pine HJ, Boyd CE, Davis DA, Brown TW. (In-Press). Influence of pond soils on growth of Pacific white shrimp *Litopenaeus vannamei* reared in low salinity waters. *North American Journal of Aquaculture*.

Mischke CC, Brown TW, Tucker CS, Torrains EL. (In-Press) Single batch production of hybrid catfish using graded partial harvest. *North American Journal of Aquaculture*.

Tucker CS, Mischke CC, Brown TW, Torrains EL. (In-Press) Water quality in single batch hybrid catfish production ponds using partial harvest techniques. *Journal of the World Aquaculture Society*.

Schrader KK, Tucker CS, Brown TW, Torrains EL, Whitis GN. 2018. Earthy and Musty Off-Flavor Episodes in Catfish Split-Pond Aquaculture Systems. *North American Journal of Aquaculture*. 80:26-41.

Tucker CS, Pote JW, Wax CL, Brown TW. 2017. Improving water-use efficiency for Ictalurid catfish pond aquaculture in northwest Mississippi, USA. *Aquaculture Research*. 48(2):447-458.

Schrader KK, Tucker CS, Brown TW, Torrains EL, Whitis GN. 2016. Comparison of Phytoplankton Communities in Catfish Split-Pond Aquaculture Systems with Conventional Ponds. *North American Journal of Aquaculture*. 78(4): 384-395.

Brown TW, Tucker CS, Rutland BL. 2016. Performance evaluation of four different methods for circulating water in commercial-scale, split-pond aquaculture systems. *Aquacultural Engineering*. 70:33-41.

Brown TW, Mischke CC, Roy LA, Li MH. 2016. A length-weight relationship for pond-raised hybrid catfish. *Journal of the World Aquaculture Society*. 47(1):93-96.

Brown TW, Boyd CE, Chappell JA. 2015. Organic Carbon and Dissolved Oxygen Budgets for a Commercial-size, In-pond Raceway System. *Journal of the World Aquaculture Society* 46(5):539-548.

- Mischke CC, Tucker CS, Wise DJ, Brown TW. 2015. DEET (N,N-diethyl-*m*-toluamide) Toxicity to Channel Catfish *Ictalurus punctatus* Sac Fry. *Journal of the World Aquaculture* 46(3):344-347.
- Brown TW, Hanson TR, Chappell, JA, Boyd CE, Wilson DS. 2014. Economic Feasibility of an In-pond Raceway System for Commercial Catfish Production in west Alabama. *North American Journal of Aquaculture* 76:79-89.
- Brown TW, Tucker CS. 2014. Pumping Performance of a Commercial Modified Paddlewheel aerator for Split- Pond Aquaculture Systems. *North American Journal of Aquaculture*. 76:72-78.
- Brown TW, Tucker, CS. 2013. Pumping Performance of a Slow-Rotating Paddlewheel for Split-Pond Aquaculture Systems. *North American Journal of Aquaculture*. 75:153-158.
- Brown TW, Boyd CE, Chappell JA. 2012. Approximate Water and Chemical Budgets for an Experimental, In-pond Raceway System. *Journal of the World Aquaculture Society*. 43(4):526-537.
- Brown TW, Chappell JA, Boyd CE. 2011. A Commercial-Scale, In-pond Raceway System for *Ictalurid* Catfish Production. *Aquacultural Engineeing*. 44:72-79.
- Phelps RP, Daniels WH, Sansing NR, Brown, TW. 2010. Production of Gulf Killifish in the Black Belt Region of Alabama Using Saline Groundwater. *North American Journal of Aquaculture*. 72:219-224.
- Roy LA, Bordinhon A, Sookying D, Davis DA, Brown TW, Whitis GN. 2009. Demonstration of alternative feeds for *Litopenaeus vannamei* reared in low salinity waters of west Alabama. *Aquaculture Research*. 40:496-503.

### **Book Chapters & Symposium Proceedings**

- Chappell JA, Brown TW, Purcell TR. 2008. A Demonstration of Tilapia and Tomato Culture Utilizing an Energy Efficient Integrated System Approach. pp. 23-32. *8<sup>th</sup> International Symposium on Tilapia in Aquaculture*. Cario, Egypt. October 12-14.

### **Trade Journals, Magazines, & Newsletters**

- Brown TW, Tucker CS, Rutland B. 2016. Pumping Systems Used in Commercial-Size, Split-Ponds: Performance and Costs. *National Warmwater Aquaculture Center Newsletter*. 13(1):18-20.
- Brown T, Mischke C, Roy L, Li M. 2016. A Length-Weight Relationship for Hybrid Catfish Fingerlings. *National Warmwater Aquaculture Center Newsletter*. 13(1):16-17.
- Mischke CC, Tucker CS, Wise DJ, Brown TW. 2016. DEET Toxicity to Channel Catfish Sac Fry. *National Warmwater Aquaculture Center Newsletter*. 13(1):9-10.

- Mischke CC, Tucker CS, Wise DJ, Brown TW. 2016. DEET (N,N-diethyl-*m*-toluamide) Toxicity to Channel Catfish *Ictalurus punctatus* Sac Fry. Delta Research and Extension Center 2015 Annual Research Report XXX. Stoneville, Mississippi.
- Roy L, Brown T. 2016. In-pond raceway systems: Are they really a good alternative for U.S. catfish farmers? *Arkansas Aquafarming*. 33(3):6-7.
- Brown TW. 2016. Emergency power for fish produced in intensive, pond-based systems. *The Catfish Journal*. 30(3):16-17, 22.
- Brown TW., Recsetar M. 2016. Considerations When Using Variable Frequency Drive Technology for Pond Aquaculture. *Arkansas Aquafarming*. 33(1):4-5.
- Recsetar M., Brown TW. 2016. Catfish Production Using Intensive Aeration. *The Catfish Journal*. 30(1):15.
- Recsetar M., Brown TW 2015. Catfish Production Using Intensive Aeration. *Arkansas Aquafarming*. 32(2):1-2.
- Brown TW, Tucker CS 2015. Variable speed drives for pumps used in intensive pond culture systems. *The Catfish Journal*. 27(3):10-11.
- Bott LB, Brown TW, Roy LA, Hanson TR. 2014. Chemical Treatment Costs Reduced With In-Pond Raceway Systems. *Global Aquaculture Advocate*. 17(4):62-64.
- Brown T, Powe W, Roy L. 2014. A Trap Panel to Capture Escaped Catfish for In-Pond Raceways. *The Catfish Journal*. 27(7):21-23.
- Brown TW, Torrans EL. 2014. Development and On-site Field Testing of the Power-Tube Airlift Aerator and Chances for Commercialization. *National Warmwater Aquaculture Center Newsletter*. 12(1):8-9.
- Brown TW, Tucker CS. 2014. Effects of Fish Barrier Screening Material on Water Flow in Split-Pond Aquaculture Systems. *National Warmwater Aquaculture Center Newsletter*. 12(1):10-11.
- Brown TW, Tucker CS. 2014. Pumping Performance of a Slow-Rotating Paddlewheel for Split-Ponds. *National Warmwater Aquaculture Center Newsletter*. 12(1):6-7.
- Roy L, Hemstreet W, Brown T. 2014. Catfish Disease Cases in In-Pond Raceway Systems in Alabama: 2008 - 2013. *Arkansas Aquafarming*. 31(1):3-5.
- Roy L, Hemstreet W, Brown T. 2013. Catfish Disease Cases in In-Pond Raceway Systems in Alabama:2008 - 2013. *The Catfish Journal*. 27(4):17, 21.
- Brown TW, Chappell JA. 2011. Experimental Commercial-Scale, In-Pond Raceway System piques Farmers' interest in west AL. *Aquaculture North America*. 2(5):1, 8-9.

Brown TW, Chappell JA, Hanson TR. 2010. In-pond Raceway System Demonstrates Economic Benefit for Commercial Catfish Production. *Global Aquaculture Advocate*. 13(4):18-21.

### **In Review & Preparation (partial list)**

Kumar G, Engle C, Hanson T, Tucker C, Brown T, Bott L, Roy L, Chappell J, Boyd C, Recsetar M, Park J, and Torrains L. Economics of Alternate Catfish Production Technologies. In preparation for submission to *Journal of the World Aquaculture Society*.

Brown TW, Mischke CC, Roy LA, Li M. A Length-Weight Relationship for Hybrid Catfish, *Ictalurus punctatus* x *I. furcatus*, Grown under Commercial Conditions. In preparation for submission to *Journal of the World Aquaculture Society*.

Brown TW, Tucker CS. A method to estimate performance of a twin, slow-rotating paddlewheel circulator using field measurements from a split-pond aquaculture system. In preparation for submission to *North American Journal of Aquaculture*.

Brown TW, Torrains EL. A Commercial-Size Heat Exchange System for *Ictalurid* Catfish Hatcheries. In preparation for submission to *North American Journal of Aquaculture*.

Brown TW, Torrains EL. Development and Evaluation of a Commercial-Scale Airlift Pump for Emergency Aeration of *Ictalurid* Production Ponds. In preparation for submission to *Aquacultural Engineering*.

Phelps RP, Daniels WH, Brown TW, Sansing NR. Evaluating the potential of bull minnows as a marine bait fish using low salinity groundwater in west Alabama. In preparation for submission to reviews in *Journal of Applied Aquaculture*.

### **Conference Papers and Published Abstracts**

Schrader K, Tucker C, Brown T, Whitis G. 2018 Earthy and Musty Off-Flavor Episodes in Catfish Split-Pond Aquaculture Systems. Abstract submitted to the World Aquaculture Society Conference for oral presentation. Las Vegas, Nevada. Feb. 19-22.

Roy LA, Brown TW, Chappell JA, Hanson TR, Park J. 2018. Intensive pond-based production systems for aquaculture. Georgia Chapter of the American Fisheries Society. Unicoi State Park, Helen, Georgia. Jan. 23-25.

Mischke CC, Brown TW, Tucker CS, Torrains EL. 2017. Reducing Size Variation in Hybrid Catfish Culture through Graded Partial Harvest. Abstract submitted to the Annual Meeting of the U.S. Aquaculture Society. San Antonio, Texas. Feb. 9 - 22.

Tucker CS, Mischke CC, Brown TW, Torrains EL. 2017. Water Quality in Catfish Ponds after Partial Harvest. Abstract submitted to the Annual Meeting of the U.S. Aquaculture Society. San Antonio, Texas. Feb. 9 - 22.



- Brune D, Brown TW, Tucker CS. 2016. Catfish Production and Oxygen and Nitrogen Dynamics in Split, Intensive, and Conventional Catfish Production Ponds. Abstract submitted to the World Aquaculture Society Conference for oral presentation. Las Vegas, Nevada. Feb. 23-26. Invited talk
- Brown TW, Tucker CS. 2016. Performance Evaluation of Pumping Systems used in Commercial-Scale, Split-Pond Aquaculture. Abstract submitted to the World Aquaculture Society Conference for oral presentation. Las Vegas Nevada. Feb. 23-26. Invited talk
- Brown TW, Torrans EL, Tucker CS. 2016. Catfish Production Using Intensive, Pond-Based Culture Systems in Mississippi. Abstract submitted to the World Aquaculture Society Conference for oral presentation. Las Vegas Nevada. Feb. 23-26. Invited talk
- Tucker CS, Brown TW, Pote JW, Wax CL. 2016. Impact of Production Intensification on Water Use Efficiency in Catfish Pond Aquaculture. Abstract submitted to the World Aquaculture Society Conference for oral presentation. Las Vegas Nevada. Feb. 23-26. Invited talk
- Khoo L, Brown TW, Steadman J. 2015. When more is actually less-the tale of chronic ammonia toxicity. Abstract submitted to the American Association of Fish Veterinarians for oral presentation. Charleston, South Carolina. Mar. 2-6.
- Bott LB, Brown, TW, Roy, LA, Hanson, TR. 2015. Chemical Treatment Costs Reduced with In-Pond Raceway Systems. Abstract submitted to the Catfish Farmers of America Research Symposium for poster presentation. Natchez, Mississippi. Feb. 26 - 28.
- Brown TW, Torrans EL, Tucker CS. 2015. Performance Evaluation of Intensive, Pond-Based Culture Systems for Catfish Production in Mississippi: Year One. Abstract submitted to the Catfish Farmers of America Research Symposium. Natchez, Mississippi. Feb. 26 - 28.
- Brune DE, Brown TW, Tucker CS. 2015. Oxygen and Nitrogen Production Dynamics in Split Ponds vs Conventional Catfish Production Ponds. Abstract submitted to the Catfish Farmers of America Research Symposium. Natchez, Mississippi. Feb. 26 - 28.
- Tucker CS, Brown TW. 2015. Design and Fish Culture Considerations for Catfish Farming in Split Ponds. Abstract submitted to the Catfish Farmers of America Research Symposium. Natchez, Mississippi. Feb. 26 - 28.
- Brown TW, Torrans EL, Tucker CS. 2015. Performance Evaluation of Intensive, Pond-Based Culture Systems for Catfish Production in Mississippi: Year One. Abstract submitted to the Annual Meeting of the U.S. Aquaculture Society. New Orleans, Louisiana. Feb. 19 - 22.
- Brune DE, Brown TW, Tucker CS. 2015. Oxygen and Nitrogen Production Dynamics in Split Ponds vs Conventional Catfish Production Ponds. Abstract submitted to the Annual Meeting of the U.S. Aquaculture Society. New Orleans, Louisiana. Feb. 19 - 22.

- Tucker CS, Brown TW. 2015. Design and Fish Culture Considerations for Catfish Farming in Split Ponds. Abstract submitted to the Annual Meeting of the U.S. Aquaculture Society. New Orleans, Louisiana. Feb. 19 - 22.
- Bott, L.B., Brown, T.W., Roy, L.A., Hanson, T.R. Chemical Treatment Costs Reduced with In-Pond Raceway Systems. Abstract submitted to the Annual Meeting of the U.S. Aquaculture Society for oral presentation. New Orleans, Louisiana. Feb. 19 - 22.
- Roy LA, Hemstreet W, Brown TW. 2014. In-Pond Raceway Systems and Catfish Disease Related Cases in Alabama. Catfish Farmers of Arkansas Annual Meeting. Hot Springs, Arkansas, Jan. 16-17.
- Brown TW, Torrains EL. 2013. Development of a New Aerator for the Catfish Industry. Abstract submitted to Aquaculture 2013. Nashville, Tennessee, Feb. 22- 25.
- Brown TW, Torrains EL. 2012. Development and Evaluation of a New Aerator for the Catfish Industry. Abstract submitted to the Annual meeting of the U.S. Aquaculture Society. Las Vegas, Nevada, Feb. 29 - Mar. 2.
- Brown TW, Torrains EL. 2012. Development and Evaluation of a New Aerator for the Catfish Industry. Abstract submitted to the Catfish Farmers of America Annual Meeting. Savannah, Georgia. Feb. 16-18.
- Brown TW, Chappell JA, Boyd CE, Roy LA, Hanson TR. 2011. Catfish Production Guidelines for In-pond Raceway Systems. Abstract submitted to the Annual Meeting of the U.S. Aquaculture Society. New Orleans, Louisiana. Feb. 28 - Mar. 3.
- Brown TW, Chappell JA, Hanson TR. 2010. Commercial Production of Channel Catfish *Ictalurus punctatus* and Hybrid Catfish *Ictalurus punctatus* x *Ictalurus furcatus* Utilizing an In-pond Raceway System in west Alabama. Abstract submitted to the Annual Meeting of the World Aquaculture Society. San Diego, California. Mar. 1-5.
- Chappell JA, Brown TW, Hanson TR. 2009. Design and Performance of an In-pond Raceway System Located in west Alabama. Sunbelt Ag Expo. Moultrie, Georgia. Oct. 20-22.
- Brown TW, Chappell JA, Hanson TR. 2009. Commercial Production of Channel Catfish and Hybrid Catfish Utilizing an In-pond Raceway System in West Alabama: An Update. Catfish Farmers of America. Natchez, Mississippi. Mar. 5-7.
- Chappell JA, Brown TW, Hanson TR. 2009. Commercial Production of Channel Catfish and Hybrid Catfish Utilizing an In-pond Raceway System in West Alabama: An Update. Annual meeting of Aquaculture America. Seattle, Washington. Feb. 15-19.

- Brown TW, Chappell JA, Hanson TR. 2009. Commercial Production of Channel Catfish and Hybrid Catfish Utilizing an In-pond Raceway System in west Alabama: An Update. Alabama Catfish Producers: A division of the Alabama Farmers Association. Montgomery, Alabama. Feb. 3.
- Chappell JA, Brown TW, Purcell TR. 2008. A Demonstration of Tilapia and Tomato Culture Utilizing an Energy Efficient Integrated System Approach. 8<sup>th</sup> International Symposium on Tilapia in Aquaculture. Cario, Egypt. Oct. 12-14.
- Roy LA, Davis DA, Brown TW, Whitis G, Bordinhon A. 2008. Evaluation of fish meal substitution in practical diets for *Litopenaeus vannamei* reared in low salinity waters of west Alabama. Annual meeting of Aquaculture America. Lake Buena Vista, Florida. Feb. 9-12.
- Roy LA, Davis DA, Brown TW, Whitis G. 2008. Effect of pond ionic composition on acclimation of post-larval *Litopenaeus vannamei* to low salinity waters of west Alabama. Annual meeting of Aquaculture America. Lake Buena Vista, Florida. Feb. 9-12.
- Roy LA, Davis DA, Brown TW, Whitis G. 2008. Pond-To-Pond Variability in Post-Larval Shrimp *Litopenaeus vannamei* Survival and Growth in Inland Low Salinity Waters of West Alabama. Annual meeting of Aquaculture America. Lake Buena Vista, Florida. Feb. 9-12.
- Sansing NR, Brown TW, Daniels WH, Phelps RP. 2008. Evaluating the potential of bull minnows as a marine bait fish using low salinity groundwater in west Alabama. Annual meeting of Aquaculture America. Lake Buena Vista, Florida. Feb. 9-12.

### **Invited Talks**

- Brown TW and Tucker CS. 2016. Pumps for Split-Ponds. National Warmwater Aquaculture Center Winter Seminar. Macon, Mississippi, December 01.
- Brown TW and Tucker CS. 2016. Pumps for Split-Ponds. National Warmwater Aquaculture Center Winter Seminar. Stoneville, Mississippi, November 17.
- Brown TW. 2015. Performance Update for Intensive, pond-Based Culture Systems in Mississippi. National Warmwater Aquaculture Center Winter Seminar. Macon, Mississippi, December 03.
- Brown TW. 2015. Performance Update for Intensive, pond-Based Culture Systems in Mississippi. National Warmwater Aquaculture Center Winter Seminar. Stoneville, Mississippi, November 19.
- Bott LB, Brown TW, Roy LA, Hanson TR. 2014. Chemical Treatment Costs Reduced with Use of In-Pond Raceway Systems Compared to Traditional Pond Aquaculture. Auburn University Winter Seminar for west Alabama Catfish Farmers. Demopolis, Alabama, December 16.

Brown TW. 2014. Performance Evaluation of Intensive, Pond-Based Culture Systems for Catfish Production in Mississippi. National Warmwater Aquaculture Center Winter Seminar. Macon, Mississippi, December 03.

Brown TW. 2014. Performance Evaluation of Intensive, Pond-Based Culture Systems for Catfish Production in Mississippi. National Warmwater Aquaculture Center Winter Seminar. Stoneville, Mississippi, November 14.

Avery JL, Brown TW. 2014. Designing a Control System for Split-Ponds. Mississippi State University School of Engineering. Digital Devices Course (ECU 3714). Starkville, Mississippi, September 24.

Brown TW, Tucker CS. 2013. Evaluation of Two Paddle-wheel Pumps for Split-Ponds. Catfish Farmers of America Conference. Little Rock, Arkansas, February 14-16.

Brown TW, Torrains EL. 2013. Development of a New Aerator for the Catfish Industry: An Update. Invited talk for the Texas Aquaculture Association 43<sup>rd</sup> Annual Conference and Trade Show. Bay City, Texas, January 23-25.

Brown TW, Torrains EL. 2012. Development and Evaluation of a New Aerator for the Catfish Industry. Invited speaker to the Texas Aquaculture Association 42<sup>nd</sup> Annual Conference and Tradeshow. Bay City, Texas. Jan. 25- 27.

Brown TW, Chappell JA, Hanson TR. 2009. Commercial Production of Channel Catfish and Hybrid Catfish Utilizing an In-pond Raceway System in West Alabama: An Update. Alabama Fisheries Association. Auburn, Alabama. Feb. 23-25.

#### **GRANTS (total funding to date: \$765,000)**

Tucker CS, Brown TW, Torrains EL, Schrader K, Mischke C, Boyd CE, Whitis G, Park J, Stone N. **\$465,000**. Split-Pond Aquaculture Systems: Design Refinements for Catfish Production and Evaluation for Culturing Other Species. USDA-NIFA Southern Regional Aquaculture Center, 2014 - 2017. Multi-state collaboration between four institutions in Mississippi, Alabama, and Arkansas.

Brown TW, Torrains EL, Tucker CS, Roy LA, Engle CR, Chappell JA, Hanson TR, Boyd CE, Wise DJ, Greenway T, Griffin MJ, Chen Y, Heikes DL, Recsetar MS. **\$300,000**. Performance Evaluation of Intensive, Pond-Based Culture Systems for Catfish Production. USDA-NIFA Southern Regional Aquaculture Center, 2012 - 2015. Multi-state collaboration between four institutions and 11 commercial operations in Mississippi, Alabama, and Arkansas.

#### **PENDING GRANTS (\$302,500)**

Brown TW. **\$1,500**. Fish Come, Fish Go. Brunswick Community College Marketing Grant, 2017-2018.

Brown TW. **\$1,000**. A Pathway to an Advanced Education through the Aquaculture Technology Program at BCC Brunswick Community College Marketing Grant, 2017-2018.

Mischke CC, Brown TW, Park J, Engle CR, Roy LA. **\$300,000**. Reducing Variability in Hybrid Catfish Production. USDA-NIFA Southern Regional Aquaculture Center, 2016 - 2018. Multi-state collaboration between three institutions in Mississippi and Arkansas.

### **SPECIFIC COOPERATIVE AGREEMENT (total funding to date: \$1,285,365)**

ARS Principal Investigator (Administrator) for **\$1,285,365**. Hill Area Aquaculture. National Funded Program, 2015-2020. Cooperative agreement between USDA-ARS and Mississippi State University.

### **PATENTS**

Brown TW, Torrans EL. 2014. Water Aeration System and Method. Docket No.: 110.11, Application No.: 13/206,984, Patent No.: US 8,919,744.

### **PROFESSIONAL SERVICE**

#### **Peer Review**

- Reviewer for the USDA Small Business Innovation Research program, 2013 - present.
- Internal Reviewer for Mississippi State University Delta Research and Extension Center, 2013 – present.
- Internal Reviewer for the USDA-ARS, 2011-present.
- Reviewer for *Aquaculture, Aquaculture Research, Aquacultural Engineering, Journal of the World Aquaculture Society, and North American Journal of Aquaculture*, 2011 - present.

#### **Planning Assignments**

Southern Regional Aquaculture Center Project – Lead member of Planning Committee responsible for writing the request for proposals (RFP) for a project titled “Split-Pond Aquaculture Systems: Design Refinements for Catfish Production and Evaluation for Culturing Other Species”, 2013.

Southern Regional Aquaculture Center Project - Chair of Planning Committee and responsible for writing the RFP for the project titled “Performance Evaluation of Intensive, Pond-Based Culture Systems for Catfish Production”, 2011.

### **EXTENSION AND PUBLIC SERVICE**

U.S. Catfish Farmers. Provide technical support to catfish farmers regarding the use of aeration and pump technology. Assist with the design and development of production systems that minimize consumptive energy use, 2010 - present.

Alabama Catfish Farmers. Provide technical support to catfish farmers seeking to improve their production efficiency through the development of new technology for catfish farming as well as the co-culture of other species; perform aeration efficiency tests to verify design standards, 2008 - present.

Alabama Blackbelt Aquaculture Initiative. Provide technical support to Alabama commercial catfish farmers seeking alternative fish species to raise in low salinity waters, 2007 - 2008.

Small impoundment management. Provide technical advice and support to local North Carolina and Alabama land owners concerning management of private ponds, lakes, and water gardens, 2001 - present North Carolina and 2005 - present Alabama.

North Carolina Aquaculture Farmers. Provide technical advice and support to southeastern North Carolina commercial catfish farmers pertaining to water quality management, strain selection, fish growout and harvest. Monitored water quality variables including (but not limited to) concentrations of dissolved oxygen, total ammonia nitrogen, nitrite nitrogen, and pH on farms, 2001 - 2005 and 2016 - present.

## **TEACHING**

### **Director**

*Aquaculture Technology Curriculum (Undergraduate courses)*, Center for Aquaculture and Biotechnology Technology, Brunswick Community College, Supply, NC. Responsible for teaching the majority of aquaculture classes, 2016 - present.

### **Instructor**

*Aquaculture Practicum I-VI (Undergraduate courses)*, Center for Aquaculture Technology, Brunswick Community College, Supply, NC. Responsible for teaching three practicum classes per semester, culture of all *centrarchid* fishes, and management of aquatic vegetation at the facility, 2002 - 2005.

### **Graduate Teaching Assistant**

*Water Science (Graduate and Undergraduate course)*, Department of Fisheries & Allied Aquacultures, Auburn University, Auburn, AL. Responsible for teaching at least 20 lectures and all scheduled exam reviews, 2009.

### **Guest Lecturer**

*Waste Management and Utilization Engineering for Biosystems (Graduate and Undergraduate course)*, *Chemical Oxygen Demand*, Biosystems Engineering Department, Auburn University, Auburn, AL, 2010.

*Facilities for Aquaculture (Graduate and Undergraduate course), Design, Construction, and Production of an In-pond Raceway System Located in west Alabama*, Department of Fisheries & Allied Aquacultures, Auburn University, Auburn, AL, 2009.

### **Seminars**

Brown TW and Tucker CS. 2014. Pumps for Split-Ponds. East Mississippi Farmer Visit. National Warmwater Aquaculture Center. Stoneville, Mississippi, December 10.

Brown TW. 2014. Aquaculture and Seafood Certification Programs. Carteret Community College Aquaculture Program. Morehead City, North Carolina, May 27.

Roy LR, Brown TW, Hemstreet W. 2014. In-pond Raceway Systems. West Arkansas Catfish Producer Workshop. Gin City, Arkansas, April 10.

Brown TW, Chappell JA, Boyd CE, Roy LA, Hanson TR. 2011. Catfish Production Guidelines for In-pond Raceway Systems. In-pond Raceway Workshop. Alabama Fish Farming Center, Greensboro, Alabama, February 16.

Brown TW, Chappell JA, Hanson TR. 2010. Commercial Production of Channel Catfish *Ictalurus punctatus* and Hybrid Catfish *Ictalurus punctatus* x *Ictalurus furcatus* Utilizing an In-pond Raceway System in west Alabama. Pond-to-Plate Update and Workshop. Alabama Fish Farming Center, Greensboro, Alabama, September 22.

Brown TW. 2010. Intensive Culture of Channel Catfish *Ictalurus punctatus* and Hybrid Catfish *Ictalurus punctatus* x *Ictalurus furcatus* in a Commercial-Scale, In-pond Raceway System. Thad Cochran National Warmwater Aquaculture Center, Stoneville, Mississippi, August 4.

Brown TW. 2010. Intensive Culture of Channel Catfish *Ictalurus punctatus* and Hybrid Catfish *Ictalurus punctatus* x *Ictalurus furcatus* in a Commercial-Scale, In-pond Raceway System. Auburn University, Auburn, Alabama, July 14.

Brown TW, Chappell JA. 2008. Commercial Production of Channel Catfish and Hybrid Catfish in an In-pond Raceway System Located in West Alabama: An Update. Alabama Agricultural Initiative Field Day. Dean Wilson Farms, Browns, Alabama, October 29.

Brown TW. 2007. Culture of Tilapia and Tomatoes Utilizing a Green Water System. Alabama Black Belt Initiative Update and Workshop. Alabama Fish Farming Center, Greensboro, Alabama, October 24.

Brown TW. 2006. Oxygen Monitoring and Controller Equipment: Reducing Energy Costs and Risks. Aquaculture Workshop. Alabama Fish Farming Center, Greensboro, Alabama, April 13.

## **STUDENT MENTORING AND SUPERVISION (partial list)**

- Landi Tubertini (Undergraduate, Delta State University). Aeration performance testing and general water quality assessment, 2011.
- Matt Summers (Undergraduate, Moorhead Community College). Aeration performance testing and aquatic vegetation control, 2011.
- Rawee Viriyatum (Ph.D. student, Auburn University). Aeration performance testing, 2009 – 2010.
- Jeremy Pickens (Ph.D. student, Auburn University). Animal husbandry, greenhouse and raceway construction techniques, and water quality assessment, 2009 - 2010.
- Allen Nichols (Undergraduate, Auburn University). Animal husbandry, 2006.
- Tommy Purcell (M.S. student, Auburn University). Animal husbandry, greenhouse construction techniques, intensive fish production principles, and water quality assessment, 2006.
- Chris East (Undergraduate, Brunswick Community College Center for Aquaculture Technology). Animal husbandry, aquatic vegetation management, construction of recirculating aquaculture systems, and water quality assessment, 2003 - 2008.
- Brent Spenser (Undergraduate, Brunswick Community College Center for Aquaculture Technology). Animal husbandry, aquatic vegetation management, construction o recirculating aquaculture systems, and water quality assessment, 2003 - 2005.

## **AWARDS & DISTINCTIONS**

- The Federal Laboratory Consortium Southeast Region, ARS Mid-South Area Technology Transfer Award Honorable Mention. The Split Pond: A Novel System for Growing Catfish, 2015.
- ARS Mid-South Area Technology Transfer Award. The Development of the Split Pond System for Growing Catfish, 2014.
- Presidential Graduate Research Fellow, College of Agriculture, Auburn University, 2008 – 2010.
- Presidential Graduate Research Fellow, College of Agriculture, Auburn University 2005 - 2007.
- Dean’s List, University of North Carolina Wilmington, 2001 - 2004.
- Phi-Theta Kappa Honor Society, Brunswick Community College 2001.
- Aquaculture Scholarship/Most Outstanding Student Award, Brunswick Community College, 2000.

## **CERTIFICATIONS**

- Mississippi Certified Commercial Pesticide Applicator
  - Category V. Aquatic Pest Control
  - Category X. Demonstration and Research Pest Control
- Mississippi Certified Private Pesticide Applicator
- NC REAL Entrepreneurship Certified
- PADI Certified Advanced Open Water Scuba Diver



## **AFFILIATIONS**

- Texas Aquaculture Association, 2011 - present.
- Alabama Fisheries Association, 2009 - present.
- Alabama Catfish Producers Association, 2008 - present.
- Catfish Farmers of America, 2008 - present.
- American Fisheries Society, Auburn University Chapter 2005 - present.
- World Aquaculture Society (WAS), 2005 - present.
- U.S. Aquaculture Chapter of WAS, 2005 - present.
- North Carolina Aquaculture Association, 1999 - present.

## **PERSONAL INTERESTS**

Fishing, boating, grilling, hunting, gardening, scuba, home construction projects, and many others.

## REFERENCES & COLLABORATORS (partial list)

**\*Farmer (farmer research and demonstration collaborator)**

- Jesse A. Chappell, Ph.D.      *Associate Professor and Extension Specialist of Aquaculture*  
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- Claude E. Boyd, Ph.D.      *Professor and Butler Cunningham Enumerated Scholar*  
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- Eugene L. Torrans, Ph.D.      *Research Fish Biologist*  
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- \*Dean “Butch” Wilson *Owner Dean Wilson Farms, LLC, 15175 County Road 21, Marion Junction, Alabama 36759; 888-849-0251*  
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- \*Robert “Shorty” Jones *Owner Need More Fisheries, LLC, 1017 Greenfield Road, Glen Allan, Mississippi 38744; 800-748-8921*  
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