Curriculum vitae

Todd David Sink

Texas A&M AgriLife Extension Service
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POSITION

Name:	Todd D. Sink
Title:	Assistant Professor and Extension Fisheries Specialist
Appointment:	Texas A&M AgriLife Extension Service
Department/Program Unit:	Department of Wildlife & Fisheries Sciences
Date of Appointment:	March 10, 2013

EDUCATION

Ph.D. Natural Resources.

Specialization: Fish Stress and Disease Physiology

December, 2004

University of Tennessee, Department of Forestry, Wildlife, and Fisheries, Knoxville, TN 37996

Dissertation: The function of the stress hormone cortisol in disease susceptibility of channel catfish, *Ictalurus punctatus*.

B.S. Fisheries and Aquatic Sciences

Double program specialization in 1) Fish Physiology and Nutrition, and 2) Fisheries Management

December, 2000

Purdue University, Department of Wildlife and Fisheries, West Lafayette, IN 47907

EXPERIENCE

March 2013 to current. ***Assistant Professor and Extension Fisheries Specialist***

Texas A&M AgriLife Extension Service, Texas A&M University, Department of Wildlife and Fisheries Sciences, College Station, TX 77843

Position Description:

Current effort approved by Department Head: Ninety percent extension effort, five percent research effort, three percent service effort, two percent teaching effort

Current load approved by Department Head: Ninety percent extension load, five percent research load, three percent service load, two percent teaching load

Collaborate with other specialists, county Extension agents, and natural resource professionals to identify current and emerging aquaculture and aquatic resource management issues. Develop specialist initiated programming at the county, state, and national levels to provide solutions for current and emerging issues in aquaculture and aquatic resource management. Utilize media outlets including news releases, radio programs, popular press, television interviews, and websites to provide educational programming to the public on aquaculture and aquatic resource management. Develop PowerPoint presentations, fact sheets, software, etc., as educational resources for county Extension agents and the public. Conduct county Extension agent training for county Extension agents in fisheries and aquatic resource management. Continue to address relevant aquaculture issues and provide educational materials to the public through duties as Project Director for the USDA-NIFA Southern Regional Aquaculture Center Publications, Videos, and Computer Software Project. Support 4-H and youth development activities by serving as a resource for county, district, regional and state 4-H and youth activities as requested.

As a Wildlife and Fisheries Sciences faculty member, serve on graduate student committees at Texas A&M University. Keep abreast of updates in assigned subject matter areas by reviewing scientific literature, attending scientific conferences, and presenting research/extension results at appropriate scientific or industry meetings as appropriate.

Maintain active roles in professional science, production, and management societies and associations by serving as an event organizer, on committees, and in other leadership roles. Serve on graduate committees and disperse research and extension results through conferences and media. Serve on COALS, Texas A&M AgriLife Extension Service, and WFSC departmental committees as requested.

Identify and obtain external funding to support Extension and applied research activities in aquaculture and aquatic resource management. Continue grant support for the Publications, Videos, and Computer Software Project (PVCS) through the United States Department of Agriculture National Institute of Food and Agriculture Southern Regional Aquaculture Center (USDA-NIFA-SRAC).

Areas of Programmatic Expertise:

Aquaculture and Aquaponics: Assist existing and start-up aquaculture/aquaponic enterprises with achieving their goals by providing experience, technical innovation, management guidance, and economic and marketing assistance for their finfish and shellfish products. Provide expert opinion, information and technology transfer, and aquaculture project management consultations to aquaculture/aquaponic producers looking to streamline production or expand operations. Encourage and assist the development of additional facilities to produce aquaculture products and the development of production protocols for species new to culture. Conduct on-farm production trials through corporate partnerships with commercial producers. Provide assistance with fish nutrition, species selection for culture, marketing, reproduction, hatchery management, disease diagnosis, water quality issues, and pond treatments. Offer parasite and disease diagnostics as well as water quality services through the Aquatic Diagnostic Laboratory.

Farm Pond (private fisheries) Management: Disseminate information on methodology and technical data in a manner understandable to the general public to ensure achievement of distinct management goals for their private lakes and ponds. Provide technical assistance and applied research results demonstrations to educate the public how to conduct various management practices. Subject matter addressed includes fish identification, fish population dynamics, pond ecology, fish stocking, nuisance species control, pond renovation, water gardens, water quality, pond treatments, pond-livestock interaction issues, commercial and recreational fish production in farm ponds, fish harvest recommendations, processing, proper storage, how to cook their catch, water law, water capture and retention, fish nutrition, and fish health.

Aquatic Vegetation Management: Conduct programming to manage nuisance or invasive aquatic vegetation species in private livestock and recreational fishing ponds, irrigation ponds, canals, and water districts, private/public lakes governed by homeowner associations, and in state waters in collaboration with the Texas Parks and Wildlife Department. Aquatic vegetation management programming is often purely for commercial purposes due to significant water and monetary losses annually due to aquatic vegetation, and are strictly aimed to improve water delivery for irrigation, minimize water loss, or improve aesthetics, without management of a fish population. Technical assistance, information, and applied research results demonstrations are provided to determine the most effective and economical mechanical, biological, chemical, or integrated management practices.

February 2010 to March 2013. ***Research Associate.*** Fish Physiology and Nutrition

University of Arkansas at Pine Bluff, Department of Aquaculture and Fisheries, Pine Bluff, AR 71603

Dr. Sink funded his position, a fish physiology/nutrigenomics research lab, and research assistants for three years through external grant sources totaling $443,882. Three research projects were undertaken in which nine independent studies were conducted resulting in seven peer-reviewed journal publications, 12 professional presentations, one popular press article, and two manuscripts in preparation.

November 2005 to January 2010. ***Post-Doctoral Research Associate***. Fish Physiology and Nutrition

University of Arkansas at Pine Bluff, Department of Aquaculture and Fisheries, Pine Bluff, AR 71603

Dr. Sink funded his position, a fish physiology lab, and a research assistant for four of five years in this position through external grant sources totaling $221,225. Eight research projects were undertaken in which 18 independent studies were conducted resulting in 16 peer-reviewed journal publications, 26 professional presentations, three popular press articles, and an invited presentation.

January 2005 to August 2005. ***Post-Doctoral Research Associate***. Fish Stress Physiology

University of Tennessee, Department of Forestry, Wildlife, and Fisheries, Knoxville, TN 37996

Two research projects were carried out in which two independent studies were conducted resulting in two peer-reviewed journal publications and a professional presentation.

February 2001 to December 2004. ***Doctoral Research Assistant***. Fish Stress and Disease Physiology

University of Tennessee, Department of Forestry, Wildlife, and Fisheries, Knoxville, TN 37996

A series of 10 experiments were conducted resulting in three peer-reviewed journal publications, a dissertation, and an invited presentation.

October 2002 to December 2004. ***Research Laboratory Supervisor***. Aquaculture

Johnson Animal Research and Teaching Unit, University of Tennessee Fisheries Laboratory, Knoxville, TN 37996

Oversaw the day-to-day activities, operation of commercial production demonstration units, constructed experimental and demonstration systems, performed system maintenance, equipped and maintained the analytical laboratory, and assisted with graduate and undergraduate research projects.

February 1999 to May 1999. ***Undergraduate Researcher***. Fish Nutrition and Physiology

Purdue University, Department of Wildlife and Fisheries, West Lafayette, IN 47907

Was part of a team consisting of four undergraduate students. Researched, designed, and executed an independent study on how rising carbon dioxide concentrations in water affected bioenergetics and feed intake of fish. Team study won 3rd place Best Undergraduate Research award from the College of Agriculture.

Related Experience:

April 2002 to August 2005. Freshwater baitfish retail and wholesale distributor

Louisville Marine L.L.C., Louisville, TN 37777

December 2003-March 2004. U.S. Fish and Wildlife Service subcontractor for Stream Woody Debris Assessment team examining reintroduction of southern brook trout in Nantahala National Forest.

Fish and Wildlife Associates, Whittier, NC 28789

May 2002 to December 2003. Hydroelectric Power Plant Relicensing Environmental Impact assessment fisheries survey crewman.

Fish and Wildlife Associates, Whittier, NC 28789

June 2003 to August 2003. Threatened and endangered fisheries survey crewman

Conservation Fisheries Incorporated, Knoxville, TN 37996

May 2000 to August 2000. Fisheries biologist aide

District 3, Indiana Department of Natural Resources, Columbia City, IN 46725

May 1998 to August 1998. Fisheries biologist aide

District 3, Indiana Department of Natural Resources, Columbia City, IN 46725

Professional Improvement Activities:

2017. TAMU New Graduate Advisor Workshop

2016. Thomas-Kilmann Conflict Mode Instrument Training

2016. Articulate Online Course Development Training

2015. Texas A&M AgriLife Emerging Leaders Training

2013. Texas A&M AgriLife New Specialist Training

EXTENSION

Program Statement: Dr. Sink's Extension programming focuses on three primary areas; aquaculture/aquaponics including the USDA Southern Regional Aquaculture Center (SRAC), pond (private fisheries) management, and aquatic vegetation management. His programming goals are to 1) increase aquaculture production in Texas and the U.S. by assisting producers with production problems, science and technology transfer to producers, and increased consumer education of aquaculture products, 2) assist general public to improve recreational fisheries in private impoundments through developing management strategies to achieve distinct goals for stakeholder pond, and 3) assist general public in management of invasive or problematic aquatic vegetation infestations to preserve habitat and reduce water loss. His interaction with WFSC or TAMU research and teaching faculty for Extension program activities has been noted within individual program activities below.

Program Development: Upon witnessing meager clientele understanding or willingness to implement management practices from commonly requested one-hour informational programs, Dr. Sink evolved Extension programming into in-depth, science-based programs that dictate time required to thoroughly cover subject matter so audiences truly learn pond ecology and the science behind recommended management practices. Typical programs now range from four hours to a day and a half. County Extension agent (CEA) and clientele response has been positive as CEAs frequently request programs for the same counties year-after-year and have

given adulatory feedback. Members of the public attend his programs repeatedly as Dr. Sink customizes programs given to meet current county needs as identified by the CEA. This transformation has represented a change in programmatic goals from simple awareness to learning and application. The total adult education economic impact from program surveys is $1,107,969.

Dr. Sink has expanded Extension programs offered from pond and aquatic vegetation management and has developed a program "menu" to assist CEAs and organizations with selecting the correct program to serve their needs. His current program menu includes 26 different programs offered. He has also dramatically increased the Extension materials available to CEAs and the public. Materials created or assisted in creating include 63 publications, three videos, three web-presentations, a YouTube channel, and website for the USDA-SRAC, a chapter for the Texas Master Naturalist curriculum, 16 AgriLife Extension publications, six Spanish-language AgriLife Extension publications, five popular articles, the Texas A&M Agrilife Extension Aquaculture, Fisheries, and Pond Management website (contains >1,400 resources), four school curricula for youth, establishment of the Aquatic Diagnostic Laboratory, and development of the Aquaculture Extension and Technology Transfer Hatchery for the WFSC Extension unit at the Aquaculture Research and Teaching Facility. He has also been active in development and use of new methods and technologies to modernize Extension programming. Innovations include his Natural Resource Management and Education App(lication)s for Mobile Resource Utilization program to develop the first apps for mobile devices in Wildlife and Fisheries Extension (now 14 apps) and creation of three online courses in which users can obtain continuing education units applied towards certifications and applicator licenses.

Extension Program Activities:

- <u>Aquaculture/Aquaponics</u>

Ongoing – initiated 2013. United States Cooperative Extension System National eXtension.org Freshwater Aquaculture community of practice Ask the Expert. 2016 - 12 questions answered from seven states, 2015 – 17 questions answered from six states, 2014 – 18 questions answered from nine states, 2013 – 11 questions answered from five states

Ongoing – initiated 2013. United States Cooperative Extension System National eXtension.org Marine Aquaculture community of practice Ask the Expert. 2016 - two questions answered from two states, 2015 - six questions answered from four states, 2014 – two questions answered from two states, 2013 – two questions answered from two states

Ongoing – initiated 2013. Acted as Chair and Project Director for the United States Department of Agriculture Southern Regional Aquaculture Center (SRAC) Year 18- 23 Publications, Videos, and Computer Software Project publications project to identify topics for future publications, select the most prominent scientists on the chosen topic within the region to write the manuscripts, and oversee the peer-review and editorial processes. Although the USDA-SRAC is a U.S. regional program with primary focus on Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto

Rico, South Carolina, Tennessee, Texas, U.S. Virgin Islands, and Virginia, it has vast impacts nationwide and worldwide. Since 2005, SRAC publications have been downloaded 2,753,571 times by users from all 50 states and 217 countries or territories. Web analytics demonstrate major use countries (highest to lowest) include the U.S., Nigeria, India, Canada, Mexico, Malaysia, Philippines, United Kingdom, Australia, Malaysia, Indonesia, United Kingdom, Brazil, Trinidad and Tobago, Kenya, and South Africa. Southern Regional Aquaculture Center publications are widely distributed on government and university websites throughout the U.S., the total use is certainly much greater than can be reported from accessible analytics. Southern Regional Aquaculture Center videos and web presentations are widely used in university classrooms throughout the U.S.

Year 22. Ten new publications produced.

Year 21. Eleven new publications produced.

Year 20. Nine new publications produced.

Year 19. Twenty-three new publications, two new videos, and two new web presentations produced.

Year 18. Twenty-one new publications, one new video, and one new web presentation produced.

Ongoing – initiated 2013. Participated on USDA-SRAC Technical Committee to develop future research and extension projects for the SRAC competitive grants program. – collaboration with WFSC research faculty

Ongoing – initiated 2013. Provided leadership (as PI) to develop the annual plan of work and obtain grants to sustain the USDA-SRAC Publications, Videos, and Computer Software project.

Ongoing – initiated 2013. Created and continued support to fund the Natural Resource Management and Education App(lication)s for Mobile Resource Utilization program. Currently, 14 mobile apps have been produced for iOS and Android that have been downloaded 5,560 times including 725 times by users in Asia Pacific, 342 times by users in Europe, 132 times by users in Latin America, and 126 times by users in Africa, the Middle East and India. Examples include AquaPlant, AquaCide, AmmoniaCalc, AquaRef, PondCalc, and Texas Farm Pond Management Calendar.

Ongoing – initiated 2013. Development and testing of line of aquaculture worker safety gear with private industry, Max Dominguez, Vitex Corporation, Mexico City. Several new products have been developed including safety grip, water proof, and insulated gloves and protective processing aprons. Product distribution has been initiated in Canada, Mexico, and the U.S.

Ongoing – initiated 2014. New Aquaculture and Aquaponic Producer Development Program - Assisted new and potential producers with researching, planning, development, and operation of aquaculture operations in Texas including production of hybrid striped bass [four potential producers (pp)], Southern flounder (one pp), tilapia (12 pp), red drum (one pp) crawfish (five pp), Atlantic croaker (two pp), hybrid catfish (two pp), sturgeon (one potential pp), baitfish (one pp), sportfish (one pp), and aquaponics (19 pp).

Select development projects:

2017. Dwain Glass tilapia and aquaponics development project (new producer)

2017. John Scoggins hybrid striped bass indoor aquaculture development project (new producer)

2016. Scott Bates Atlantic croaker aquaculture hatchery development project (new producer)

2016. Spencer Temple Atlantic croaker aquaculture development project (new producer)

2016. David Greenwood hybrid striped bass cage culture aquaculture development project (new producer)

2016. Gary Kusak Hybrid striped bass and aquaponics development project (new producer)

2016. Aquaponics and More (Bob King) tilapia and aquaponics development project (new producer)

2016. Benjamin Moorman tilapia and aquaponics development project (new producer)

2015-2016. Sustainable Harvesters (Matthew Braud) tilapia and aquaponics development project (new producer)

2015. J.D. Wagnon IV tilapia and aquaponics development project (new producer)

2015. Michael McDonald hybrid catfish and aquaponics development project (new producer)

2015. Genergy LLC Corporate (Kurt Grossman) barramundi/salmonid aquaponics development project (new producer)

2015. Alexander Beliaevski sturgeon aquaculture development project (new producer)

2015. Steve Sonnamaker crawfish aquaculture development project (new producer)

2014-2015. Robert Fowler baitfish and sportfish production (new producer)

2014. McNally-Brinkoeter Land & Minerals L.L.C. (Trent McNally) crawfish aquaculture development project (new producer)

2014. Brandon Green crawfish aquaculture development project (new producer)

Ongoing – initiated 2015. Operation of the Aquatic Diagnostics Laboratory to assist aquaculture and aquaponic producers and pond owners with parasite, disease, waterborne toxin, and water quality issues.

2017. Assisted 14 producers/pond owners with disease diagnostics or water quality

2016. Assisted nine producers/pond owners from two states with disease diagnostics or water quality

2016. Identified outbreak of Black Gill Syndrome in marine shrimp in Texas waters through the aquatic diagnostic laboratory, coordinated response efforts with TPWD, and began development of Extension publication on the issue.

2015. Assisted 17 producers/pond owners from two states with disease diagnostics or water quality

Ongoing – initiated 2015. Development of Atlantic croaker spawning and culture results demonstration. Project planning of and preparation of facilities were initiated with the actual demonstrations (three phases; spawning, larval culture; and grow-out). Culture results presentations for this species have been requested by two major producers (greater than $1 million in annual sales) and three smaller producers.

Ongoing – initiated 2016. Collaborated with producers for on-farm trials of extensive larval culture protocols for commercial cobia production. Development of cobia culture for Texas climate results demonstration planning and preparation initiated and are expected to be held in 2018. Results presentations for this species have been requested by two major producers.

Ongoing – initiated 2017. Provide leadership (as PI) for USDA-AFRI Critical Agriculture Research and Extension (CARE) program grant: Advancement of Extensive Larval Culture and Earthen Pond Grow-Out Protocols for Commercial Cobia (*Rachycentron canadum*) Production.

2017. Conducted hands on training on fish pathology and disease diagnostics for Cabela's curators of aquariums to provide better care and disease detection of display fish.

2016. Developed the new Aquaculture Extension and Technology Transfer Hatchery and ponds for the WFSC Extension unit at the Aquaculture Research and Teaching Facility. WFSC Extension now has for the first time a facility and replicated ponds where applied research, results demonstrations, and technology transfer programs can be conducted. – collaboration with WFSC research faculty

2016. Hosted Afghan delegation and provided week long training on aquaculture and aquaponics production methods, development, and extension methods for the Borlaug Institute's International Train the Trainer Program. – collaboration with WFSC research faculty

2016. Increased capacity, capabilities, and equipment for the Aquatic Diagnostic Laboratory to aid aquaculture producers and pond owners with disease and water quality issues.

2015. Continued support for the Natural Resource Management and Education App(lication)s for Mobile Resource Utilization program to develop apps for mobile devices in Wildlife and Fisheries Extension. New mobile apps just completed or in development include: Threatened and Endangered Fish of Texas; Threatened and Endangered Amphibians and Aquatic Reptiles of Texas; Invasive Plants Threatening Texas Waters; and Invasive Fish, Mollusks, and Other Animals Threatening Texas Waters.

2015. Developed the new USDA-NIFA SRAC aquaponics website and populated with existing and new SRAC aquaponics fact sheets. Aquaculture has been the fastest growing component of production agriculture for the last 40 years, but now aquaponics is one of the fastest growing segments of aquaculture and horticulture. Despite these facts, there is a dearth of reliable, science-based information for those entering aquaponics production. This website was set up to help provide reliable information to these producers. Publications from the website have been downloaded 18,811 times by users from 32 states and 132 countries or territories. Web analytics demonstrate major users include (highest to lowest) the U.S., India, Mexico, South Africa, Malaysia, Canada, Brazil, France, Indonesia, and Australia.

2015. Development of Texas A&M/Sea Grant Extension funding and collaborations by working with Josh Gunn, Director of Sea Grant Extension, to pursue grant opportunities through

Sea Grant and the development of new inter-agency technical documents. Grants included training for Sea Grant Extension personnel by the TAMU Department of Wildlife and Fisheries Science and four commercial aquaculture results demonstration trials to improve coastal aquaculture. Technical documents include the publication Laws and Regulations Governing Aquaculture in Texas.

2015. Developed project and obtained a grant to initiate the Development of Web-based Continuing Education Unit Courses on Forest, Rangeland, Wildlife, and Aquatic Resource Conservation and Management. This project allowed AgriLife Extension specialists to reach a broader audience of Texas residents with online, research-based curricula emphasizing continuing education for forest, rangeland, wildlife, and aquatic resource conservation and management. The secondary objectives are 1) to combine the knowledge, skill, and resources of the Departments of Wildlife and Fisheries Science and Ecosystem Science and Management, with training and support from the Department of Agricultural Communications to create a superior level of integrated resource conservation and management, while 2) providing training and software directly to Extension specialists so future web-based CEU programs may be built "in-house" by the specialists, without the need for direct outside support.

2015. Invited lecture on the role of stress in fish health for WFSC 447/647 AQUACULTURE II AQUATIC ANIMAL (Gatlin). – collaboration with WFSC teaching faculty

2015. Developed the "aquaponics" themed proposal and plan for the USDA-NIFA SRAC Year 20 Publications Videos and Computer Software Project plan and proposal. Aquaculture has been the fastest growing component of production agriculture for the last 40 years, but now aquaponics is one of the fastest growing segments of aquaculture and horticulture. Despite these facts, there is a dearth of reliable, science-based information for those entering aquaponics production. The PVCS project is intended to develop eight reliable, science based resources to populate the newly created USDA-APHIS SRAC website. Authored two of these publications which have been downloaded by users from 27 states and 18 countries.

2015. Initiated and gained funding for the Forested and Rangeland Watershed Impacts on Surface Water and Aquatic Species Conservation Education project to create aquaculture and aquatic ecosystem curricula and educational resources for 1st, 2nd, 4th, 5th, and 6th grades. These curricula have been utilized by the College Station Independent School District during the fall of 2015.

2015. Participated in the 45th annual Texas Aquaculture Association (TAA) conference and tradeshow. Presented on the potential of crawfish production in Texas and hosted the producer roundtable forum to relay current producer knowledge to new producers and students.

2015. Grew program and expertise recognition by authoring three new peer-reviewed USDA-NIFA SRAC fact sheet publications: Principles of Small-Scale Aquaponics; Investigating a Fish Die-Off and Submitting a Sample for Toxicology or Disease Diagnosis; Consumer Information Series: Eastern Oysters. These publications have been downloaded more than 2,500 times by users in 31 states and 19 countries.

2015. Aquaculture Research and Teaching Facility (ARTF) resource development for Extension project. Renovated three decommissioned ponds and started construction of a new marine hatchery and aquatic vegetation research demonstration project for applied Extension research and demonstration. – collaboration with WFSC research faculty

2015. Secured culture equipment (approximately $300,000) for the ARTF from the terminated shrimp mariculture research program at TAMU Galveston and TAMU Corpus Christi. This culture equipment will be leveraged as match for securing funding to expand the ARTF infrastructure. – collaboration with WFSC research faculty

2015. Delivered fish management and species selection programming at aquaponics Extension workshop in Hockley, TX.

2015. Created and populated the new Southern Regional Aquaculture Center YouTube Channel to increase audience reach of the educational videos produced through the Southern Regional Aquaculture Center. The SRAC videos have been viewed more than 60,000 times by viewers from 182 countries since 2015. YouTube analytics demonstrate major use countries include the U.S., India, Malaysia, United Kingdom, Philippines, Australia, Saudi Arabia, France, United Arab Emirates, Singapore, and Thailand.

2015. Aquaculture pond construction demonstration for the general public and graduate and undergraduate students.

2014-2015. Developed the new aquaculture student session program for the Texas Aquaculture Association annual conferences. Program focus was on passing information and learning experiences from existing producers to students and demonstrating new and potential species and culture industries, including crawfish, marine baitfish, and aquaponics, which could be entry points for students and new producers trying to enter the industry, or for established producers looking to diversify operations for financial security.

2014. Invited lecture on marine baitfish production for WFSC 444/623 AQUACULTURE I PRINCIPLES PRACT (Gatlin). – collaboration with WFSC teaching faculty

2014. Invited lecture on neuroendocrine-immune regulation of stress and disease in fish for WFSC 447/647 AQUACULTURE II AQUATIC ANIMAL (Gatlin). – collaboration with WFSC teaching faculty

2014. Developed and delivered programming on the potential and culture of marine baitfish for Texas at the Texas Aquaculture Association annual conference.

2014. Worked with the Texas Animal Health Commission to initiate the development of a fish health certificate for the state of Texas.

2014. Hosted the Using the Internet to Grow Aquaculture Sales workshop in collaboration with the National Aquaculture Association to teach producers how to use social media and website sales techniques.

2013. Developed the Texas A&M AgriLife Extension Aquaculture, Fisheries, and Pond Management Website for county Extension agents and the general public. The website launched in November of 2013. http://fisheries.tamu.edu/. Youth fishing and youth aquaculture web pages were also created. 119,048 users from 28 states and 202 countries and territories have viewed the website 402,271 times since its launch.

- Pond (private fisheries) and Aquatic Vegetation Management

Ongoing – initiated 2016. Conducted volunteer trainings on Ornamental Ponds and Water Gardens for the Texas Master Gardener Program. One training is scheduled for 2017. One training was conducted with 40 volunteers trained in 2016.

Ongoing – initiated 2016. Provided leadership (as PI) for Renewable Resources Extension Act grant Prevention and Management of Invasive Moist Soil Plant Species Threatening United States' Forests and Rangelands in which a new version of the Aquaplant website was developed that includes over 40 new species of aquatic vegetation and greatly improved user resources. Aquaplant is a top 10 AgriLife website. Since 2014, more than 1.1million users have viewed Aquaplant web pages more than 7.4 million times.

Ongoing – initiated 2016. Provided leadership (as PI) for Renewable Resources Extension Act grant Development of Web-based Continuing Education Unit Courses on Forest, Rangeland, Wildlife, and Aquatic Resource Conservation and Management in which three new continuing education unit online courses were developed.

Ongoing – initiated 2015. Conducted volunteer trainings on Ichthyology and Aquatic Systems Ecology and Management for the Texas Master Naturalist program. Two trainings were conducted with 49 volunteers trained in 2017. One training was conducted with 22 volunteers trained in 2016. One training was conducted for 27 volunteers in 2015. One training was conducted for 18 volunteers in 2014.

Ongoing – initiated 2014. Developed and conducted a nine hour pond and aquatic vegetation management training for county Extension agents. Training covers pond ecology, fish stocking, nuisance and undesirable species, fisheries management strategies, aquatic plant ecology, invasive species, plant species ID, effective control options, biological considerations, laws and regulations, water quality, pond aeration, clearing muddy ponds, sealing leaking ponds, liming and other pond treatments.

2016. Provided six county Extension and Sea Grant agent training workshops, 60 county agents trained

2015. Provided one county Extension agent training workshops, 16 county agents trained

2014. Provided two county Extension agent training workshops, 34 county Extension agents trained

2013. Provided one county Extension agent training workshops, six county Extension agents trained

Ongoing – initiated 2014. Delivered the annual Producer's CoOp spring aquatic vegetation identification and management program in Bryan, TX. More than 400 cumulative individuals were trained.

Ongoing – initiated 2014. Created the Pond How-to series of Extension videos to educate pond owners how to conduct their own pond management. Six videos have been produced that have been viewed over 98,000 times.

Ongoing – initiated 2013. Created and continued support to fund the Natural Resource Management and Education App(lication)s for Mobile Resource Utilization program. Currently, 14 mobile apps have been produced for iOS and Android that have been

downloaded 5,560 times including 725 times by users in Asia Pacific, 342 times by users in Europe, 132 times by users in Latin America, and 126 times by users in Africa, the Middle East and India.

2016. Created iOS and Android apps on Threatened and Endangered Fish of Texas – collaboration with WFSC research faculty

2016. Created iOS and Android apps on Threatened and Endangered Reptiles and Amphibians of Texas – collaboration with WFSC research faculty

2016. Created iOS and Android apps on Flag the Technology to Prevent Crop Damage - collaboration with multi-department TAMU research and teaching faculty

2017 (2), 2016, 2015, 2014. Delivered Texas Wildlife Association Wildlife for Lunch webinar series programs on aquatic vegetation and pond management.

2013-2016. Actively participated in conference planning and development of the speaker program for the 2014, 2015, and 2016 Texas Aquatic Plant Management Society annual conferences.

2013-2016. Support of the Texas A&M Soils, Water, and Forage Testing Laboratory.

2016. Interpretation of and recommendation for 74 water quality reports for stakeholders

2015. Interpretation of and recommendation for 114 water quality reports for stakeholders

2014. Interpretation of and recommendation for 94 water quality reports for stakeholders

2013. Interpretation of and recommendation for 74 water quality reports for stakeholders

2016. Initiated program to develop interactive online training courses on aquatic vegetation, identification, ecology, and management and developed three online pesticide applicator continuing education unit (CEU) courses.

2016. Served on the Flag the Technology to Prevent Crop Damage (program protects fish and bees from pesticide drift as well) interagency committee, coauthored Extension publication on Flag the Technology, and created Flag the Technology app for the Texas Plant Protection Association which has been downloaded over 300 times in 2017. – collaboration with multi-department TAMU research and teaching faculty

2016. Conducted six trainings for county Extension agents and Sea Grant Extension agents on pond and aquatic vegetation management, water quality, pond ecology, fish health, how to conduct a site visit, and other required training to complete their Texas A&M water certificate requirements. Sixty county and Sea Grant Extension agents were trained during 218 contact hours and 12 agents received their water certificate.

2016. Authored six new Spanish language publications to increase availability of pond & aquatic vegetation management resources for Spanish speakers.

2016. Led undergraduate Extension project to examine the effects of controlled burns on recovery of endangered Houston Toad habitat.

2016. Led undergraduate Extension demonstration project to examine the effects of a new proprietary aquatic herbicide's efficacy for the control of bladderwort.

2016. Provided aquatic vegetation webinar for the TAMU Ecosystems Science and Management webinar series.

2016. Provided insect identification services for the Texas Parks and Wildlife Department's predacious aquatic insect study.

2016. Performed a site visit and provided education and guidance for the Carter Lake fish management project.

2016. Further development of websites - Texas A&M AgriLife Extension Aquaculture, Fisheries, and Pond Management website, Southern Regional Aquaculture Center Aquaponics website, and Southern Regional Aquaculture Center YouTube Channel which combined have users in all 50 states and 217 countries or territories.

2015. Participated in the annual State Extension Conference planning sessions. These sessions are intended to develop county programming for county Extension agents and provide training for the types of programming available throughout AgriLife.

2015. Texas Aquatic Plant Management Society (TAPMS) Board of Directors and Website Committee Chair – Participating in governing TAPMS activities, worked on planning the annual conference and trade show, created new TAPMS website and online conference registration and sponsorship process, and developed new strategies that increased society funding by 30% compared to the previous three years and streamlined registration and booth rental.

2015. Obtained grant and initiated the project Prevention and Management of Invasive Moist Soil Plant Species Threatening United States' Forests and Rangelands project. The objectives of this project are to 1) revise the AquaPlant website, http://aquaplant.tamu.edu/, to increase public knowledge of invasive moist soil plant species and to increase use of integrated management strategies in order to increase acreage impacted by correct management, and 2) develop demonstration systems for Texas A&M AgriLife Extension Service Aquatic Vegetation Management Demonstration project. Aquaplant is a top 10 AgriLife website. Since 2014, more than 1.1million users have viewed Aquaplant web pages more than 7.4 million times.

2015. Lake consultation and development of lake management plan - Weston Lakes POA, Oxbow Lake.

2015. Invited lecture on neuroendocrine-immune regulation of stress and disease in fish for WFSC 448 FISH ECOPHYSIOLOGY (DeWitt). – collaboration with WFSC teaching faculty

2015. Invited lecture on fish physiology issues in common pond management case studies for WFSC 448 FISH ECOPHYSIOLOGY (DeWitt). – collaboration with WFSC teaching faculty2015. Lake consultation and development of lake management plan - Fulbrook POA, Pecan Lake.

2015. Delivered two hour CEU program on water quality and pond management at Blackland Income Growth conference.

2015. Professional Grounds & Irrigators Conference two hour CEU program on aquatic vegetation management. Program had over 300 participants.

2015. Lake consultation and development of lake management plan -Lake Amanda HOA

2015. Lake consultation and development of lake fish stocking plan - Nantucket Lake (Mark Johnson)

2015. Worked with Total Lake Management (Paul Dorsett) to perform Cook's Branch Nature Conservancy biological survey of Cook's Branch Creek and Lake Creek.

2015. ANR Program Planning Retreat D9. Participation in this retreat was to interactively present Extension programming and training on topics including aquaculture, aquaponics, pond management, and aquatic vegetation management that can be provided to county Extension agents in the district and county stakeholders, and to determine emerging issues and what types of programming and training county Extension agents and their stakeholders need for future program development.

2015. Tom Merka TAMU '64 site visit and pond management plan development in Hempstead.

2015. ANR, FCS, & 4-H Youth Development Retreat for districts 8 and 10. Participation in these retreats was to interactively present Extension programming and training on topics including aquaculture, aquaponics, pond management, and aquatic vegetation management that can be provided to county Extension agents in the district and county stakeholders, and to determine emerging issues and what types of programming and training county Extension agents and their stakeholders need for future program development.

2015. Delivered six hour pond management program in Wilson County for Texas Water Resources Institute and Institute of Renewable Natural Resources.

2015. Pond and aquatic vegetation management site visit, consultation, and program for Fulbrook and Weston Lakes POAs

2015. Fish pathology diagnostic testing training for biologists from Lochow Lake Management.

2015. David Dunwoody (70 acre Lake Dunwoody) biological control of aquatic vegetation using grass carp consultation.

2015. Texas A&M AgriLife Emerging Leaders Training. Was selected from among AgriLife personnel as a rising leader within the agency to participate in the Emerging Leaders Training.

2015. Gave program for WFSC freshmen on WFSC Extension and internship opportunities.

2015. Gave presentation of professional angler views regarding current aquatic vegetation management practices at the Texas Aquatic Plant Management Society annual conference.

2014. Co-authored book chapter on Aquatic Systems Ecology and Management for the Texas Master Naturalist curriculum. This book is used to train 11,000 Master Naturalist volunteers in 47 chapters in Texas.

2014. ANR, FCS, & 4-H Youth Development Retreat for districts 7 and 10. Participation in these retreats was to interactively present Extension programming and training on topics including aquaculture, aquaponics, pond management, and aquatic vegetation management that can be provided to county Extension agents in the district and county stakeholders, and to determine emerging issues and what types of programming and training county Extension agents and their stakeholders need for future program development.

2014. Developed and conducted a one hour training program for Extension Specialists on how to design and build applications for mobile devices. Training program was conducted for Crop and Soil Sciences Extension Specialists at their annual retreat. Twenty-three Extension personnel were trained.

2014. Developed one hour programs for county Extension agents on marine baitfish production, aquaponics, crawfish production, and management of stormwater retention ponds.

2014. Delivered one hour CEU program on water quality and pond management at Blackland Income Growth conference.

2014. Continued Eagle Pass Irrigation District pilot programs to control nuisance aquatic vegetation to improve water flow and retention for irrigation and hydroelectric power using grass carp as a biological control.

2013-2014. Presented on pond and aquatic vegetation management and provided field demonstrations at Ranch Management University.

2013. Served as a committee member to plan and coordinate an internal AgriLife water conference for the Texas AgriLife Extension Service's Water Initiatives Team.

2013. ANR, FCS, & 4-H Youth Development Retreat for districts 6, 7, 8, and 10. Participation in these retreats was to interactively present Extension programming and training on topics including aquaculture, aquaponics, pond management, and aquatic vegetation management that can be provided to county Extension agents in the district and county stakeholders, and to determine emerging issues and what types of programming and training county Extension agents and their stakeholders need for future program development.

2013. Collaborated with horticulture Extension specialists to plan and conduct the first Texas A&M AgriLife Extension aquaponics field day and workshop. Delivered programming on system design and species selection for aquaponics.

2013. Presented current status and future activities in aquatic vegetation management of the Texas A&M AgriLife Extension Service to the Aquatic Plant Management Society.

2013. Presented on opportunities in aquaculture and fisheries Extension, and what Extension is, who we are, and what we do to the Texas A&M Chapter of the American Fisheries Society.

2013. Created the Natural Resource Management and Education App(lication)s for Mobile Resource Utilization program to develop the first apps for mobile devices in Wildlife and Fisheries Extension. The first mobile app launched in September of 2013. Six mobile apps were produced. Apps have been produced for iOS and Android that have been downloaded 5,560 times.

2013. Developed one and two hour programs for county Extension agents in pond (fish) management, pond renovation with rotenone, and aquatic vegetation management.

2013. Planned and coordinated a pilot aquatic vegetation management program for Eagle Pass Irrigation District to improve irrigation flows, reduce water loss, and improve water availability for hydroelectric production using grass carp to control aquatic vegetation in irrigation district canals.

- <u>Youth Development and Education</u>

Ongoing – initiated 2014. Started Aquaculture and Aquatic Ecosystems in the Classroom, which is an initiative to provide educational math & science STEM curricula to elementary, intermediate, and high school students.

2016. Created new Aquatic Ecology Field Curriculum trunks, videos, and web resources for intermediate and high school students. The curriculum resources have been utilized more than 100 times.

2015. Created new aquaculture and aquatic ecosystem curricula for 1st and 2nd graders. These curricula were used in the College Station Independent school district in 2015.

2015. Created new aquatic ecosystem field study curricula, video, and resource trunk instructions for 4h, 5th, and 6th graders.

Ongoing – initiated 2013. Texas Brigades (Bass Brigade) instructor (fish anatomy and physiology, fish survey techniques, fish identification, largemouth bass biology and natural history, fish diseases, investigating fish kills, aquatic plant of the day, and how to clean a fish), Camp Planning Committee member, Curriculum Committee member, and Lake Management Committee member. Bass Brigade is a unique educational program designed to educate high school age youth (ages 13-17) about aquatic ecosystems and natural resource management. For five days, high-achieving youth study botany (terrestrial and aquatic plants), biology, river, pond, and lake management, water quality and quantity strategies, and land and water stewardship. There are also activities involving photography, journaling, and art. Fishing skills, safety, and ethics are also covered. The other major components of the Bass Brigade are life-skills, such as leadership, team-building, critical-thinking, public speaking, and communication. The Planning Committee and the Curriculum Committee are the two most important committees to the success of an annual Bass Brigades camp. One hundred and sixty students from three states were instructed over five years.

2016-2017. Collaborated with the Kids Fish organization and Katy Bass Pro Shop to plan and create a youth fishing development program and kids fishing tournament.

2014-2017. Assisted in planning the national contests, selected locations/habitats, created contest materials, edited the contest manual, delivered educational programming to participants, and judged the National 4-H and FFA Wildlife Habitat Evaluation Program (WHEP) contest. Forty six teams comprised of 147 students from 17 states competed over the three year period. Received meritorious service award in 2017.

2015. Developed new educational presentations and hands on activities for Bass Brigade youth conservation camp.

2015. Creekview Elementary aquatic ecosystem education program (176 students; 8 classes)

2015. Greens Prairie Elementary aquatic ecosystem education program (138 students; 6 classes)

2015. Consulted Bryan FFA students to develop their aquaponics project.

2014. Developed new course curriculum and educational presentations and hands on activities for Bass Brigade youth conservation camp.

- Invited Presentations

1. Smith, H.R. and **T.D. Sink**. 2017. Flag the Technology Program and App: A Virtual Flag Field Trait Marking System using your cell phone. Texas Plant Protection Association annual conference. College Station, TX
2. **Sink, T.** 2016. Flag the Technology Mobile App. Texas Plant Protection Association annual conference. College Station, TX
3. **Sink, T.** 2016. New User Based Resource Tools for Aquatic Vegetation Management and Pond Managers from AgriLife Extension. Texas Aquatic Plant Management Society annual conference. Boerne, TX
4. **Sink, T.** 2014. How to Develop Apps for Education and Extension. Texas A&M Department of Soil and Crop Sciences Extension retreat, Navasota, TX
5. **Sink, T.** 2014. Marine Baitfish: A New Frontier in Fish Culture. Texas Aquaculture Association annual conference, Fredericksburg, TX

- Extension Programs (previous 2 years)

December 2017. Local. T. Sink. Private Pond Consultation – Nancy Calles. Oakwood, TX. Private pond owners, Adult

December 2017. Local. T. Sink. Aquatic Vegetation Management and Application Methods. Conroe, TX. Private pond owners, Adult

November 2017. Regional. T. Sink. USDA-SRAC technical committee PVCS project update and annual report. Memphis, TN. Professional, Adult

November 2017. Local. T. Sink. WFSC -ACSS student seminar. College Station, TX. College students, Adult

November 2017. Local. T. Sink. Animal Conservation Series Seminar. College Station, TX. Adult

November 2017. Local. T. Sink. Managing Newly Constructed Ponds. Huntsville, TX. Private pond owners, Adult

November 2017. Local. T. Sink. Kerr County Ag Day. Kerrville, TX. Private pond owners, Adult

October 2017. Local. T. Sink. Parker County Pond (fish) and Aquatic Vegetation Management program. Weatherford, TX. Private pond owners, Adult

October 2017. Local. T. Sink. Grimes County Master Gardener Ornamental Ponds and Water Gardens program. Navasota, TX. Private pond owners, Adult

October 2017. Local. T. Sink. Leon County Pond Management Program. Centerville, TX. Private pond owners, Adult

September 2017. Local. T. Sink. Small Landowner Program Series. Waco, TX. Private pond owners, Adult

August 2017. Local. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Centerville, TX. Private pond owners, Adult

August 2017. Local. T. Sink. WFSC promotion seminar. College Station, TX. Professional

August 2017. Local. T. Sink. Private Pond Consultation – Regent Schwartz. Brenham, TX. Private pond owners, Adult

July 2017. National. T. Sink. Wildlife Challenges. National 4-H Wildlife Habitat Education Program education day. Eatonton, GA. Youth

July 2017. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Round Rock, TX. Private pond owners, Adult

July 2017. Local. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. CEA program. Cleburne, TX. Private pond owners, Adult

July 2017. State. T. Sink. Fish anatomy and physiology, fish survey techniques, fish identification, largemouth bass biology and natural history, fish diseases, investigating fish kills, aquatic plant of the day, and how to clean a fish. Bass Brigade. Santa Anna, TX. Youth

June 2017. National. T. Sink. USDA-SRAC PVCS project annual program review and accomplishments. USDA-SRAC PVCS annual business meeting. Web conference. Professional and industry, Adult

June 2017. Local. T. Sink. Atlantic croaker production. Specialist initiated program. Snook, TX. Private pond owners, Adult

June 2017. National. T. Sink. Advancement of Extensive Larval Culture And Earthen Pond Grow-Out Protocols For Commercial Cobia (*Rachycentron canadum*) Production. USDA-AFRI Critical Agriculture Research and Extension (CARE) program project Director's meeting. Webinar. Professional, Adult

May 2017. Local. T. Sink. Aquatic vegetation management and common pond issues. Burleson county beef tour CEA program. Caldwell, TX. Private pond owners, Adult

May 2017. Regional. T. Sink. Pond management. Multi-county CEA program. Waco, TX. Adult

May 2017. State. T. Sink. Veterinarian assistance in fish health: Implications of the USDA-CVM veterinary feed directive. Specialist initiated program for USDA-APHIS. Austin, TX. Professional, Adult

May 2017. Local. T. Sink. Private Pond Consultation – Ray Record. College Station, TX. Private pond owners, Adult

May 2017. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Boerne, TX. Private pond owners, Adult

May 2017. State. T. Sink. Fish pathology and disease diagnostics. Specialist initiated program for Cabela' aquarium curators. Snook, TX. Professional, Adult

April 2017. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Seguin, TX. Private pond owners, Adult

April 2017. Local. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. CEA program. Conroe, TX. Private pond owners, Adult

April 2017. Local. T. Sink. Aquatic Vegetation Management. Specialist initiated program for Producer's CoOp. Bryan, TX. Private pond owners, Adult

April 2017. Local. T. Sink. Private Pond Consultation – Bill Lazenby. College Station, TX. Private pond owners, Adult

March 2017. Regional. T. Sink. Ichthyology and Aquatic Systems Ecology and Management. Specialist initiated program for Gordon Lincecum chapter of Texas Master Naturalists. Brenham, TX. Conservation volunteers, Adult

March 2017. State. T. Sink. Aquatic Vegetation Management. Texas Wildlife Association at Houston Livestock Show and Rodeo. Houston, TX. Private pond owners, Adult

February 2017. Regional. T. Sink. Aquatic Systems Ecology and Management. Specialist initiated program for Lost Pines chapter of Texas Master Naturalists. Bastrop, TX. Conservation volunteers, Adult

February 2017. State. T. Sink. Aquatic Vegetation Identification and Management. Texas Wildlife Association Wildlife for Lunch webinar series. Webinar. Private pond owners, Adult

February 2017. National. T. Sink, B. Silvy, and R. Vega. Manipulation of Gender in Southern Flounder to Improve Commercial Foodfish Culture. World Aquaculture Society Aquaculture America '17. San Antonio, TX. Professional and industry, Adult

February 2017. National. B. Silvy, T. Sink, and R. Vega. Manipulation of Gender in Southern Flounder to Improve Stock Enhancement Programs. World Aquaculture Society Aquaculture America '17. San Antonio, TX. Professional and industry, Adult

February 2017. Local. Aquatic Vegetation Identification and Management and Common Pond Issues. Pros in Parks CEA program. Mansfield, TX. Industry, Adult

January 2017. Regional. Aquatic Vegetation Management. Bell County Professional Groundskeeper Conference. Belton, TX. Industry, Adult

December 2016. Regional. Aquatic Vegetation Management. Blackland Income Growth Conference. Waco, TX. Private pond owners, Adult

December 2016. State. Flag the Technology App. Texas Plant Protection Association annual meeting. Bryan, TX. Professional and industry, Adult

December 2016. Regional. Aquatic Vegetation Management. District 8 Farm and Ranch CEU program. Webinar. Private pond owners, Adult

December 2016. Regional. Aquatic Vegetation Management. District 9 recertification program. Webinar. Private pond owners, Adult

November 2016. Local. Environmental Education. Mayde Creek School. Katy, TX. Youth

November 2016. State. Aquatic Vegetation Management, part 2. Ecosystems Science and Management webinar series. Webinar. Private pond owners, Adult

October 2016. Local. Water Gardens and Ornamental Ponds. Specialist initiated program for Harris County Master Gardeners. The Woodlands, TX. Adult

October 2016. Regional. Opportunities for Women in Aquaculture and Fisheries. Your Vision - Women in Outdoor Science meeting. Austin, TX. Women interested in science careers, Youth/Adult

October 2016. State. New User-based Electronic Tools from the TAM AgriLife Extension Service. Texas Aquatic Plant Management Society annual conference. Boerne, TX. Professional and industry, Adult

September 2016. Local. Pond Management. Private HOA program. Huntsville, TX. HOA community, Adult

September 2016. State. Aquatic Vegetation Management, part 1. Ecosystems Science and Management webinar series. Webinar. Private pond owners, Adult

September 2016. Local. Aquatic Systems. Beaumont ISD Outdoor Education Program. Beaumont, TX. Youth

August 2016. International. Afghan delegation Aquaculture and Aquaponics Training. Norman Borlaug Institute for International Agriculture Train the Trainer Training Program. College Station, TX. Industry, Adult.

July 2016. National. T. Sink. Wildlife Challenges. National 4-H Wildlife Habitat Education Program education day. Canaan Valley, WV. Youth

July 2016. State. T. Sink. fish anatomy and physiology, fish survey techniques, fish identification, largemouth bass biology and natural history, fish diseases, investigating fish kills, aquatic plant of the day, and how to clean a fish. Bass Brigade. Santa Anna, TX. Youth

June 2016. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Centerville, TX. Private pond owners, Adult

June 2016. National. T. Sink. USDA-SRAC PVCS project annual program review and accomplishments. USDA-SRAC PVCS annual business meeting. Web conference. Professional and industry, Adult

May 2016. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Sequin, TX. Private pond owners, Adult

May 2016. Local. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. CEA program. Huntsville, TX. Private pond owners, Adult

May 2016. Local. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. CEA program. Waco, TX. Private pond owners, Adult

May 2016. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Jasper, TX. Private pond owners, Adult

April 2016. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Corsicana, TX. Private pond owners, Adult

April 2016. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Wheelock, TX. Private pond owners, Adult

April 2016. Local. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. CEA program. Bastrop, TX. Private pond owners, Adult

April 2016. Local. T. Sink. Aquatic Vegetation Management. Specialist initiated program for Producer's CoOp. Bryan, TX. Private pond owners, Adult

April 2016. State. T. Sink. Organic Aquaculture Standards. Specialist initiated program. Webinar. Aquaculture and aquaponics producers, Adult

March 2016. State. T. Sink. App Development. Texas Plant Protection Association and AgriLife Federal Relations. College Station, TX. Professional and industry, Adult

March 2016. Local. T. Sink. Pond and Vegetation Management. Carter Lake HOA meeting. College Station, TX. HOA community, Adult

February 2016. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Dripping Springs, TX. Private pond owners, Adult

February 2016. Regional. T. Sink. Ichthyology and Aquatic Systems Ecology and Management. Specialist initiated program for Lost Pines chapter of Texas Master Naturalists. Bastrop, TX. Conservation volunteers, Adult

February 2016. State. T. Sink. App Development. Texas Plant Protection Association Board of Directors. Bryan, TX. Professional, Adult

January 2016. Local. T. Sink. Sustainable Harvesters aquaculture consultation and training. Specialist initiated program. Hockley, TX. Industry, Adult

October 2015. Local. Pond (fish) and Aquatic Vegetation Management. CEA program. Brenham, TX. Private pond owners, Adult

October 2015. Local. Pond (fish) and Aquatic Vegetation Management. CEA program. Fredericksburg, TX. Private pond owners, Adult

September 2015. T.Sink. State. Professional Angler Opinions About and Interaction with Aquatic Vegetation and Its Management. Texas Aquatic Plant Management Society. Boerne, TX. Professional and industry, Adult

September 2015. Local. Pond Management. CEA program. Hempstead, TX. Private pond owners, Adult

July 2015. National. T. Sink. Wildlife Challenges. National 4-H Wildlife Habitat Education Program education day. Lay Lake, Alabama. Youth

July 2015. State. T. Sink. fish anatomy and physiology, fish survey techniques, fish identification, largemouth bass biology and natural history, fish diseases, investigating fish kills, aquatic plant of the day, and how to clean a fish. Bass Brigade. Santa Anna, TX. Youth

July 2015. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Stephenville, TX. Private pond owners, Adult

June 2015. Local. T. Sink. Aquatic vegetation management and common pond issues. Burleson county beef tour CEA program. Caldwell, TX. Private pond owners, Adult

June 2015. Regional. T. Sink. Pond (fish) and Aquatic Vegetation Management CEU program. Multi-county CEA program. Kerrville, TX. Private pond owners, Adult

June 2015. Local. Pond Design and Management Workshop. CEA program. CEA program. Conroe, TX. Private pond owners, Adult

June 2015. Local. Pond Stocking and Fish Management Strategies. CEA program. Luling, TX. Private pond owners, Adult

- Implementation of Educational Programs and Educational Effectiveness

Summary of Extension Programs

Extension Programming	2017	2016	2015	2014	2013	Career
Total Adult Extension Contacts	5,013	6,135	5,991	3,176	1,980	22,295
Total Adult Programs	21	29	37	24	28	139
International		1				1
National	4	2	2	2		10
State	3	7	5	3	2	20
Regional	7	11	10	6	7	41
Local	7	8	20	13	19	67
Total Direct Face-to-Face Program Contacts	1,945	2,686	2,004	1,205	1,216	9,056
Site Visits	6	14	6	11	9	46
Results Demonstrations	1	1		1	2	5
Total Youth Programs	2	4	5	8	4	23
National	1	1	1			3
State	1	1	1	1	1	5
Regional			1	1		2
Local		2	2	6	3	13
Total Programming Contact Hours	3,704	5,152	3,350	3,001	2,670	17,877
County or Specialist Extension Trainings		4	1	2	1	8
Volunteer Trainings	2	3	2	2	3	12

Summary of Extension Program Teaching Effectiveness Evaluations

Teaching Effectiveness	2017	2016	2015	2014	2013	Career
Number of Adult Programs Surveyed	12	10	10	9	5	46
Adult Respondents in Surveyed Programs	645	342	258	325	132	1,702
Mean Program Net Promoter Score	86.7	89.2	93.8	96.2	95.5	92.3
Mean Program Knowledge Gained	94.8	99.2	93.5	94.6	91.6	94.7
Mean Practice Adoption By Respondents (%)	84.1	94.2	83.5	98.2	86.6	89.3
Mean Economic Impact Per Stakeholder ($)	$149.44	$156.72	$155.31	$144.27	$127.63	$146.67
Total Adult Education Economic Impact ($)	**$290,676**	**$420,955**	**$311,254**	**$173,850**	**$148,069**	**$1,344,804**

Summary of Multi-Media and Internet Education Efforts

Multi-media and Internet Education	2017	2016	2015	2014	2013	Career
Radio/TV/Other Media Interviews	3	5	1	8	1	18
Resource CD/DVD/Videos Produced		1	4	3	1	9
Total Video Views	41,267	52,742	36,774	2,193	770	133,746
Mobile app(lication)s		2	3	3	6	14
Downloads	1,534	1,944	1,621	2,525	120	7,744
Aquaculture, Fisheries, and Pond Management Website						
Unique Users	36,132	41,099	31,177	10,621	153	119,362
Page Views	112,143	143,309	103,582	38,001	1,047	398,082
AquaPlant Website						
Unique Users	201,347	288,137	302,021	286,158	264,149	1,341,812
Page Views	1,738,222	2,518,623	2,453,961	1,200,645	1,117,211	9,028,662
USDA-NIFA SRAC Publications Website						
Unique Users	10,917	18,496	13,554	16,571	18,824	78,362
Page Views	62,936	109,262	74,133	95,080	113,375	454,786
Fact Sheet Downloads	99,228	122,602	124,750	283,871	641,650	1,272,101
USDA-NIFA SRAC Aquaponics Website						
Unique Users	1,228	963	881	112		3,148
Page Views	7,844	6,692	3,877	458		18,871
Fact Sheet Downloads	4,828	3,248	2,245	754		11,075

Summary of Mobile Applications Produced

Year	Operating System	App Name/Description	Total Downloads
2016	iOS	Threatened and Endangered Reptiles and Amphibians of Texas	101
2016	iOS	Threatened and Endangered Fish of Texas	119
2016	Android	Threatened and Endangered Reptiles and Amphibians of Texas	81
2016	Android	Threatened and Endangered Fish of Texas	92
2016	iOS	Flag the Technology –Texas Plant Protection Association app	159
2016	Android	Flag the Technology –Texas Plant Protection Association app	93
2015	iOS	Texas Whitetail Deer Management Calendar	651
2015	iOS	Stocking Rate Calculator for Grazing Livestock	693
2015	iOS	PondCalc - Pond area and volume calculator	615
2014	iOS	Texas Farm Pond Management Calendar	415
2014	iOS	AquaRef - pond and aquaculture quick reference guide	499
2014	iOS	Aquaplant - aquatic plant identification and management	515
2014	iOS	AquaCide - aquatic herbicide selection, effectiveness, and restrictions	374
2013	iOS	AmmoniaCalc - unionized ammonia calculator	546
Total App Downloads			**4,953**

- Extension Videos Produced

2015.Aquatic Ecology Field Curriculum: Middle School Science Curriculum. http://fisheries.tamu.edu/pond-how-to-series-videos/

2015. Texas A&M Aquaculture Program. https://www.youtube.com/watch?v=XmTzUrdpHQI

2014. Cooking Fish 101 – How to Prepare Your Catch (How-to Video). https://www.youtube.com/watch?v=TMoOKJVmsf4

2014. Interpreting Your Water Quality Report for Your Pond (How-to Video). https://www.youtube.com/watch?v=TyPYTO5q3I0

2014. Controlling Algae in Farm Ponds (How-to Video). https://www.youtube.com/watch?v=rj59ouOEgyE

2013. Fish Removal with Rotenone (How-to Video). https://www.youtube.com/watch?v=sc72W7zgDeY&feature=youtu.be

Summary of Financial Support of Extension

Year	External Grants, $ Directed	Aquatic Diagnostic Laboratory	Gifts/Cash Contributions	App Sales	AgriLife Bookstore Sales	Total
2017	$177,964	$875		$506		$179,345
2016	$158,109	$368	$1,500	$1,120	$103	$161,200
2015	$69,029			$1,130	$33	$70,192
2014	$46,214			$1,600		$47,814
2013	$43,297		$1,340	$302	$1	$44,940
Total	$494,613	$1,243	$2,840	$4,658	$137	**$503,491**

TEACHING

Program Statement: As a Wildlife and Fisheries Sciences faculty member, serve on graduate student committees and mentor students at Texas A&M University. The lecture setting allows professors to present necessary background information in aquaculture and fish physiology. Frequently, theories and facts relayed to students in lectures are so removed from the setting of discovery that relevancy of the material is lost. Dr. Sink attempts to make course material more applicable by creating opportunities for research-based hands-on learning in relevant laboratory, field, and industry settings. As a mentor, a key way to provide opportunities for undergraduate and graduate students to learn, develop experiential logic, critical thinking skills, and independent learning skills is by involving them in development of research-based Extension resources for producers and the public, writing publications, conducting their own independent research studies in a laboratory, and experience applying classroom material in actual industry settings.

Dr. Sink compliments classroom lectures and labs given by WFSC teaching faculty by mentoring undergraduate student interns allowing them to apply classroom learning to real world issues and research, teaching undergraduate research and independent study courses, and providing guest lectures upon request. Several mentored undergraduate students have received WFSC and professional society awards and were accepted by prominent universities to attend graduate school. He also compliments WFSC teaching faculty by advising graduate students, teaching graduate research courses, offering graduate course guest lectures and labs upon request, and providing field experience and demonstrations for their graduate students.

Invited Course Lectures:

Texas A&M University, Department of Wildlife and Fisheries Science, College Station, TX 77843

2017. Invited lectures on Extension as part of the land grant mission in wildlife and fisheries science for WFSC 101 INTRODUCTION TO WILDLIFE AND FISHERIES. – collaboration with WFSC teaching faculty

2017. Invited lecture on Reproductive Physiology and Maturation of Fish for WFSC 448 FISH ECOPHYSIOLOGY (DeWitt). – collaboration with WFSC teaching faculty

2017. Invited lecture on Neuroendocrine-Immune Function in Fish for WFSC 448 FISH ECOPHYSIOLOGY (DeWitt). – collaboration with WFSC teaching faculty

2015. Invited lecture on the role of stress in fish health for WFSC 447/647 AQUACULTURE II AQUATIC ANIMAL (Gatlin). – collaboration with WFSC teaching faculty

2015. Invited lecture on neuroendocrine-immune regulation of stress and disease in fish for WFSC 448 FISH ECOPHYSIOLOGY (DeWitt). – collaboration with WFSC teaching faculty

2015. Invited lecture on fish physiology issues in common pond management case studies for WFSC 448 FISH ECOPHYSIOLOGY (DeWitt). – collaboration with WFSC teaching faculty

2014. Invited lecture on marine baitfish production for WFSC 444/623 AQUACULTURE I PRINCIPLES PRACT (Gatlin). – collaboration with WFSC teaching faculty

2014. Invited lecture on neuroendocrine-immune regulation of stress and disease in fish for WFSC 447/647 AQUACULTURE II AQUATIC ANIMAL (Gatlin). – collaboration with WFSC teaching faculty

Courses Taught:

- Undergraduate Courses:

Texas A&M University, Department of Wildlife and Fisheries Science, College Station, TX 77843

WFSC 491 530 Research: Manipulation of gender in Southern flounder culture. Spring semester, 2017

WFSC 491 902 Research: Examination of pellet-trained largemouth bass continuance of artificial diet utilization in the presence of natural forage. *Writing intensive course*. Spring and Fall semester, 2017

WFSC 491 500 Research: Effects of control burning on Houston toad habitat. Spring and fall semesters, 2016

WFSC 491 534 Research: Efficacy and selectivity of new aquatic herbicide formulation SLF-9522. Spring semester, 2016

WFSC 485 501 Directed Studies: Geographic Information Systems mapping of surface and well water quality in Texas. Spring semester, 2015

University of Arkansas at Pine Bluff, Department of Aquaculture and Fisheries, Pine Bluff, AR 71601

AQFI 2247/2147 Fisheries Techniques: Fall semester, 2010

AQFI 2462 Ichthyology: Spring semester, 2006 and 2009

University of Tennessee, Department of Forestry, Wildlife, and Fisheries, Knoxville, TN 37996

FWF 493 Introduction to Fish Anatomy and Biological Processes. Fall semester, 2004

- Graduate Courses:

Texas A&M University, Department of Wildlife and Fisheries Science, College Station, TX 77843

WFSC 691 624 – Research: Advancement of Extensive Larval Culture and Earthen Pond Grow-Out Protocols for Commercial Cobia (*Rachycentron Canad*um) Production. Fall semester, 2017. GRADUATE-LEVEL.

WFSC 685 670 – Directed Studies: In Absentia: Pond Management. Fall semester, 2017. GRADUATE-LEVEL.

WFSC 691 338 – Research: Development of new reproductive and larval rearing methods to eliminate major constraints during production of Southern flounder (Paralichthys lethostigma) for stock enhancement. Summer semester, 2017. GRADUATE-LEVEL.

WFSC 691 639 – Research: Development of new reproductive and larval rearing methods to eliminate major constraints during production of Southern flounder (*Paralichthys lethostigma*) for stock enhancement. Spring semester, 2017. GRADUATE-LEVEL.

Texas A&M University, Department of Horticultural Sciences, College Station, TX 77843

HORT 685 Directed Studies: Toxicities of organic pesticides to fish commonly used in hydroponic systems. Spring semester, 2014

HORT 691 Research: Ammonia excretion rates of tilapia, koi, and hybrid striped bass fed rations differing in protein concentrations. Spring semester, 2014

University of Arkansas at Pine Bluff, Department of Aquaculture and Fisheries, Pine Bluff, AR 71601

GAQF 5311 Advanced Aquaculture: Spring semester, 2009

GAQF 5195 Graduate Seminar: Spring semester, 2009

GAQF 5300 Research Methods and Scientific Writing: Spring semester, 2006 to 2012

GAQF 5136 Aquatic Animal Nutrition Laboratory: Fall semester, 2006 to 2012

GAQF 5336 Aquatic Animal Nutrition Lecture: Fall semester, 2006 to 2012

University of Tennessee, Department of Forestry, Wildlife, and Fisheries, Knoxville, TN 37996

FWF 550 Fish Physiology: Fall semester 2002 to 2004

FWF 555 Fish Culture: Spring semester, 2003

FWF 556 Recirculating Aquaculture: Spring semester 2004

FWF 593 Introduction to Fish Anatomy and Biological Processes. Fall 2004

- Graduate Students - Chaired or Co-chaired

Doctorate of Philosophy

1. Elizabeth Silvy. Texas A&M University, Department of Wildlife and Fisheries Science.

Master of Science

1. Daniel Hoffman. Texas A&M University, Department of Wildlife and Fisheries Science.

- Graduate Students – Committee Member

Doctorate of Philosophy

1. Sergio Castillo. Texas A&M University, Department of Wildlife and Fisheries Science. Ph.D. 2017
2. Cristian Cifuentes. Texas A&M University, Department of Ocean Engineering. Ph.D. 2016
3. Alton Burns. Texas A&M University, Department of Wildlife and Fisheries Science.
4. Clement R. De Cruz. Texas A&M University, Department of Wildlife and Fisheries Science.
5. Min Ju. Texas A&M University, Department of Wildlife and Fisheries Science.

Master of Science

1. Haley Woelfel. Texas A&M University, Department of Wildlife and Fisheries Science. M.S. 2017
2. Brittany Peachey. Texas A&M University, Department of Wildlife and Fisheries Science. M.S. 2017
3. Frank Rotter III. Texas A&M University, Department of Horticultural Science.

Undergraduate Students Mentored

	Name (degree/graduation year)	Year(s) Employed	Position
1	Terrence Roberts (MS 2014)	2013	Graduate Student Worker
2	Jacob Garcia (BS 2013)	2013	Undergraduate Student Worker
3	Patrick Frenzel (BS 2014)	2013	Undergraduate Paid Intern
4	John Pettingill (MS 2014)	2013-2014	Graduate Student Worker
5	Nicholas Madole (BS 2015)	2013-2014	Undergraduate Student Worker
6	Jessica Gwinn (BS 2016)	2013-2014	Undergraduate Paid Intern
7	Casey Sink	2013-2016	Contract Developer
8	Hannah Gerke (BS 2017)	2013-2016	Undergraduate Paid Intern
9	Mikayla House (BS 2016)	2013-2016	Undergraduate Paid Intern
10	Beth Silvy (BS 2014, MS 2015)	2014, 2015-2016	Undergraduate Paid Intern; Student Coordinator
11	Jayton Rainey (BS 2016)	2014-2015	Undergraduate Student Worker
12	Trestan Bryant (BS 2016)	2015	Undergraduate Paid Intern
13	Craig Upstrom	2015	Undergraduate Paid Intern
14	Meagan Hooker (BS 2016)	2015-2016	Undergraduate Paid Intern
15	Gabriella Wolf-Gonzalez (BS 2017)	2015-2016	Undergraduate Paid Intern
16	Baudelio Segovia (BS 2016)	2015-2016	Undergraduate Student Worker
17	David Bryant	2015-2016	Undergraduate Student Worker
18	Roberto Haus (BS 2016)	2015-2016	Undergraduate Student Worker
19	Stratton Coleman (BS 2016)	2015-2016	Undergraduate Student Worker
20	Kenneth Zachary (BS 2015)	2015-2016	Graduate Student Worker
21	Kallie Thornhill (BS 2017)	2016-2017	Undergraduate Paid Intern
22	Trey Johnson (BS 2017)	2016-2017	Undergraduate Student Worker

23	Andrea Bolander (BS 2020)	2016-2017	Undergraduate Paid Intern
24	Elizabeth James (BS 2018)	2016-2017	Undergraduate Paid Intern
25	Shannon Hawes (BS 2019)	2017	Undergraduate Paid Intern

Summary of Graduate Student Committee Involvement

	Since Last Promotion		Career	
Degree	**Chair or Co-chair**	**Member**	**Chair or Co-chair**	**Member**
Master of Science	NA	NA	1	3
Doctorate of Philosophy	NA	NA	1	5

RESEARCH

Program Statement: Dr. Sink's research focus is to address current and emerging issues affecting Texas and U.S. aquaculture/aquaponic production through applied research aimed at resolving these issues to grow the domestic aquaculture industry and reduce dependence on seafood imports. An additional area of applied research emphasis focuses on resolving issues affecting government aquaculture programs for conservation and stock enhancement of fisheries resources.

Dr. Sink's research publications are highly utilized by aquaculture industry and researchers. Examples include:

77 citations* since 2008 -Validation, use, and disadvantages of enzyme-linked immunosorbent assay kits for detection of cortisol in channel catfish, largemouth bass, red pacu, and golden shiners

46 citations* since 2007 - Development of a whole-body cortisol extraction procedure for determination of stress in golden shiners, *Notemigonus crysoleucas*

31 citations* since 2008 -Effects of dietary lipid source and concentration on channel catfish (*Ictalurus punctatus*) egg biochemical composition, egg and fry production, and egg and fry quality

22 citations* since 2008 -Preliminary Observations of Mortality Reduction in Stressed, *Flavobacterium columnare*–Challenged Golden Shiners after Treatment with a Dairy-Yeast Prebiotic

21 citations* since 2008-Mortality Rates in Golden Shiners Fed High-Fat Diets with or without a Dairy-Yeast Prebiotic before Challenge with *Flavobacterium columnare*

*Citations as reported from ResearchGate.net

- Invited Presentations

1. **Sink, T.D.**, and R.T. Lochmann. 2009. Improving Reproductive Efficiency in Channel Catfish: The Effect of Parental Dietary Lipid and Protein Ingestion on Egg and Fry

Production. Catfish Farmers of America Convention and Research Symposium 2009, Natchez, Mississippi

2. **Sink, T.D.**, and R.J. Strange. 2003. Stress and Susceptibility of Channel Catfish to ESC. University of Tennessee Advisory Council Meeting, Knoxville, Tennessee

- Applied Research Projects:

*Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised

1. Silvy, E.*, and T.D. Sink. 2017 – ongoing. Advancement of Extensive Larval Culture and Earthen Pond Grow-Out Protocols for Commercial Cobia (*Rachycentron canadum*) Production.
2. Thornhill, K.***, E. James***, A. Bolander*** and **T.D. Sink**. 2017-ongoing. Examination of pellet-trained largemouth bass continuance of artificial diet utilization in the presence of natural forage.
3. James, E.***, K. Thornhill***, E. Silvy* and **T.D. Sink**. 2017-ongoing. Evaluation of salinity on egg viability of Southern flounder during culture.
4. Rotter III, L.F.**, J. Masabni, and **T.D. Sink**. 2015 - ongoing. Assessment and validation the growth rate, market quality, and nitrate accumulation of lettuce cultivated in a deep water culture (DWC) aquaponic system using estimated optimal plant to fish biomass ratios. – collaboration with Horticulture Extension faculty
5. Rotter III, L.F.**, J. Masabni, and **T.D. Sink**. 2015 - ongoing. Determination of nitrate removal rate for lettuce grown hydroponically in solution with similar nutrient composition and environmental conditions typical of aquaponic systems. – collaboration with Horticulture Extension faculty
6. Ju, M., D. Gatlin III, and **T.D. Sink**. 2016-2018. Evaluation of Probiotic and Prebiotic Supplements with Catfish, Golden Shiners, Hybrid Striped Bass and Tilapia under Conditions of Commercial Production. – collaboration with WFSC research faculty
7. Silvy, E.*, and **T.D. Sink**. 2016-2017. Development of new reproductive and larval rearing methods to eliminate major constraints during production of Southern flounder (*Paralichthys lethostigma*) for stock enhancement.
8. House, M***. and **T.D. Sink**. 2016 - 2017. Investigation of the efficacy and selectivity of a new aquatic herbicide formulation (SePRO SLF-9522) on various plant species that heavily impact fish and wildlife habitat in the southeastern U.S.
9. Gerke, H.*** and **T.D. Sink**. 2016 - 2017. Investigation of the effects of controlled landscape burning on vegetation composition and open ground abundance during restoration of endangered Houston toad (Bufo houstonensis) habitat.
10. Rotter III, L.F.** and **T.D. Sink.** 2014-2016. Ammonia and nitrate concentrations produced by three potential aquaponic fish species fed varying protein concentration diets to apparent satiation. – collaboration with Horticulture Extension faculty

11. DiMaggio, M., C. Ohs, and **T.D. Sink**. 2014. The effects of stocking density on growth, survival, and stress physiology of pigfish.

12. Rotter III, L.F.** and **T.D. Sink.** 2014. Toxicity of common organic pesticides to fish in aquaponic systems. – collaboration with Horticulture Extension faculty

13. **Sink, T.D.**, H. Philips, T. Kasiga, R. Lochmann. 2012. Evaluation of commercial diet formulations effects on production performance in hybrid striped bass for Skretting USA. Study conducted at the request of Skretting USA.

14. Neal, J.W., C.G. Lilyestrom, C.E. Mace, D.A. Behler, N.J. Harris, C.M. Adelsberger, and **T.D. Sink**. 2008. Freshwater sportfish (largemouth bass and fat sleeper) enhancement and management in Puerto Rico.

15. **Sink, T.D.**, and R.L. Lochmann. 2007. Channel catfish feed palatability trial – 32% protein feed from two commercial producers in the Mississippi delta. Study conducted at the request of the Catfish Farmers of Arkansas.

SERVICE

- Service Awards

National 4-H Wildlife Habitat Education Program (WHEP) Meritorious Service Award 2017

- Professional Affiliations and Service

World Aquaculture Society, member 2006 to present

Served as Aquaculture America student presentation awards judge, 2008-2010

United States Aquaculture Society, member 2007 to present

Served as co-chair of United States Aquaculture Society awards committee, 2008-2010

Served on United States Aquaculture Society student subunit formation committee, 2008-2009

American Fisheries Society, member 2004 to present

Fish Culture Section, member 2011 to present

USDA Southern Regional Aquaculture Center, member 2013 to present

Served Chair Publications Committee, 2013 to present

Served on Technical Committee as Extension seat, 2013 to present

USDA North Central Regional Aquaculture Center

Review board member, 2013, 2014, 2015

Texas Brigades, 2013 to present

Bass Brigade instructor, 2013 to present

Served on Bass Brigade Planning Committee, 2013 to present

Served on Bass Brigade Curriculum Committee, 2014 to present

Served on Bass Brigade Lake Management Committee, 2014 to 2017

Texas Aquaculture Association, 2014 to present

Served on Board of Directors, 2017 to present

Texas Aquaculture Association Conference Planning Committee, 2014

Texas Chapter of the Aquatic Plant Management Society, 2014 to present

Served on Board of Directors, 2013 to 2016

Served as Chair of the Website Development Committee, 2015 to 2017

National 4-H Wildlife Habitat Education Program (WHEP), 2014 to 2017

Served on National WHEP Committee, 2014 to 2017

Coastal Conservation Association Aggieland Chapter student organization

Served as Faculty Advisor 2013 to 2016

- International, National, State, and Regional Resource Panels

2017. U.S. National Academy of Sciences and the Higher Education Commission (HEC) of Pakistan. Pakistan – U.S. Science and Technology (S&T) Cooperation Program *Ad hoc* proposal review panelist.

2017. USDA-NIFA. Understanding Antimicrobial Resistance - A1362 *Ad hoc* proposal review panelist.

2017. NOAA-NMFS. FY17 Saltonstall-Kennedy Program proposal review panelist.

2016. National Aquatic Plant Management Society national research grants proposal review panel.

2016. USDA-NIFA-North Central Regional Aquaculture Center. NCR Aquaculture Industry Project review panelist.

2015. NOAA-National Sea Grant Program. FY15 Marine and Near-Shore Aquaculture *Ad hoc* proposal review panelist.

2014. USDA-NIFA-North Central Regional Aquaculture Center. North Central Regional Aquaculture Center USDA Plan of Work and Operation 2015-2017 proposal review panelist.

2014. NOAA-NMFS. FY14 Saltonstall-Kennedy Program proposal review panelist.

2013. USDA-NIFA-North Central Regional Aquaculture Center. NCR Aquaculture Industry Project proposal review panelist.

2013. Florida Sea Grant Program. Aquaculture Program Ad hoc proposal review panelist.

- University, Agency, and Departmental Service

2017. Department of Wildlife and Fisheries Sciences Extension administrative assistant search committee

2016-2017. Department of Wildlife and Fisheries Sciences Animal Conservation Series seminar committee

2016-2017. Department of Wildlife and Fisheries Sciences Federal Funding- Multi-State Center on Larval Marine Fish committee

2016-2017. Texas A&M AgriLife Research and Extension and Vice Chancellor of Federal Relations committee to develop resources for and implement the Flag the Technology program in Texas

2016. Department of Wildlife and Fisheries Sciences wetland avian ecologist position search committee

2016. Department of Wildlife and Fisheries Sciences *ad hoc* committee to review applicants for temporary instructor for our fisheries management course

2016. Norman Borlaug Institute for International Agriculture USAID Afghan Agricultural Extension Project (AAEP II) in Afghanistan planning committee

2016. Texas Plant Protection Association committee on development of the Texas Crop Registry

2016. Department of Wildlife and Fisheries Sciences wildlife lecturer position search committee

2016. Texas A&M AgriLife Research and Extension industry relations committee

2016. Department of Wildlife and Fisheries Sciences business administrator position search committee

2016. Department of Wildlife and Fisheries Sciences Extension unit committee to develop strategic plan for Extension

2015-2016. Department of Wildlife and Fisheries Sciences Extension unit committee to revise tenure and promotion guidelines for Extension faculty promotion

2015. College of Agriculture and Life Sciences Maestro Lite *ad hoc* review committee for Sponsored Research Services

2014. Department of Wildlife and Fisheries Sciences Bradley Oaks endowment proposal committee

2014. Texas A&M AgriLife Research and Extension AgriLife Water Conference planning committee

Co-chaired Advertising and Promotion committee

Served on Facility committee

- <u>Journal Reviews Conducted</u>

1/2017 – present Journal of Extension (1)

5/2016 – present Southeastern Fishes Council Proceedings (1)

4/2016 – present Journal of Aquaculture Research & Development (1)

2/2016 – present Journal of Physiology and Biochemistry (1)

11/2014 – present Fish and Shellfish Immunology (2)

4/2012 – present	Aquaculture Research (3)
8/2010 – present	Southern Regional Aquaculture (69)
9/2009 – present	Aquaculture Nutrition (8)
1/2009 – present	Journal of Steroid Biochemistry and Molecular Biology (9)
4/2008 – present	Journal of Comparative Physiology B (3)
1/2008 – present	Aquaculture (36)
3/2008 - present	Journal of Animal Science (2)
12/2006 - present	Fish Physiology and Biochemistry (14)
6/2005 - present	Journal of Applied Aquaculture (9)
3/2005 - present	Journal of Aquatic Animal Health (7)
5/2004 - present	North American Journal of Aquaculture (17)
3/2003 – present	Journal of the World Aquaculture Society (20)

INTERNATIONAL

2016. Conducted a weeklong training on aquaculture and aquaponics production methods, development, and extension methods for Afghan veterinarian delegates Dr. Jawed Qurishi and Dr. Ghulam Haider As part of the Borlaug International Agriculture Institute's International Train the Trainer Program. The training was part of the USAID Afghan Agricultural Extension Project (AAEP II) in Afghanistan. TAMU's role is to provide leadership and technical support for the livestock components of the project to build the capacity of the Afghan Ministry of Agriculture.

- Dr. Ghulam Haider, House #181, Street First, Phase 4 Jalalabad Nanagahar, phone 0776453374 and Dr. Jawed Qurishi, Kart-e-4 Wakeel Samad Street, House #1403, District #3, Kabul, Afghanistan, phone 0700630233

2016. Collaborated with Dr. Luis Hector Hernandez to submit the proposal "The effects of dietary plant protein and lipid sources on growth and gene expression in various strains of rainbow trout cultured in Mexico" to the 2017 Texas A&M CONACYT Research Grant Program to further build linkages with research counterparts at Mexican universities.

- Dr. Luis Hector Hernandez, Laboratorio de Producción Acuícola (Acuario), UNAM-Facultad de Estudios Superiores Iztacala, Av. de los Barrios 1, Los Reyes Iztacala, Tlalnepantla, Edo. de México, C.P. 54090, México, Tel. y fax (52) 55 5623 1197

2016. Served as a Pakistan – U.S. Science and Technology (S&T) Cooperation Program Ad hoc proposal review panelist. U.S. National Academy of Sciences and the Higher Education Commission (HEC) of Pakistan.

- Dr. Teresa Stoepler, Program Officer, Development, Security and Cooperation, Division of Policy and Global Affairs, The National Academies of Sciences,

Engineering, and Medicine, 500 Fifth Street, NW, K505, Washington, DC 20001, Phone: 202-334-2238

2015. Advised Aquaculture and Fisheries Extension faculty from the University of Ibadan, Nigeria on how to create successful Aquaculture Extension programs in Nigeria. The Department of Aquaculture and Fisheries had just hired the countries first Extension specialist, Dr. Tosan Fregene who works on aquaculture and fisheries economics and marketing, but the university did not know how to successfully develop an Extension program. I assisted by showing them what an Extension specialist does, the types of programming we offer, and the types of Extension products we develop.

- Dr. Tosan Fregene, University of Ibadan, Nigeria, Faculty of Agriculture and Forestry, Department of Aquaculture and Fisheries Management, phone 08033476184

2014. Prepared proposal with the Borlaug International Agriculture Institute and organized a weeklong training on U.S. aquaculture and fisheries species, product quality, form, safety, wholesale supply, and ability to meet strict halal requirements for Malaysian seafood retailers, importers, restaurant owners, and the USDA Foreign Agricultural Service Marketing Specialist from Malaysia The project was part of the USDA's Foreign Agricultural Service (FAS) Cochran Fellowship Program for U.S. universities to host mid-level agricultural managers from lower and middle-income countries to improve U.S. trade partnerships.

- Dr. Mike McWhorter, Associate Director & International Training Coordinator, The Norman E. Borlaug Institute for International Agriculture, AGLS Services Building, 578 John Kimbrough Blvd, Room 210, 2477 TAMU, College Station, TX 77843-2477, Phone: (979) 845-7697

2014. Advised Mexican State Biologist Yara Sánchez Johnson and the Tamaulipas State Water Commission on how to manage the invasive species, water lettuce, which had completely covered several large reservoirs in Northeastern Mexico dramatically slowing water flow and increasing evaporation rate. Consulted on species biology and recommended herbicide treatment that ultimately proved effective and cost–efficient.

- Biol. Yara Sánchez Johnson, Tamaulipas State Water Commission, Water Quality Subdirectorate, Government Tower Floor 7, Bicentennial Park, Ciudad Victoria, Tams.Tel. 834 107 8309

2014-2017. Advised Max Dominguez and Dionisio Izquierdo Galindo with Vitex Gloves Corporation on design, protection, need, and market for a new line of aquaculture and commercial fisheries worker safety clothing and products including waterproof wrist, over the elbow, and over the shoulder gloves, armored gloves with grips for handling fish with spines or sharp gill plates, and protective waterproof aprons for fish processors. Tested prototypes Vitex developed in the field and at the Aquaculture Research and Teaching Facility to give feedback on product performance and design. Also helped to develop a line of waterproof hunting gloves.

- Max Dominguez and Dionisio Izquierdo Galindo Guantes Vitex, S.A. de C.V., Uxmal 81, Col. Narvarte, México, D.F. 03020; www.vitex.com.mx, +52 (55) 5538-3818

GRANTS AND CONTRACTS AWARDED

Summary of Grants and Contracts

Type and Role	Since Last Promotion		Career	
	Total Dollars (all PIs)	Dollars to Program	Total Dollars (all PIs)	Dollars to Program
External Competitive				
PI	NA	NA	$1,090,966	$1,008,430
Co-PI	NA	NA	$300,000	$8,812
Total (PI + Co-PI)	NA	NA	$1,390,966	$1,017,242
External Non-competitive				
PI	NA	NA	$149,066	$132,095
Co-PI	NA	NA		
Total (PI + Co-PI)	NA	NA	$149,066	$132,095
Other				
Gifts and Gifts-in-kind	NA	NA	$2,840	$2,840
Royalties to Program	NA	NA	$6,038	$6,038

- Grants Received

External Competitive

1. **Sink, T.D.** and E. Silvy.* 2017-2019. Advancement Of Extensive Larval Culture And Earthen Pond Grow-Out Protocols For Commercial Cobia (*Rachycentron Canadum*) Production. $177,964 (total directed). USDA-NIFA Critical Agricultural Research and Extension Program
2. **Sink, T.D.** and D.M. Gatlin III. 2016-2017. Development of New Reproductive and Larval Rearing Methods to Eliminate Major Constraints During Production of Southern Flounder (*Paralichthys lethostigma*) for Stock Enhancement. $126,807 ($84,783 directed). Texas Parks and Wildlife Department State Wildlife Grant

3. **Sink, T.D.** 2016-2018. Prevention and Management of Invasive Moist Soil Plant Species Threatening United States' Forests and Rangelands. $9,860 (total directed). Renewable Resources Extension Act

4. **Sink, T.D.,** J. Tomecek, and M. Clayton. 2016-2018. Development of Web-based Continuing Education Unit Courses on Forest, Rangeland, Wildlife, and Aquatic Resource Conservation and Management $27,513 ($20,002 directed) Renewable Resources Extension Act

5. **Sink, T.D.** 2015-2017. Forested and Rangeland Watershed Impacts on Surface Water and Aquatic Species Conservation Education. $21,217 (total directed) Renewable Resources Extension Act

6. Gatlin III, D.M., D.A. Davis, J. Terhune, B. Peterson, **T. Sink**, R. Lochmann, N. Stone, and C. Engle. 2015-2017. Evaluation of Probiotic and Prebiotic Supplements with Catfish, Golden Shiners, Hybrid Striped Bass and Tilapia Under Conditions of Commercial Production. $300,000; $75,000 directed by TAMU ($8,812 directed) USDA Southern Regional Aquaculture Center

7. **Sink, T.D.** 2013-2015. Natural Resource Management and Education App(lication)s for Mobile Resource Utilization. $29,496.79 (total directed) Renewable Resources Extension Act

8. **Sink, T.D.,** R.T. Lochmann, C. Engle, A. Haukenes, D. Gatlin, and A. Buentello. 2011-2013. Improving Catfish Broodstock Management: Identify diets or forage-supplemented feeding strategies to improve egg production, egg quality, and fry production and determine associated effects on production costs. $153,385 ($128,385 directed) USDA-NIFA Southern Regional Aquaculture Center

9. **Sink, T.D.,** and R.T. Lochmann. 2010-2012. Biochemical and genetic techniques to advance research in lipid metabolism and nutrition of channel catfish and largemouth bass. $295,497.15 (total directed) USDA-NIFA Capacity Building Grants Program

10. **Sink, T.D.,** and R.T. Lochmann. 2010-2011. Utilization of soybean processing by-products in aquaculture feed research: Investigation of soybean lecithin derived phospholipids to improve growth and innate immune response in channel catfish using biochemical and molecular techniques. $20,000 (total directed) United Soybean Promotion Board

11. **Sink, T.D.,** and R.J. Strange. 2008-2010. Improving Reproductive Efficiency of Cultured Finfish: Development of commercial passive and induced spawning and incubation protocols for Atlantic croaker. $39,750 (total directed) USDA Southern Regional Aquaculture Center

12. **Sink, T.D.,** and R.T. Lochmann. 2008. Improving Reproductive Efficiency of Cultured Finfish: Development and testing of broodstock diets to improve egg and larval production of Atlantic croaker. $95,550 (total directed) USDA Southern Regional Aquaculture Center

13. **Sink, T.D.,** R.T. Lochmann and D. Gatlin III. 2008. Improving Reproductive Efficiency of Cultured Finfish: Proximate and biochemical analysis of Atlantic croaker eggs and larvae produced from broodstock fed diets varying in lipid and protein sources and

concentrations. $27,500 ($19,500 directed) USDA Southern Regional Aquaculture Center

14. **Sink, T.D.**, and R.T. Lochmann. 2007-2008. Improvement of egg biochemistry and fry production of channel catfish. $8,925 (total directed) Arkansas Catfish Promotion Board
15. **Sink, T.D.**, and R.T. Lochmann. 2006-2007. Broodstock nutrition strategies for improvement of egg biochemistry and fry quality and production of channel catfish. $50,400 (total directed) Arkansas Catfish Promotion Board
16. **Sink, T.D.**, and R.T. Lochmann. 2006-2007. Growth and survival of channel catfish fry fed diets containing all plant protein compared to standard diets containing animal protein sources. $7,100 (total directed) Arkansas Catfish Promotion Board

External Non-competitive

1. **Sink, T.D.** 2016-2017. USDA-NIFA SRAC Publications, Videos, and Computer Software Project. $44,052 ($39,052 directed) USDA-NIFA Southern Regional Aquaculture Center
2. **Sink, T.D.** 2015-2016. USDA-NIFA SRAC Publications, Videos, and Computer Software Project. $45,000 ($39,000 directed) USDA-NIFA Southern Regional Aquaculture Center
3. **Sink, T.D.** 2014-2015. USDA-NIFA SRAC Publications, Videos, and Computer Software Project. $46,214 ($40,243 directed) USDA-NIFA Southern Regional Aquaculture Center
4. **Sink, T.D.** 2013-2014. USDA-NIFA SRAC Publications, Videos, and Computer Software Project. $13,800.36 (total directed) USDA-NIFA Southern Regional Aquaculture Center

PUBLICATIONS AND PROFESSIONAL OUTPUT

Summary of Publications and Scholarly Work

Type	Since last Promotion	Career
Refereed/Peer-reviewed	NA	38
Scientific Abstracts	NA	49
Chapters in Books	NA	1
Extension Agency Publications	NA	26
Popular/Industry Articles	NA	10

Publications

[1]Denotes senior author; [2]denotes shared senior authorship in all of the following publications
*Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised in all of the following publications

- Peer-Reviewed Book Chapters

1. Masser[1], M.P. and **T.D. Sink**. 2016. Aquatic Systems Ecology and Management, *in* Texas Master Naturalist. Eds. M.M. Haggerty and M.P. Meuth. Texas A&M University Press, College Station, TX, 2016. Pages 571-600. Print.

- Book Chapters in Review

1. **Sink[1], T.D**, J. Pickens, D. Leskovar, J. Masabni, M. Recsetar, and J. Danaher. Aquaponics: A Marriage of Aquaculture and Hydroponic Cultivation, in Issues *in* Agroecology – Present Status and Future Prospectus, Ed. W.B. Campbell and S.L. Ortiz. Volume 4 Propagation for Consumption and Ornamental Trade. Springer Publishing, New York, NY

- Peer-Reviewed Refereed Publications

[1]Denotes senior author and [2]denotes shared senior authorship in all of the following publications *Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised in all of the following publications

1. **Sink[1], T.D.** 2017. Red Drum: Biology and Production of Larvae and Fingerlings. Southern Regional Aquaculture Center Publication No. 0324
2. **Sink[1], T.D.** 2017 Aquatic Species Selection for Aquaponics. Southern Regional Aquaculture Center Publication No. 5012
3. Faukner, J., S.D. Rawles, **T.D. Sink[2]**, R. Lochmann[2], A. Proctor, R. Chen, H. Phillips. 2015. The Effects of Diets Containing Standard Soybean Oil, Soybean Oil Enhanced with Conjugated Linoleic Acids, Menhaden Fish Oil, or an Algal Docosahexaenoic Acid Supplement on Juvenile Channel Catfish Performance, Hematology, Body Composition, and Nonspecific Immune Response. North American Journal of Aquaculture 77(2):217-229
4. Thompson, M.[**], R. Lochmann[1], H. Phillips, and **T.D. Sink[2]**. 2015. A dietary dairy/yeast prebiotic and flaxseed oil enhance growth, hematological and immunological parameters in channel catfish at a suboptimal temperature (15°C). Animal 9(7):1113-1119
5. **Sink[1], T.D.** 2015. Investigating a Fish Die-Off and Submitting a Sample for Toxicology or Disease Diagnosis. Southern Regional Aquaculture Center Publication No. 472
6. **Sink[1], T.**, B. Silvy[**], and W. Walton. 2015. Consumer Information Series: Eastern Oysters. Southern Regional Aquaculture Center Publication No. 7305
7. Mullins[1], C., B. Nerrie, and **T.D. Sink**. 2015. Principles of Small-Scale Aquaponics. Southern Regional Aquaculture Center Publication No. 5007
8. Kasiga, T., R. Chen, **T. Sink[2]**, and R. Lochmann[2]. 2014. Effects of reduced soybean-meal diets containing Moringa oliefera or Leucaena leucocephala leaf meals on growth performance, plasma lysozyme, and total intestinal proteolytic enzyme activity of

juvenile Nile tilapia, Oreochromis niloticus, in outdoor tanks. Journal of the World Aquaculture Society, 45:508-522

9. Dimaggio, M.A., J.S. Broach, C.L. Ohs[2], and **T.D. Sink[2]**. 2014. Effect of stocking density on growth, survival, and stress physiology of pigfish *Orthoprisyis chrysoptera*. North American Journal of Aquaculture, 76(3): 201-210

10. **Sink[2], T.D.,** and R.T. Lochmann[2]. 2014. The effects of dietary soybean lecithin supplementation to a practical diet formulation on juvenile channel catfish, *Ictalurus punctatus*, growth, survival, hematology, innate immune activity, and lipid biochemistry. Journal of the World Aquaculture Society, 45:163-172

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12. Harris, N.J., J.W. Neal, **T.D. Sink[1]**, and P.P. Perschbacher. 2012. Determination of the spawning Season of bigmouth sleeper in Puerto Rico by examination of gonad maturation and reproductive hormone cycles. Gulf and Caribbean Research 24:41-50

13. Suja, B., R. Lochmann[1], **T. Sink**, H. Phillips, and R. Chen. 2012. Effect of diets supplemented with soybean, flaxseed, or menhaden fish oil on the growth, feed utilization, immune status, and sensory properties of channel catfish in a recirculating system at 22°C. Journal of Applied Aquaculture 24:16–31

14. Lochmann[1], R.T., **T.D. Sink**, and H. Phillips. 2011. Effects of dietary lipid concentration and a dairy yeast prebiotic on growth, body composition, and survival of stressed goldfish challenged with *Flavobacterium columnare*. North American Journal of Aquaculture 73:239-247

15. **Sink[1], T.D.** 2011. Species Profile: Atlantic Croaker. Southern Regional Aquaculture Center. SRAC Publication No. 7208

16. **Sink[1], T.D.,** R.J. Strange, and R.T. Lochmann. 2010. Hatchery methods and natural, hormone-implant-induced, and synchronized spawning of captive Atlantic croaker (*Micropogonias undulatus*) Linnaeus 1766. Aquaculture 307:35-43.

17. **Sink[1], T.D.** 2010. Influence of pH, Salinity, Calcium, and Ammonia Source on Acute Ammonia Toxicity to Golden Shiners *Notemigonus crysoleucas*. Journal of the World Aquaculture Society 41:411-420

18. **Sink[1], T.D.,** R.T. Lochmann, and N.R. Kinsey[***]. 2010. Growth and survival of channel catfish *Ictalurus punctatus* fry fed diets with 36 or 45% total protein and all-plant or animal-protein sources. Journal of the World Aquaculture Society 40:124-129

19. **Sink, T.D.,** R.T. Lochmann[2], C. Pohlenz, A. Buentello, and D. Gatlin[2], III. 2010. Effects of dietary protein source and protein–lipid source interaction on channel catfish (*Ictalurus punctatus*) egg biochemical composition, egg production and quality, and fry hatching percentage and performance. Aquaculture 298:251-259

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21. Lochmann[1], R.T., **T.D. Sink**, and H. Phillips. 2009. Effects of dietary lipid concentration, a dairy/yeast prebiotic, and fish and non-fish protein sources on performance of golden shiner, *Notemigonus crysoleucas,* in indoor tanks and outdoor pools. North American Journal of Aquaculture 71:16-23

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23. Li, P., B. Ray, D.M. Gatlin[2] III, **T.D. Sink,** R. Chen, and R. Lochmann[2]. 2009. Effect of handling and transport on cortisol response and nutrient mobilization of golden shiner, *Notemigonus crysoleucas*. The Journal of the World Aquaculture Society 40:803-809

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28. **Sink[1], T.D.,** and R.T. Lochmann. 2007. Insulin response of largemouth bass to glucose, amino acid, and diet stimulation. North American Journal of Aquaculture 69(4): 429-434

29. **Sink[1], T.D.,** S. Kumaran, and R. Lochmann. 2007. Development of a whole-body cortisol extraction procedure for determination of stress in golden shiners, *Notemigonus crysoleucas*. Fish Physiology and Biochemistry 33(3): 189-193

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- Peer-Reviewed Extension Publications

*Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised in all of the following publications

1. Lewey, S., M. McGarrity, **T.D. Sink**, K. Ford and A. Fowler. 2017. Kicking *Arundo* out of Texas Roadways and Waterways: A Prevention Training. Nueces River Authority
2. Lewey, S., M. McGarrity, **T.D. Sink**, K. Ford and A. Fowler. 2017. *Arundo donax* Prevention Fact Sheet. Texas Parks and Wildlife, PWD LF T3200-1973
3. **Sink, T.D.** and E. Silvy*. 2017. Black Gill Syndrome in Brown Shrimp from Galveston Bay. Texas A&M AgriLife Extension Service No. WFSC-016
4. Silvy*, E., B. Peachey, D. Gatlin and **T. Sink**. 2017. Project Title: Development of New Reproductive and Larval Rearing Methods to Eliminate Major Constraints During Production of Southern Flounder (*Paralichthys lethostigma*) for Stock Enhancement: FINAL REPORT. Texas Parks and Wildlife Department contract number: 487654
5. Masabni, J. and **T.D. Sink**. 2016. What is Aquaponics? Texas A&M AgriLife Extension Service Publication No. HORT-2016-14S

6. Baumann, Dotray, McGinty, Morgan, Bagavathiannan, Keeling, **Sink** and Coulson. 2016. Flag the Technology and Avoid Crop Damage. Texas A&M AgriLife Research and Extension Publication SCS-2016-15

7. **Sink, T.D.** and M. House[***]. 2016. Aquatic Ecology Field Curriculum. http://fisheries.tamu.edu/youth-aquaculture-education/youth-education/

8. **Sink, T.D.**, and H. Gerke[***]. 2015. Texas Aquaculture Production: Overview and Trends of the Industry from the USDA Census of Aquaculture (2013). Texas A&M AgriLife Extension Service http://fisheries.tamu.edu/files/2011/10/Census-publication-2-column-article-format.pdf

9. Gerke, H.[***] and **T.D. Sink**. 2014. My Fish Have… 'Grubs?', Digenenean Trematodes and Fish. Texas A&M AgriLife Extension Service Publication No. EWF-009

10. **Sink, T.D.**, J. Gwinn[***], and H. Gerke[***]. 2014. Ornamental Ponds and Water Gardens in Texas. Texas A&M AgriLife Extension Service Publication No. EWF-014

11. **Sink, T.D.**, J. Gwinn[***], H. Gerke[***], and M. House[***]. 2014. Managing and Controlling Algae in Ponds. Texas A&M AgriLife Extension Service Publication No. EWF-015

12. **Sink, T.D.**, B. Silvy[**], and H. Gerke[***]. 2014. Gourmet Oysters, Oyster Branding, and Adding Value to Oyster Crops. Texas A&M AgriLife Extension Service Publication No. EWF-016

13. **Sink, T.D.** and M. House[***]. 2014. Understanding Water Quality Reports for Your Pond. Texas A&M AgriLife Extension Service Publication No. EWF-017

14. **Sink, T.D.**, J.K. Gwinn[***], H. Gerke[***], and B. Silvy[**]. 2014. Crawfish Production Manual for Texas. Texas A&M AgriLife Extension Service Publication No. EWF-018

15. **Sink, T.D.** and H. Gerke[***]. 2014. Managing Urban Stormwater Ponds. Texas A&M AgriLife Extension Service Publication No. EWF-019

16. Kaiser, J.D. and **T.D. Sink.** 2013. A Pond to Call My Own, Understanding Water Law in Texas. Texas A&M AgriLife Extension Service Publication No. EWF-007

17. Masser, M., and **T.D. Sink.** 2013. Treatment Response of Common Aquatic Plants to Registered Herbicides. Texas A&M AgriLife Extension Service Publication No. EWF-004

18. Higginbotham, B.J., and **T.D. Sink.** 2013. Texas Farm Pond Management Calendar. Texas A&M AgriLife Extension Service Publication No. EWF-003

19. Higginbotham, B.J., and **T.D. Sink.** 2013. My Fish Are Dying! Texas A&M AgriLife Extension Service Publication No. EWF-006

20. Neal, J.W., C.G. Lilyestrom, C.E. Mace, D.A. Behler, N.J. Harris, C.M. Adelsberger, and **T.D. Sink**. 2008. Freshwater sport fish enhancement and management. Puerto Rico Freshwater Fisheries Investigations, Final Report, June 30, 2008.

- Spanish Language Extension Publications

*Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised

1. **Sink, T.D.** and G. Wolf-Gonzalez***. 2016. Reacción de las plantas acuáticas comunes al tratamiento de herbicidas registradas. Texas A&M AgriLife Extension Service Publication No. EWF-004S
2. **Sink, T.D.** and G. Wolf-Gonzalez***. 2016. Calendario de Texas para el Manejo de Estanques. Texas A&M AgriLife Extension Service Publication No. EWF-003S
3. **Sink, T.D.**, J. Masabni and G. Wolf-Gonzalez***. 2016. Que es Acuaponía? Texas A&M AgriLife Extension Service Publication No. HORT-2016-14S
4. **Sink, T.D.**, M. House***, and G. Wolf-Gonzalez***. 2016. Entendiendo a los reportes de la Calidad de Agua De Su Estanque. Texas A&M AgriLife Extension Service Publication No. EWF-017S
5. **Sink, T.D.**, J. Gwinn***, H. Gerke***, M. House***, and G. Wolf-Gonzalez***. 2016. Manejando y Controlando las Algas en los Estanques. Texas A&M AgriLife Extension Service Publication No. EWF-015S
6. Kaiser, R., **T.D. Sink**, and G. Wolf-Gonzalez***. 2015. MiPrprio Estanque: Entendiendo Las Leyes de Agua en Texas. Texas A&M AgriLife Extension Service Publication No. EWF-008S

- Popular Articles

*Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised

1. Gonzalez, R. and **T.D. Sink**. 2017. Texas A&M University Identifies Most Effective Method of Gender Manipulation for Southern Flounder. Hatchery International, September 2017. Victoria, British Columbia.
2. Fears, R. and **T. Sink.** 2017. Keep it Clean: Control Aquatic Vegetation in Ponds. Land and Livestock Post. The Eagle, Bryan, TX. July 3, 2017.
3. **Sink** and Russell. 2016. Stocking new ponds with fish is a process. AgriLife Today, April 19, 2016. http://today.agrilife.org/2016/04/19/stocking-new-ponds-with-fish-is-a-process/
4. **Sink, T.** and M. Hooker***. 2016. Managing Aquatic Plants for Aquaculture. http://wild-wonderings.blogspot.com/2016/03/managing-aquatic-plants-for-aquaculture.html
5. **Sink, T.** and M. Hooker***. 2016. Can Dog Food be used as Fish Food? http://wild-wonderings.blogspot.com/2016/02/can-dog-food-be-used-as-fish-food.html
6. **Sink, T.** and M. Hooker***. 2016. Stocking Strategies for Sportfish Ponds (>1 acre). http://wild-wonderings.blogspot.com/2015/12/stocking-strategies-for-sportfish-ponds.html
7. **Sink, T.** and R. Lochmann. 2012. Croaking, Marine Baitfish and Arkansas. Aquafarming 29(1): 3-4

8. **Sink, T.** and R. Lochmann. 2011. The Atlantic Croaker (*Micropogonias undulatus)*: An Emerging Candidate for Multiple Purpose Aquaculture. World Aquaculture Magazine 42(3): 38-43
9. Lochmann, R., and **T. Sink**. 2009. Dairy/yeast prebiotic in golden shiners feed improved survival. Arkansas Aquafarming 26: 4
10. **Sink, T.D.**, and R.L. Lochmann. 2007. A substitute for wheat in fish feed? Aquaculture Magazine 33(4): 8-9

- Manuscripts in Review

*Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised

1. **Sink, T.D**., J.R. Faukner, E. Silvy*, and R.J. Strange. Out-of-Season Spawning of Captive Atlantic Croaker (*Micropogonias undulatus*). Journal of Applied Aquaculture.
2. **Sink, T.D.** and E.H. Silvy*. Mobile App(lication) Development and Marketing. Journal of Extension

Scientific and Professional Presentations

Summary of Scientific and Professional Presentations

Type	Invited	Volunteered or Submitted	Total
International		16	16
National		19	19
Regional	1	2	3
State	4	6	10
Local	2	1	3

*Denotes Ph.D. student advised; **Denotes M.S. student advised; ***Denotes undergraduate student advised

- Invited Presentations

1. Smith, H.R. and **T.D. Sink**. 2017. Flag the Technology APP: A Virtual Flag Field Trait Marking System Using Your Cell Phone. Annual meeting of the Texas Plant Protection Association. College Station, TX
2. **Sink, T.** 2016. Flag the Technology Mobile App. Texas Plant Protection Association annual conference. College Station, TX
3. **Sink, T.** 2016. New User Based Resource Tools for Aquatic Vegetation Management and Pond Managers from AgriLife Extension. Texas Aquatic Plant Management Society annual conference. Boerne, TX
4. **Sink, T.** 2014. How to Develop Apps for Education and Extension. Texas A&M Department of Soil and Crop Sciences Extension retreat, Navasota, TX

5. **Sink, T.** 2014. Marine Baitfish: A New Frontier in Fish Culture. Texas Aquaculture Association annual conference, Fredericksburg, TX
6. **Sink, T.D.**, and R.T. Lochmann. 2009. Improving Reproductive Efficiency in Channel Catfish: The Effect of Parental Dietary Lipid and Protein Ingestion on Egg and Fry Production. Catfish Farmers of America Convention and Research Symposium 2009, Natchez, Mississippi
7. **Sink, T.D.**, and R.J. Strange. 2003. Stress and Susceptibility of Channel Catfish to ESC. University of Tennessee Advisory Council Meeting, Knoxville, Tennessee

- Submitted Scientific and Professional Presentations

1. **Sink, T.D.**, R. Vega and E. Silvy[*]. 2017. Manipulation of Gender in Southern Flounder to Improve Culture. Aquaculture America, San Antonio, TX
2. Silvy, B.[*], R. Vega and **T.D. Sink**. 2017. Development of New Reproductive and Larval Rearing Methods to Eliminate Major Constraints During Production of Southern Flounder *Paralichthys lethostigma* for Stock Enhancement. Aquaculture America, San Antonio, TX
3. **Sink, T.** 2015. Potential of Crawfish Production for Texas. Annual conference of the Texas Aquaculture Association, Fredericksburg, TX
4. **Sink, T.** 2015. Professional Angler Opinions About and Interaction with Aquatic Vegetation and Its Management. Texas Aquatic Plant Management Society. Boerne, TX
5. Dimaggio, M.A., J.S. Broach, C.L. Ohs, and **T.D. Sink.** 2013. Effect of Stocking Density on Growth, Survival, and Stress Physiology of Pigfish *Orthoprisyis chrysoptera*. Aquaculture America, Nashville, TN
6. **Sink, T.**, R. Lochmann, G. Merry and A. Goodwin. 2013. Validation of a Delta-6 Fatty Acyl Desaturase Gene Expression Assay for Channel Catfish *Ictalurus punctatus*. Aquaculture America, Nashville, TN
7. **Sink, T.**, R. Lochmann, G. Merry and A. Goodwin. 2013. Ontogeny and Response of Delta-6 Fatty Acyl Desaturase Gene Expression in Response to Dietary Lipids and Phospholipids in Channel Catfish *Ictalurus punctatus*. Aquaculture America, Nashville, TN
8. **Sink, T.**, and R. Lochmann. 2013. Hepatic and Lipoprotein Lipase Activity in Response to Dietary N-3, N-6, and Phospholipids in Channel Catfish and Largemouth Bass. Aquaculture America, Nashville, TN
9. Kasiga, T. R. Lochmann, H. Phillips and **T. Sink.** 2013. Effects of Diets Containing *Moringa oleifera* and *Leucaena leucocephala* Leaf Meals in Place of Soybean Meal on Growth Performance, Lysozyme, and Total proteolytic Enzyme Activity of Juvenile Nile Tilapia *Oreochromis niloticus*. Aquaculture America, Nashville, TN
10. **Sink, T.** 2013. Aquatic Plant Identification and Management: Importance and Perceptions of Educational Outreach through the Texas A&M Agrilife Extension Service. Texas Chapter of the Aquatic Plant Management Society, San Antonio, TX

11. **Sink, T.D.**, R. Lochmann, and D. Gatlin III. 2012. Development of broodstock diets to increase egg production from Atlantic croaker, phase 1: LIPIDS. World Aquaculture Society annual meeting, Las Vegas, Nevada

12. **Sink, T.** and R. Lochmann. 2012. The effects of supplemental phospholipids and n-3 and n-6 fatty acids on juvenile channel catfish production performance and tissue biochemistry with preliminary data on Δ-6 desaturase gene expression. World Aquaculture Society annual meeting, Las Vegas, Nevada

13. Kasiga, T., **T. Sink**, H. Philips, R. Chen, and R. Lochmann. 2012. Evaluation of *Moringa oleifera* and *Leucaena leucocephala* leaf meals in Nile tilapia diets. World Aquaculture Society annual meeting, Las Vegas, Nevada

14. **Sink, T.** and R. Lochmann. 2011. The effects of phospholipids on channel catfish performance and physiology. 33rd Fish Feed and Nutrition Workshop, Pine Bluff, Arkansas

15. **Sink, T.** and R. Lochmann. 2011. The effects of dietary soybean lecithin on channel catfish growth innate immune response, lipid biochemical indices, and value of fillets for human health. Aquaculture America, New Orleans, Louisiana

16. **Sink, T.**, R. Strange, and R. Lochmann. 2011. Multiple spawning of captive Atlantic croaker *Micropogonias undulatus* using abbreviated spawning cycles and hormone treatments. Aquaculture America, New Orleans, Louisiana

17. **Sink, T.** 2011. The things that make croakers croak: Environmental parasite, and disease issues of captive Atlantic croaker. Aquaculture America, New Orleans, Louisiana

18. Lochmann, R. S. Rawles, **T. Sink**, H. Phillips, R. Barrows, and P. Bechtel. 2011. Use of Alaskan Pollack visceral meal as an alternative N-3 HUFA source in diets of largemouth bass *Micropterus salmoides*. Aquaculture America, New Orleans, Louisiana

19. Faukner, J. H. Phillips, **T. Sink**, and R. Lochmann. 2011. Effects of diets supplemented with standard soybean oil, soybean oil enriched with conjugated linoleic acids, menhaden fish oil, or an algal N-3 fatty acid concentrate on the growth, health, feed conversion, survival, and body composition of channel catfish. Aquaculture America, New Orleans, Louisiana

20. **Sink, T.**, R. Strange, and R. Lochmann. 2010. Natural, induced, and synchronized spawning of Atlantic croaker *Micropogonias undulatus*. World Aquaculture Society annual meeting, San Diego, California

21. **Sink, T.** 2010. Introducing the Atlantic croaker *Micropogonias undulatus*: An emerging candidate for multiple purpose aquaculture production. World Aquaculture Society annual meeting, San Diego, California

22. Buentello, A., M. Anguiano, C. Pohlenz, **T. Sink**, W. Neill, F. Ascencio, and D. Gatlin III. 2010. Physiological indicators for tuna cultured in sea cages II: Preliminary considerations for prevention of the burnt-flesh syndrome. World Aquaculture Society annual meeting, San Diego, California

23. Lochmann, R., **T. Sink**, and M. Thompson. 2010. The effects of a dairy/yeast prebiotic on golden shiners, goldfish, and channel catfish – A review. World Aquaculture Society annual meeting, San Diego, California

24. Lochmann, R., S. Rawles, **T. Sink**, H. Phillips, 2010. R. Barrows, and P. Bechtel. 2010. Use of Alaskan pollock visceral meal in diets of channel catfish to enhance the N-3 content of the fillet. World Aquaculture Society annual meeting, San Diego, California

25. Faukner, J., H. Phillipis, **T. Sink**, and R. Lochmann. 2010. Effects of diets supplemented with standard soybean oil, soybean oil enriched with conjugated linoleic acids, marine fish oil, or an algal N-3 fatty acid concentrate on growth, health, feed conversion, survival, body composition, and shelf life of channel catfish. World Aquaculture Society annual meeting, San Diego, California

26. Rawles, S., R. Lochmann, **T. Sink**, R, Barrows, and P. Bechtel. 2010. Partial replacement of menhaden fish oil with Alaskan pollock visceral meal in striped bass *Morone saxatilis* diets. World Aquaculture Society annual meeting, San Diego, California

27. Thompson, M., **T. Sink** and R. Lochmann. 2010. The effects of Grobiotic-A® on the growth and health of channel catfish *Ictalurus punctatus* fry in aquaria. AEA/ARD Land Grant Conference, Memphis Convention Center, Memphis, Tennessee

28. **Sink, T.** 2008. The best diets for broodstock and fry: It's not what you think. Arkansas Aquaculture Field Day, Pine Bluff, Arkansas

29. Kumaran, S., **T. Sink**, and R. Lochmann. 2008. Prebiotics in baitfish feeds. Arkansas Aquaculture Field Day, Pine Bluff, Arkansas

30. Lochmann, R., M.A. Lihono, J. Koo, **T. Sink** and R. Chen. 2008. Effects of soybean, menhaden, and flaxseed oil in a commercial diet on performance and shelf-life of channel catfish reared to market size at 22˚C. AEA/ARD Land Grant Conference, Memphis, Tennessee

31. Li, P., **T. Sink**, B. Ray, R. Chen, R. Lochmann, and D. Gatlin III. 2008. Effect of handling and transport on cortisol response and nutrient mobilization of Golden shiner. Aquaculture America, Orlando, Florida

32. **Sink, T.**, and R. Lochmann. 2008. Effect of dietary lipid source and concentration on channel catfish egg and fry production, survival, biochemical composition, and physiological quality. Aquaculture America, Orlando, Florida

33. **Sink, T.**, and R. Lochmann. 2008. Growth and mortality of channel catfish fry fed diets containing 36 or 45% all-plant proteins versus standard diets containing 36 or 45% animal and plant proteins. Aquaculture America, Orlando, Florida

34. Lochmann, R., **T. Sink**, H. Phillips, and F. Bearden. 2008. Effects of a prebiotic, lipid concentration, and protein source on performance of golden shiner in outdoor pools. Aquaculture America, Orlando, Florida

35. Lochmann, R., **T. Sink**, N. Kinsey[***], and E. Marecaux.2008. Effects of a dietary prebiotic on performance of golden shiners in ponds. Aquaculture America, Orlando, Florida

36. Lochmann, R., **T. Sink**, and R. Chen. 2008. Effects of soybean, menhaden, and flaxseed oil in a commercial diet on the growth, feed utilization, and health of channel catfish reared to market size at 22ºC. Aquaculture America, Orlando, Florida

37. **Sink, T.D.**, and R.T. Lochmann. 2007. Evaluation of mortality rates in golden shiners *Notemigonus crysoleucas* fed diets high in fat and the prebiotic GroBiotic®-A prior to being challenged with *Flexibacter columnaris*. World Aquaculture Society annual meeting, San Antonio, Texas

38. **Sink, T.D.**, and R.T. Lochmann. 2007. Insulin and glucose time response curves for largemouth bass *Micropterus salmoides* fed commercial and natural diets. World Aquaculture Society annual meeting, San Antonio, Texas

39. **Sink, T.D.**, and R.T. Lochmann. 2007. Growth and survival of channel catfish *Ictalurus punctatus* fry fed diets containing all plant protein versus standard diets containing animal protein. World Aquaculture Society annual meeting, San Antonio, Texas

40. Gatlin, D., P. Li, B. Ray, R. Chen, **T. Sink**, and R. Lochmann. 2007. Review of immune and stress responses of golden shiners *Notemigonus crysoleucas*. World Aquaculture Society annual meeting, San Antonio, Texas

41. Lochmann, R., **T. Sink**, H. Phillips, P. Li, and D. Gatlin. 2007. Effects of a feed additive, lipid concentration, and protein source on performance of golden shiner *Notemigonus crysoleucas*. World Aquaculture Society annual meeting, San Antonio, Texas

42. Suja, B., H. Phillips, **T. Sink**, R. Chen, and R. Lochmann. 2007. Effect of soybean oil, menhaden oil, and flaxseed oil supplements on the growth, feed utilization, and health of channel catfish fingerlings reared at 22ºC. World Aquaculture Society annual meeting, San Antonio, Texas

43. **Sink, T.D.**, and R.T. Lochmann. 2007. Insulin and glucose time response curves for largemouth bass *Micropterus salmoides* fed commercial and natural diets. University of Arkansas Research Forum, Pine Bluff, Arkansas

44. **Sink, T.D.**, and R.J. Strange. 2003. Linking stress to the increased susceptibility of channel catfish to enteric septicemia using the biological indicator cortisol. Catfish Farmers of America Research Symposium, San Destin, Florida

45. **Sink, T.D.**, and R.J. Strange. 2003. Stress and susceptibility of channel catfish to ESC. University of Tennessee Advisory Council Meeting, Knoxville, Tennessee

PROFESSIONAL HONORS AND AWARDS

Meritorious Service Award. National 4-H Wildlife Habitat Education Program. Awarded July 2017. Awarded for continued and exemplary service during planning and executing the National 4-H Wildlife Habitat Education Program national contest 2015-2017. One of one to three awarded annually in the United States.

The curriculum vitae being submitted is the most current and is correct as of the date of the signature.

8/19/2017

_____ _____

Signature Date

Todd Sink

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Printed