CURRICULUM VITAE

University of Idaho

NAME: Brian C. Small **DATE:** 12/12/18

RANK OR TITLE: Professor/Director

DEPARTMENT: Fish and Wildlife Sciences/ Hagerman Fish Culture Experiment Station

OFFICE LOCATION AND CAMPUS ZIP:
Aquaculture Research Institute
Hagerman Fish Culture Experiment Station
3059F National Fish Hatchery Road
Hagerman, ID 83332

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DATE OF FIRST EMPLOYMENT AT UI: 12/21/15

DATE OF TENURE: 2015

DATE OF PRESENT RANK OR TITLE: 2015

EDUCATION BEYOND HIGH SCHOOL:

Degrees:
Ph.D., University of Maryland, College Park, MD (1998), Fish Nutrition/Physiology/Aquaculture
B.A., Kutztown University, Kutztown, PA (1992), Marine Science and Chemistry

EXPERIENCE:

Teaching, Extension and Research Appointments:

Full Professor, Department of Fish and Wildlife Sciences, Aquaculture Research Institute, University of Idaho (12/2015 – present)
Full Professor, Department of Animal Science, Food, and Nutrition, Center for Fisheries, Aquaculture, and Aquatic Sciences, Southern Illinois University (SIU), Carbondale, IL (7/2015 – 12/2015)
Associate Professor, Department of Animal Science, Food, and Nutrition, Center for Fisheries, Aquaculture, and Aquatic Sciences, Southern Illinois University, Carbondale, IL (12/2009-6/2015)
Postdoctoral Research Associate, Department of Animal and Avian Science, University of Maryland, College Park, MD

Academic Administrative Appointments:

Director of the Hagerman Fish Culture Experiment Station, Aquaculture Research Institute, University of Idaho, Hagerman, ID (1/2017 – present)
Director for Research Programs, College of Agricultural Sciences, Southern Illinois University, Carbondale, IL (2015)
Acting Associate Dean, College of Agricultural Sciences, Southern Illinois University, Carbondale, IL (2013)
Director of the Touch of Nature Pond Research Facility, Center for Fisheries, Aquaculture, and Aquatic Sciences, Southern Illinois University, Carbondale, IL (2009-2014)

Non-Academic Employment including Armed Forces:

GS-14 Research Physiologist, United States Department of Agriculture, Agricultural Research Service, Catfish Genetics Research Unit, Stoneville, MS (2007-2009)
Interim Center Director/Research Leader, United States Department of Agriculture, Agricultural Research Service, National Center for Cool and Cold Water Aquaculture, Leetown, WV (2/2008 – 4/2008)
GS-13 Research Physiologist, United States Department of Agriculture, Agricultural Research Service, Catfish

Genetics Research Unit, Stoneville, MS (2003-2007)
GS-12 Research Physiologist, United States Department of Agriculture, Agricultural Research Service, Catfish Genetics Research Unit, Stoneville, MS (2000-2003)

TEACHING ACCOMPLISHMENTS:

Areas of Specialization: Animal/Fish Physiology, Aquaculture, Endocrinology

Courses Taught and Developed:

University of Idaho:
Fish Physiology, FISH 411 (2019)
Advanced Fish Physiology, FISH 511 (2016, 2018)
Physiological Ecology of Fish and Wildlife, WLF 371 (2017-2018)

Southern Illinois University:
Fish Reproduction and Breeding, ANS 571 (2013, 2015)
Comparative Endocrinology, ANS 426/ZOOL 426/PHYS 426 (2012, 2014, 2015)
Growth and Developmental Physiology of Animals, ANS 331 (2010-2014, 2015)
Aquaculture, ANS 477/ZOOL 477 (2011)

Students Advised:

Graduate Students:

Advised to completion of degree-major professor:
Jeongwhui Hong, Ph.D. in Natural Resources, U Idaho (2017-Present)
Melanie Beckman, Ph.D. in Natural Resources, U Idaho (2016-Present)
Jacob Bledsoe, Ph.D. in Natural Resources, U Idaho (2016-Present)
Christine Trahan, M.S. in Natural Resources, U Idaho (2017-2019)
Jenny Paul, Ph.D., Zoology (2015-2017)
Adam Bean, M.S., Animal Science, (2014-2017)
Dallas Henderson, M.S., Animal Science (2014-2016)
Jacob Beldsoe, M.S., Animal Science (2013-2015)
Julie Schroeter, M.S., Animal Science (2013-2015)
Carlin Fenn, M.S., Animal Science (2011-2013)
Luke Nelson, M.S., Animal Science (2011-2013)
Elliott Kittel, M.S., Animal Science (2010-2013)
Marinela Barrero-Monzón, Ph.D., Wildlife and Fisheries (2003-2006)

Served on graduate committee:
Neil Ashton, Ph.D. in Natural Resources
Amit Ydiv, Ph.D. in Animal Physiology
Sinem Gulen, M.S. in Natural Resources
Sarah Hanchet, Ph.D. in Natural Resources
Tracy Kennedy, M.S. in Natural Resources
Patrick Blaufuss, Ph.D. in Animal Physiology
Kevin Kingsland, Ph.D. in Zoology
Allison Asher, Ph.D., Zoology
Anthony Porreca, Ph.D., Zoology (2017)
Artur Rombenso, Ph.D. in Zoology (2016)
Megan Czerniejewski, M.S., Chemistry
Tauseef B. Shah, M.S., Animal Sciences (2015)
Saulo Silva, Ph.D. in Agricultural Sciences (2015)
Michael Page, M.S., Zoology (2015)
Jennifer Eichelberger, Ph.D. in Zoology (2014)
William Hintz, Ph.D. in Zoology (2014)

Bonnie Mulligan, M.S., Zoology (2013)
Kenson Kanczuzewski, M.S., Zoology (2013)
Fred Chu, Ph.D. in Zoology (2012)
Curtis Crouse, M.S., Zoology (2012)
Patrick Blaufuss, M.S., Zoology (2011)
Matthew Krampe, M.S., Zoology (2011)

Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:

International:
IV Congreso Argentino de Nutrición Animal, Congreso CAENA 2013, Buenos Aires, Argentina (2013)
2-day Fish Nutrition Workshop, The National University of La Plata, Argentina (2013)
Yangtze Fisheries Research Institute, Wuhan, China (2013)
Institute of Hydrobiology, Chinese Academy of Science, Wuhan, China (2013)
China-US Forum on the Innovation for Mandarin-fish and bass/Perch Production, Wuhan, China (2013)
Workshop on Fish Nutrition, Ascociation de la Cadena de la Soja Argentina, Posadas, Argentina (2012)
Argentine National Congress, Buenos Aires, Argentina (2012)
Seminario de Biotecnología, Instituto de Biotechnologia de Tarapaca / CORDUNAP, Inquique, Chile (2010)
Symposium on Endocrine Regulation of Feeding and Growth in Fish, 6th International Symposium on Fish Endocrinology (2008)
Special Program for Trainees, 6th International Symposium on Fish Endocrinology (2008)
Immunology and the Endocrine System, 5th International Symposium on Fish Endocrinology (2004)

National:
Physiological Insights into Towards Improving Fish Culture symposium, Aquaculture 2013, Nashville, TN (2013)
Aquaculture Drug Research and Drug Approval Status session, Aquaculture America 2012 (2012)
Catfish symposium, Aquaculture 2011 (2011)
Department of Biology, Fresno State University (2011)
PPA/NOAA/USDA Session on Alternative Feeds technical session, Aquaculture 2010 (2010)
Physiological Insights towards Improving Fish Culture II symposium, Aquaculture 2010 (2010)
Catfish symposium, Aquaculture 2008 (2008)
US Aquaculture Society Student Career Seminar, Aquaculture 2008 (2008)
Physiological Insights towards Improving Fish Culture symposium, Aquaculture 2007 (2007)
Fish and Amphibians session, Seventh Conference of the Nutrition Advisory Group of the American Zoo and Aquarium Association on Zoo and Wildlife Nutrition (2007)
Culture of Channel Catfish symposium, Aquaculture 2007 (2007)
Department of Coastal Sciences, Gulf Coast Research Laboratory, University of Southern Mississippi (2007)
Nutritional Physiology of Finfish symposium, Aquaculture America 2006 (2006)
Finfish Physiology symposium, Aquaculture America 2006 (2006)
2006 Catfish Farmers of America Research Symposium (2006)
Therapeutic Drug Research symposium, Aquaculture America 2005 (2005)
Hybrid Catfish Reproduction symposium, Aquaculture America 2005 (2005)
Finfish Physiology symposium, Aquaculture America 2005 (2005)
USFWS - 11th Annual INAD Coordination Workshop (2005)
Therapeutic Drug Research symposium, Aquaculture 2004 (2004)
Therapeutic Drugs symposium, Aquaculture America 2003 (2003)
2003 Catfish Farmers of America Research Symposium (2003)
Department of Animal and Avian Sciences, University of Maryland-College Park (2003)
Department of Zoology, Southern Illinois University-Carbondale (2003)
Morone Broodstock Biology symposium, Aquaculture America ’99 (1999)
Striped Bass Nutrition symposium, Striper 2000-Research Advances on Striped Bass and its Hybrids (1998)

***Regional*:**
Coldwater Aquaculture Workshop 2019, Hagerman, ID (2019)
Idaho Fish and Game Biologist Training, Eagle, ID (2019)
Coldwater Aquaculture Workshop 2017, Hagerman, Id (2017)

District V FFA Greenhand Workshop, Carbondale, Illinois. (2013)
Department of Physiology Seminar, SIU School of Medicine (2011)
USDA-APHIS Aquaculture Training Program (2011)
Southern Illinois University College of Agriculture Leadership Board and Faculty Meeting (2010)
Illinois Soybean Association Research Forum, Champaign, IL (2010)
Coolwater Workshop, Rend Lake, IL
Department of Zoology, Southern Illinois University-Carbondale (2009)
Illinois Soybean Association Summer research Tour, Belleville, IL (2009)
Hatchery Management Workshop; Mississippi State University (2007)
Rotary Club of Cleveland, Mississippi (2005)
Lions Club of Cleveland, Mississippi (2005)
Hatchery Management Workshop, Mississippi State University (2003)
Hatchery Management Workshop, Mississippi State University (2003)
Department of Biology, Coahoma Community College (2001)

Honors and Awards:

Gary L. Minish Outstanding Advisor/Mentor Award, Southern Illinois University (2015)
CURCA (Center for Undergraduate Research and Creative Activities) Faculty Mentor Award of Excellence, Southern Illinois University (2015)
Award Recipient; Early Career Faculty Excellence Award, College of Agricultural Sciences, Southern Illinois University (2014)

SCHOLARSHIP ACCOMPLISHMENTS:

Publications, Exhibitions, Performances, Recitals:

Refereed/Adjudicated:

Silverstein, J.T. and B.C. Small. 2004. Reproductive physiology. Pages 69-94 in C. S. Tucker and J. Hargreaves, editors. Biology and Culture of Channel Catfish. Elsevier Science Publishers, Amsterdam, The Netherlands.
Small, B.C. and L.C. Woods, III. 2018. Current state and prospects for hybrid striped bass production in the United States. Pages 284-312. In: World Perch and Bass Culture: Innovation and Industrialization (Liang, X.F., H.P. Wang, H. Liu and R.W. Hardy Ed.). ISBN 978-7-03-053873-4. China Science Press. Beijing.

Peer Reviewed/Evaluated:

Small, B.C. and J.H. Soares. 1998. Estimating the quantitative essential amino acid requirements of striped bass, Morone saxatilis, using fillet A/E ratios. Aquacult. Nutr. 4:224-232.
Small, B.C., R.E. Austic, and J.H. Soares. 1999. Amino acid availability of four practical feed ingredients fed to striped bass, Morone saxatilis. J. World Aquacult. Soc. 30:58-64.
Small, B.C. and J.H. Soares. 1999. Quantitative dietary threonine requirement of juvenile striped bass, Morone saxatilis. J. World Aquacult. Soc. 30:319-323.
Small, B.C. and J.H. Soares. 1999. Effect of dietary carbohydrate on growth, glucose tolerance and liver composition of juvenile striped bass (Morone saxatilis). N. Amer. J. Aquacult. 61:286-292.
Small, B.C., J.H. Soares, and L.C. Woods. 2000. Optimization of feed formulation for mature female striped bass. N. Amer. J. Aquacult. 62:290-293.
Small, B.C. and J.H. Soares. 2000. Quantitative dietary lysine requirement of juvenile striped bass, Morone saxatilis. Aquacult. Nutr. 6:207-212.
Small, B.C. and T.D. Bates. 2001. Effect of low-temperature incubation of channel catfish, Ictalurus punctatus, eggs on development, survival and growth. J. World Aquacult. Soc. 32:49-54.
Small, B.C. and D. Nonneman. 2001. Sequence and expression of cDNA encoding both pituitary

adenylate cyclase activating polypeptide and a growth hormone-releasing hormone-like peptide in channel catfish (Ictalurus punctatus). Gen. Comp. Endocrinol. 122:354-363.

Small, B.C. and K.B. Davis. 2002. Validation of a time-resolved fluoroimmunoassay for measuring plasma cortisol in channel catfish Ictalurus punctatus. J. World Aquacult. Soc. 33:184-187.

Small, B.C., J.H. Soares, L.C. Woods, and G.E. Dahl. 2002. Effects of fasting on pituitary growth hormone expression and circulating growth hormone levels in striped bass. N. Amer. J. Aquacult. 64:278-283.

Small, B.C. 2003. Anesthetic efficacy of metomidate and comparison of plasma cortisol responses to tricaine methanesulfonate, quinaldine and clove oil anesthetized channel catfish Ictalurus punctatus. Aquaculture. 218:177-185.

Bilodeau, A.L., B.C. Small, and W.R. Wolters. 2003. Pathogen loads, clearance, and plasma cortisol response in channel catfish following challenge with Edwardsiella ictaluri. J. Fish Diseases. 26:433-437.

Small, B.C. and W.R. Wolters. 2003. Hydrogen peroxide treatment during egg incubation improves channel catfish hatching success. N. Amer. J. Aquacult. 65:314-317.

Drennon K., S. Moriyama, H. Kawauchi, B. Small, J. Silverstein, I. Parhar, and B. Shepherd. 2003. Development of an enzyme-linked immunosorbent assay (ELISA) for the measurement of plasma growth hormone (GH) levels in channel catfish (Ictalurus punctatus): assessment of environmental salinity and GH-secretagogues on plasma GH levels. Gen. Comp. Endocrinol. 133:314-322.

Peterson, B.C. and B.C. Small. 2004. Effects of fasting on circulating IGF-binding proteins, glucose, and cortisol in channel catfish (Ictalurus punctatus). Dom. Anim. Endocrinol. 26:231-240.

Peterson, B.C., B.C. Small, and B. Bosworth. 2004. Effects of bovine growth hormone (Posilac) on growth performance, body composition, and IGFBPs in two strains of channel catfish. Aquaculture. 232:651-663.

Small, B.C. 2004. Effect of dietary cortisol administration on growth and reproductive success of channel catfish. J. Fish Biol. 64:589-596.

Small, B.C. 2004. Accounting for water temperature during hydrogen peroxide treatment of channel catfish eggs. N. Amer. J. Aquacult. 66:162-164.

Small, B.C., W.R. Wolters, and T.D. Bates. 2004. Identification of a calcium-critical period during channel catfish embryo development. J. World Aquacult. Soc. 35:291-295.

Karsi, A., G.C. Waldbieser, B.C. Small, Z. Liu, and W.R. Wolters. 2004. Molecular cloning of proopiomelanocortin cDNA and multi-tissue mRNA expression in channel catfish. Gen. Comp. Endocrinol. 137:312-321.

Small, B.C. 2004. Effect of isoeugenol sedation on plasma cortisol, glucose, and lactate dynamics in channel catfish Ictalurus punctatus exposed to three stressors. Aquaculture. 238:469-481.

Bosworth, B.G., B.C. Small, and C. Mischke. 2004. Effects of transport water temperature, aerator type, and oxygen level on channel catfish (Ictalurus punctatus) fillet quality. J. World Aquacult. Soc. 35:412-419.

Weber, T.E., B.C. Small, and B.G. Bosworth. 2005. Lipopolysaccharide regulates myostatin and MyoD independently of an increase in plasma cortisol in channel catfish (Ictalurus punctatus). Dom. Anim. Endocrinol. 28:64-73.

Small, B.C and B.C. Peterson. 2005. Establishment of a time-resolved fluoroimmunoassay for measuring plasma insulin-like growth factor I (IGF-I) in fish: effect of fasting on plasma concentrations and tissue mRNA expression of IGF-I and growth hormone (GH) in channel catfish (Ictalurus punctatus). Dom. Anim. Endocrinol. 28:202-215.

Small, B.C. and N. Chatakondi. 2005. Routine measures of stress are reduced in mature channel catfish during and following AQUI-STM anesthesia and recovery. N. Amer. J. Aquacult. 67:72-78.

Peterson, B.C. and B.C. Small. 2005. Effects of exogenous cortisol on the GH/IGF-I/IGFBP network in channel catfish. Dom. Anim. Endocrinol. 28:391-404.

Small, B.C. 2005. Differences in growth and nutrient efficiency between and within two channel catfish Ictalurus punctatus strains. J. World Aquacult. Soc. 36:8-13.

Small, B.C. and A.L. Bilodeau. 2005. Effects of cortisol and stress on channel catfish (Ictalurus punctatus) pathogen susceptibility and lysozyme activity following exposure to Edwarsiella ictaluri. Gen. Comp. Endocrinol. 142:255-261.

Bilodeau, A.L., Small, B.C., Wise, D.J., and Wolters, W.R. 2005. Pathogen levels and cortisol

response in channel catfish (Ictalurus punctatus) with susceptibility differences to Edwardsiella ictaluri. J. Aquat. Anim. Health. 17:138–146.

Karsi, A., G.C. Waldbieser, B.C. Small, and W.R. Wolters. 2005. Genomic structure of the proopiomelanocortin gene and expression during temporal stress in channel catfish. Gen. Comp. Endocrinol. 143:104-112.

Kaiya, H, B.C. Small, A.L Bilodeau, B.S. Shepherd, M. Kojima, H. Hosoda, and K. Kangawa. 2005. Purification, cDNA cloning and characterization of ghrelin in channel catfish, Ictalurus punctatus. Gen. Comp. Endocrinol. 143:201-210.

Small, B.C. 2005. Effect of fasting on nychthemeral concentrations of plasma growth hormone (GH), insulin-like growth factor I (IGF-I), and cortisol in channel catfish (Ictalurus punctatus). Comp. Biochem. Physiol. B. 142:217-223.

Small, B.C. and N. Chatakondi. 2006. Efficacy of formalin as an egg disinfectant for improving hybrid catfish (Ictalurus punctatus x I. furcatus) hatching success. N. Amer. J. Aquacult. 68:9-13.

Small, B.C. 2006. Improvements in channel catfish Ictalurus punctatus growth after two generations of selection and comparison of performance traits to blue catfish I. furcatus and hybrid catfish I. punctatus x I. furcatus fingerlings in an aquarium rack system. N. Amer. J. Aquacult. 68:92-98.

Davis, K.B. and B.C. Small. 2006. Rates of cortisol increase and decrease in channel catfish and sunshine bass exposed to an acute confinement stressor. Comp. Biochem. Physiol. C. 143:134-139.

Beecham, R.V., B.C. Small, and C.D. Minchew. 2006. Using portable lactate and glucose meters for catfish research: acceptable alternatives to established laboratory methods? N. Amer. J. Aquacult. 68:291–295.

Small, B.C., C.A. Murdock, G.C. Waldbieser, and B.C. Peterson. 2006. Reduction in channel catfish hepatic growth hormone receptor expression in response to food deprivation and dietary administration of exogenous cortisol. Dom. Anim. Endocrinol. 31: 340-356.

Peterson B.C. and B.C. Small. 2006. Effect of feeding frequency on feed consumption, growth, and feed efficiency in aquaria-reared Norris and NWAC103 channel catfish (Ictalurus punctatus). J. World Aquacult. Soc. 37:490-495.

Peterson, B.C., B.C. Small, and A.L. Bilodeau. 2007. Effects of GH on immune and endocrine responses of channel catfish challenged with Edwardsiella ictaluri. Comp. Biochem. .Physiol. A. 146:47-53

Bosworth, B.G., B.C. Small, D. Gregory, J. Kim, S. Black, and A. Jerrett. 2007. Effects of rested-harvest using AQUI-S on channel catfish, Ictalurus punctatus, physiology and fillet quality. Aquaculture. 262:302-318

Barrero, M., B.C. Small, L.R. D'Abramo, L.A. Hanson, and A.M. Kelly. 2007. Comparison of estradiol, testosterone, vitellogenin and cathepsin profiles among young adult channel catfish (Ictalurus punctatus) females from four selectively bred strains. Aquaculture. 264:390-397.

Barrero, M., B.C. Small, L.R. D'Abramo, G.C. Waldbeiser, L.A. Hanson, and A.M. Kelly. 2008. Effect of Carp Pituitary Extract and Luteinizing Hormone Releasing Analog Hormone on Reproductive Indices and Spawning of 3-Year-Old Channel Catfish. N. Amer. J. Aquacult. 70:138-146.

Small, B.C., K.B. Davis, and B.C. Peterson. 2008. Elucidating the effects of cortisol and stress on economically important traits in channel catfish. N. Amer. J. Aquacult. 70:223-235.

Peterson, B.C. and B.C. Small. 2008. Endocrine gene responses in fast and slow growing catfish families. N. Amer. J. Aquacult. 70:240-250.

Small, B.C., C.A. Murdock, A.L. Bilodeau-Bourgeois, B.C. Peterson, and G.C. Waldbieser. 2008. Stability of reference genes for real-time PCR analyses in channel catfish (Ictalurus punctatus) tissues under varying physiological conditions. Comp. Biochem. Physiol. B. 151:296-304.

Pearson, P.R., B.C. Small, R.V. Beecham, C.D. Minchew, S.B. LaBarre, and T.D. Sink. 2009. Effects of loading density on golden shiner survival during and after hauling. N. Amer. J. Aquacult. 71:24-29.

Small, B.C. 2009. Evaluation of sodium carbonate peroxyhydrate as a potential catfish egg disinfectant peroxide. J. Aquat. Anim. Health. 21:117-123.

Peterson, B.C., A.L. Bilodeau-Bourgeois and B.C. Small. 2009. Response of the somatotropic axis to alterations in feed intake of channel catfish (Ictalurus punctatus). Comp. Biochem. Physiol. A. 153:457–463.

Small, B.C., S.M.A. Quiniou, and H. Kaiya. 2009. Sequence, genomic organization and expression of two channel catfish, Ictalurus punctatus, ghrelin receptors. Comp. Biochem. Physiol. A. 154:451-464.

Peterson, B.C., B.G. Bosworth and B.C. Small. 2010. Comparison of Growth, Body Composition, and Stress Response of Three Select Lines and Industry Channel Catfish. J. World Aquacult. Soc. 41:156-162.

Wang, S., Peatman, E., Abernathy, J., Waldbieser, G.C., Lindquist, E., Richardson, P., Lucas, S., Wang, M., Li, P., Thimmapuram, J., Liu L., Vullaganti, D., Kucuktas, H., Murdock, C., Small, B.C., Wilson, M., Liu, H., Jiang, Y., Lee, Y., Chen, F., Lu, J., Wang, W., Xu, P., Somridhivej, B., Baoprasertkul, P., Quilang, J., Sha, Z., Bao, B., Wang, Y., Wang, Q., Takano, T., Nandi, S., Liu, S., Wong, L., Kaltenboeck, L., Quiniou, S., Bengten, E., Miller, N., Trant, J., Rokhsar, D., Liu, Z, and the Catfish Genome Consortium. 2010. Assembly of 500,000 inter-specific catfish expressed sequence tags and large scale gene-associated marker development for whole genome association studies. Genome Biology 11:R8.

Peterson,B.C., G.C. Waldbieser, L.G. Riley Jr., K.R. Upton, Y. Kobayashi, B.C. Small. 2012. Pre- and postprandial changes in orexigenic and anorexigenic factors in channel catfish (Ictalurus punctatus). Gen. Comp. Endocrin. 176:213-239.

Tapia, P.J., M.C. Puebla, A. Muñoz, E. Rojas, C.M. Marchant, M.A. Cornejo, M. Futagawa, and B.C. Small. 2012. Evaluation of the cortisol stress response in a marine perciform fish, the San Pedro Oplegnathus Insignis. N. Amer. J. Aquacult. 74:438-442.

Pohlenz, C. A. Buentello, T. Miller, B.C. Small, D.S. MacKenziee, and D. Gatlin III. 2013. Effects of dietary arginine on endocrine growth factors of channel catfish, Ictalurus punctatus. Comp. Biochem. Physiol. B. 166:215-21.

Fenn, C.M., D.C. Glover, and B.C. Small. 2013. Efficacy of Aqui-S® 20E as a sedative for handling and cortisol suppression in pallid sturgeon. N. Am. J. Fish. Manag. 33:1172-1178.

Kittel, E.C. and B.C. Small. 2014. Effect of Altering Dietary Protein: Energy Ratios on Juvenile Pallid Sturgeon Growth Performance. N. Amer. J. Aquacult. 76:28-35.

Nelson, L.R. and B.C. Small. 2014. Stress response in pallid sturgeon Scaphirhynchus albus exposed to high ammonia levels, low dissolved oxygen concentrations, and crowding stress. N. Amer. J. Aquacult. 76:170-177.

Kittel, E.C., W.M. Sealey, and B.C. Small. 2014. Preliminary investigation of dietary soy sensitivity in Shovelnose Sturgeon. J. Appl. Aquacult. 26:256-369.

Fenn, C.M. and B.C. Small. 2015. Exogenous recombinant bovine growth hormone stimulates growth and hepatic IGF expression in shovelnose sturgeon Scaphirhynchus platorhynchus. Comp. Biochem. Physiol. A. 180:18-22.

Schroeter, J. and B.C. Small. 2015. Elucidating the roles of gut hormones on channel catfish appetite, glycemia, and hypothalamic NPY and POMC expression. Comp. Biochem. Physiol. 188:168-174.

Schroeter, J., B.C. Peterson, and B.C. Small. 2016. Development of a multitissue microfluidic dynamic array for assessing changes in gene expression associated with channel catfish Ictalurus punctatus appetite, growth, metabolism, and intestinal health. Aquaculture. 464:213-221.

Fenn, C. M., J. W. Bledsoe and B. C. Small. 2016. Functional characterization of insulin-like growth factors in an ancestral fish species, the Shovelnose sturgeon Scaphirhynchus platorhynchus. Comp. Biochem. Physiol. A. 199:21-27.

Bledsoe, J.W., B.C. Peterson, K.S. Swanson, and B.C. Small. 2016. Ontogenetic Characterization of the Intestinal Microbiota of Channel Catfish Through 16S rRNA Gene Sequencing Reveals Insights on Temporal Shifts and the Influence of Environmental Microbes. PLoS ONE 11(11): e0166379. DOI:10.1371/journal.pone.0166379

Small, B.C., R.W. Hardy, and C.S. Tucker. 2016. Enhancing Fish Performance in Aquaculture. Animal Frontiers. 6(4):42-49.

Nelson, L.R. and B.C. Small. 2016. Effects of season, geographical origin, and Asian carp species on the fillet quality of fish harvested from the Illinois River. SDRP J. Aquacult. Fish. Sci. 1:1-12. DOI: 10.25177/JAFFS.1.1.1

Pali, M., J.E. Garvey, B.C. Small, and I.I. Suni. 2017. Detection of Fish Hormones by Electrochemical Impedance Spectrosscopy and Quartz Crystal Microbalance. Sensing and Bio-Sensing Research. 13:1-8.

Small, B.C., K.B. Davis, and D.C. Glover. 2017. Seasonal differences in steroids and maturation-related genes in channel catfish (Ictalurus punctatus) under normal and accelerated thermoperiods. N. Amer. J. Aquacult. 79:18-26.

Bledsoe J.W., G.C. Waldbieser, K.S. Swanson, B.C. Peterson, and B.C. Small. 2018. Shared environment overcomes host genetic differences in shaping the gut microbiota of distinct fish strains within two species of ictalurid catfish. Frontiers in Microbiology 9:1073. DOI: 10.3389/fmicb.2018.01073

Schroeter, J.C., B.C. Peterson, J.W. Bledsoe, M. Li, and B.C. Small. 2018. Targeted gene panels and microbiota analysis provide insight into the effects of effects of alternative production diet formulations on channel catfish nutritional physiology. Aquaculture. 489:46-55.

Henderson, D.W. and B.C. Small. 2018. Rapid acclimation of the cortisol stress response in adult turquoise killifish Nothobranchius furzeri. Laboratory Animals. https://doi.org/10.1177%2F0023677218793441

Small, B.C. and S.M.A. Quiniou. 2018. Characterization of two channel catfish, Ictalurus punctatus, glucocorticoid receptors and expression following an acute stressor. Comp. Biochem. Physiol. A. 216:42-51.

Small, B.C., S. Quiniou, H. Kaiya, J.W. Bledsoe and B. Musungu. 2019 Characterization of a third ghrelin receptor, GHS-R3a, in channel catfish reveals novel expression patterns and a high affinity for homologous ligand. Comp. Biochem. Physiol. A. 229:1-9. DOI: 10.1016/j.cbpa.2018.11.013

Paul, J. and B.C. Small. 2019. Exposure to environmentally relevant cadmium concentrations negatively impacts early life stages of channel catfish (Ictalurus punctatus). Comp. Biochem. Physiol. C. 216:43-51.

Other:

Small, B.C., W.R. Wolters and T.D. Bates. 2001. Factors affecting catfish egg hatching success. Thad Cochran NWAC News. 4(1):10-11.

Small, B.C. and W.R. Wolters. 2002. Reducing Stress in NWAC103 Catfish. The Catfish Journal. XVII(3):15.

Small, B.C. 2002. Treating eggs with hydrogen peroxide can improve hatching success. NWAC News. 5(2):6-7.

Small, B.C. 2002. Channel Catfish Seedstock: Studies Yield Suggestions for Hatching Success. Global Aquaculture Advocate. 5(6):46-48.

Small, B.C. 2003. Hydrogen Peroxide Treatments Improve Catfish Embryo Survival. Global Aquaculture Advocate. 6(4):29-30.

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Bilodeau, A.L., B.C. Small, W.R. Wolters, and D.J. Wise. 2005. Early Host Response Improves Disease Resistance In Channel Catfish. Global Aquaculture Advocate. 8(3):84-85.

Small, B.C. 2005. Growth Improvements in the USDA103 line: Two generations later. The Catfish Journal. 9(12):11.

Small, B.C., T.D. Bates, and E.L. Torrans. 2007. Optimal conditions pay healthy dividends for catfish hatcheries. Hatchery International Magazine, 8(1):19-20.

Peterson, B.C., B.C. Small, G.C. Waldbieser, and B.G. Bosworth. 2007. B.C. Gene-based markers could aid selective breeding, Global Aquaculture Advocate. 10(5): 93.

Rex Dunham, A.Davis, R.Phelps, T. Tiersch, L. D'Abramo, C. Lessman, B. Simco, B.Bosworth, and B. Small. 2007. Improving Reproductive Efficiency to Produce Channel × Blue Hybrid Catfish Fry. SRAC Twentieth Annual Progress Report. USDA, Cooperative State Research, Education, & Extension Service. p. 46-105. http://srac.msstate.edu/pdfs/APRS%20and%20Summary/APR20%202007.pdf

Small, B.C. 2008. SCP is comparable to hydrogen peroxide as a catfish egg disinfectant, Global Aquaculture Advocate. 11(6):80-81.

Peterson, B.C., B.G. Bosworth, and B.C. Small. 2009. Genetic Response to Selection in Channel

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Bouska, W., D. Glover, J. Garvey, S. Secchi, B. Small, J. Trushenski, G. Whitledge, G. Sass, J. Levengood, B. Roth. 2011. Fishing down the Asian carp in the Illinois River: an overview and update. Newsletter of the Illinois Chapter of the American Fisheries Society 23(1):5-7.

Small, B.C. and E.C. Kittel. 2013. Researching the Physiology and Culture of Scaphirhynchus Sturgeon. Fisheries 38(5):221-223.

Small, B.C., N. Rajagopalan, and K. Quagrainie. 2014. On the Feasibility of Establishing a Saline Aquaculture Industry in Illinois. TR Series (Illinois Sustainable Technology Center); 051, Champaign, IL : Waste Management and Research Center. 34 pp. http://hdl.handle.net/2142/47422.

Grants and Contracts Awarded:

2019-2020 Ohio Soybean Council. Evaluation of soybean-based diets for commercial scale farming of yellow perch and rainbow trout. ($69,939); P.I. V. Kumar, co-PI's B. Small, R. Hardy, S. Lee

2018-2023 NSF-EPSCoR. RII Track-1: Linking Genome to Phenome to Predict Adaptive Responses of Organisms to Changing Landscapes. ($24,000,000 total; $901,225 to Hardy and Small). P.I.: J. Nelson; Co-P.I.'s: C. Baxter, J. Forbey, R. Hardy; Senior Personnel: J. Abatzoglou, S. Benner, J. Brandt, S. Buerki, M. Burnham, C. Caudill, T. Caughlin, M. Davis, D. Delparte, S. Eigenbrode, J. Foster, J. Freemuth, N. Glenn, J. Heath, V. Hillis, P. Hohenlohe, E. Keeley, A. Kliskey, D. Llewellyn, J. Loxterman, C. Miller, S. Novak, J. Rachlow, K. Reinhardt, K. Rodnick, K. Running, L. Sheneman, B. Small, J. Sullivan, L. Waits, H. Wichman

2018-2021 Alltech, Inc. Dietary requirements and metabolic roles of organic and inorganic mineral (Zinc) in a commercial strain of RBT and effects on fillet quality. (299,790); P.I. V. Kumar, co-PI's R. Hardy, B. Small

2018-2020 Soy Aquaculture Alliance. Alternative approach to select the farmed fish strains to enhance the efficiency of soybean meal utilization in their diet. ($124,159); P.I. V. Kumar; co-PIs R. Hardy, B. Small

2018-2019 Enviroflight. Nutritional evaluation of a byproduct of black soldier fly larvae (FBSFL) industry "frass" as a source of carbohydrate for Nile tilapia feed. ($34,806); P.I. V. Kumar, co-PI R. Hardy, B. Small, S. Lee

2018-2019 Oreka Solutions. Establishing novel natural gut health protocols in aquatic animals (rainbow trout and Nile tilapia). ($22,373); P.I. V. Kumar; co-PIs R. Hardy, B. Small. S. Lee

2018-2019 Great Salt Lake Brine Shrimp Cooperative, Inc. Appraisal of novel GSL encapsulated micro-gel diets and/or enhanced particle diets on growth performance, nutrient retention, gut histology and health of white-leg shrimp. ($21,970); P.I. V. Kumar, co-PI's R. Hardy, B. Small

2018-2019 University of Idaho Office of Research and Economic Development. CNR Aquatic Animal Laboratory (AAL) ORED FY19 EIS Infrastructure Support Request. ($38,790). P.I. K. Cain, co-P.I. B. Small

2018-2019 Ajinomoto Animal Nutrition North America. Histidine requirement of rainbow trout for maximum growth and protein retention. ($53,859); P.I. R.W. Hardy, co-PI's B.C. Small, V. Kumar

2018-2019 Guild BioSciences. Immobilized Enzyme Additive Package for Plant-Based Finfish Aquaculture Feed. ($39,988); P.I. B.C. Small, co-PI's V. Kumar, R.W. Hardy

2018-2019 Soy Aquaculture Alliance. Effects of dietary soy replacement on burbot (freshwater cod) growth and immune function: implications for commercial culture of this new and novel species. ($92,998); P.I. K. Cain, co-PIs B. Small, R. Hardy, T. Bruce

2018-2019 Soy Aquaculture Alliance. Balancing Dietary Lipid and Cholesterol to Increase Fillet Omega-3 Deposition in RBT fed a Soy-Based Diet. ($78,806); P.I. B.C. Small

2018-2019 USDA Agricultural Research Service. Technician Support for Riverence Genotyping Project. ($51,770); P.I. B.C. Small

2018-2019	USDA Agricultural Research Service. Characterization of Atlantic Salmon Microbiota and Immune Function Following a Functional Feed Study. ($18,000); P.I. B.C. Small
2018	GeneSys Consulting, LLC dba Sasya, LLC. Fishmeal Alternative From Renewable CO2. ($39,994). P.I. R.W. Hardy, co-PI's B.C. Small, V. Kumar
2018	Ziegler Bros., Inc. Blind Study of Trout Feed Formulations. ($36,589); P.I. B.C. Small, co-PI V. Kumar
2018	USDA-NIFA. Developing critical knowledge of intestinal microbiota and mucosal immune system influence on early fish health using a unique trout model. ($150,000); P.I. B.C. Small, co-PI's R.W. Hardy, K.D. Cain
2018	Sasya, LLC. Partial replacement of fishmeal protein with Sasya single cell protein in feeds for RBT. ($24,227); P.I. R.W. Hardy, Co-PI's: B.C. Small, Kumar, Vikas
2017-2019	USDA Agricultural Research Service. Using Next-gen, High Throughput Genomics to Measure Gene Expression and the Microbiome in Selected Trout Fed Alternate Feed Ingredients. ($578,640); P.I. B.C. Small
2017	Ohio Soybean Council. Production performance, digestibility, gut histology and physiological response to explore the impacts of Enzomeal in RBT and Nile tilapia. (110,999.00) P.I. B.C. Small, co-PI's V. Kumar, R. Hardy.
2017	USDA Agricultural Research Service. Exploring the bacterial microbiota of the skin and gut mucosa of families of Atlantic Salmon. ($15,000); P.I. B.C Small
2017	United Soybean Board/Soy Aquaculture Alliance. Evaluation of the Nutritional Value of International Soybean Meal Supplies in multiple Aquaculture Species. ($25,851); P.I. M.S. Powell, Co-PI's: B.C. Small, G. Gaylord, W. Sealey
2017	Jefo Nutrition Inc. Evaluation of Jefo Protease Complex as a feed supplement to enhance nutrient and energy digestibility of ingredients in feeds for rainbow trout. ($86,927); P.I. R.W. Hardy, Co-PI's: B.C. Small, B. Patro
2017	United Soybean Board/Soy Aquaculture Alliance. Effects of soy proteins on bile acid and taurine status in fish. ($87,255); P.I. R.W. Hardy, Co-PI's: B.C. Small, B. Patro
2017	Evonik Nutrition and Care GmbH. Effect of handling stress on rainbow trout (Oncorhynchus mykiss) fed diets with varying fishmeal and crude protein levels. ($104,249); P.I. R.W. Hardy, Co-PI's: B.C. Small, B. Patro
2016	United Soybean Board/Soy Aquaculture Alliance. Improving aquaculture sustainability by developing rainbow trout with enhanced capacity to utilize omega-3 fatty acids in plant oils to increase EPA and DHA in fillets. ($152,945); P.I. R.W. Hardy, Co-PI's: K. Overturf, B. Small, J. Abernathy.
2014-2016	USDA-NIFA, Northern Regional Aquaculture Center (NRAC) funding program. Establishing Largemouth Bass Strains For Rapid Growth to 1.5 Pounds in the North Central Region. ($155,000); P.I.: B.C. Small, Co-P.I.'s: H. Wang, D. Glover, P. Hitchens
2013-2016	National Science Foundation. REU Site: Convergence Ecology - Research Experience for Undergraduates in Ecological Diversity across Systems and Disciplines. ($353,660); P.I.: Clay Nielson; Co-P.I.: Sara Baer; Senior Personnel: B. Small, E. Holzmueller, J. Schoonover, D. Chen, M. Eichholz, M. Brooks, M. Whiles. M. Therrell, L. Duram, D. Gibson, D. Glover
2013-2014	Intervet Inc (dba Merck Animal Health). Examination of the Effects of Zilpaterol Hydrochloride on Weight Gain, Food Conversion Ratio, Survival, Dressout Characteristics, and Fillet Composition of Tilapia. ($20,000). P.I. B.C. Small
2013	Illinois Sustainable technology Center. On the feasibility of establishing a saline aquaculture industry in Illinois-extension ($2,343); P.I.: B.C. Small
2012-2013	Illinois-Indiana Sea Grant competitive funding program. On the feasibility of establishing a saline aquaculture industry in Illinois. ($25,000); P.I.: N.Rajagopalan, Co-P.I.'s: B. Small, K. Quagrainie
2011-2012	Illinois Soybean Center FY '11 Competitive Soy Support Program. Infrastructure Enhancement to Facilitate Increased Global Soybean Utilization through Research Aimed at Developing Soy-based Sturgeon Feeds and Regional Caviar Markets. ($15,150); P.I.'s: B.C. Small, S. Smith, I. Altman
2011	U.S. Fish and Wildlife Service and the Illinois Department of Natural Resources (DNR), Removal Research Project for The Long-Term Strategy in Reducing And Controlling Asian Carp Populations ($1.5M) P.I.'s: J. Garvey and co-workers; Marketing Sub-Project ($125,000)

Co-P.I.'s: S. Secchi and B.C. Small.

2010-2012 Illinois Soybean Association. Startup Support for Sturgeon Caviar Research at SIU. ($84,675); P.I.'s: B.C. Small, T.A. Winters, K.L. Jones, J.E. Garvey.

2010-2011 Southern Illinois University Office of Research Development and Administration. Catfish Stem-cell xenotransplantation. ($21,920); P.I.: B.C. Small

2009-2010 USDA-ARS research associate competitive funding program. Germ Cell and Testis Transplantation in Catfish. ($100,000); P.I.: B.C. Small

2008-2011 USDA-CREES, Southern Regional Aquaculture Center (SRAC) funding program. Improving Reproductive Efficiency of Cultured Finfish. ($500,000); P.I.: B. Small, Co-P.I.'s: B. Bosworth, A. Davis, K. Davis, R. Dunham, A. Fuller, D. Gatlin, A. Haukenes, R. Lochman, S. Lochman, J. Ludwig, C. Ohs, R. Strange, E. Torrans, G. Waldbieser, C. Watson, P. Zimba

2008 USDA Office of Technology Transfer Professional Activities Award program. Symposium on Fish Growth: Contributions, Trends, and Tools. ($5000); P.I.: B.C. Small

2004-2008 USDA-CREES, Southern Regional Aquaculture Center (SRAC) funding program. Improving Reproductive Efficiency to Produce Channel X Blue Hybrid Catfish Fry. ($460,000); P.I.: R. Dunham, Co-P.I.'s: B. Bosworth, L. D'Abramo, A. Davis, C. Lessman, R. Phelps, B. Simco, B. Small, T. Tiersch

2004-2006 USDA-ARS research associate competitive funding program. Genomic Regulation of the Reproductive Endocrine Axis in Channel Catfish. ($100,000); P.I.: B.C. Small

2004-2005 USDA-CREES, Southern Regional Aquaculture Center (SRAC) Publications, Videos, and Computer Software Project. Disease Management in Catfish Hatcheries. ($2,000); P.I.: B.C. Small

2003-2005 USDA Small Business Innovation Research (SBIR) program. Spawning and Hatchery Management to Improve Hybrid Catfish Production. ($227,530); P.I.: D.R. Yant, CoP.I.: N. Chatakondi, Collaborator: B.C. Small

1999-2000 Maryland agriculture experiment station (MAES) competitive aquacultural grants. Growth hormone-releasing hormone receptor expression in striped bass: physiologic responses and effects on growth. ($35,000); P.I.: G.E. Dahl, CoP.I.s: J.H. Soares and L.C. Woods, Faculty Research Associate: B.C. Small

1996-1997 Maryland agriculture experiment station (MAES) competitive aquacultural grants. The use of appetite stimulants to enhance acceptability of plant feedstuffs by striped bass. ($14,000); P.I.: J.H. Soares, CoP.I.s: B.C. Small and E. Papatryphon

1990-1991 NSF Research Experience for Undergraduates (REU). Processing of choline acetyltransferase. ($4,000); P.I.: J.R. Slemmon, Undergraduate Investigator: B.C. Small

Honors and Awards:

Congressional Legion of Honor, International Congress on the Biology of Fish, Edinburgh, Scotland (2014)
Extra Effort Award, United States Department of Agriculture, Agricultural Research Service; Cash Award: $2000 (2008)
Invited Candidate; Nutritionist, Veterinary Services Department, Georgia Aquarium, Atlanta, GA
Distinguished Early Career Award in U.S. Aquaculture, United States Aquaculture Society, A Chapter of the World Aquaculture Society (2007)
Early Career Research Scientist Award, United States Department of Agriculture, Agricultural Research Service; Cash award: $3000; Research support: $15,000 (2006)
National Scientific Leadership Conference (2004)
USDA Certificate of Merit for Performance as a Research Physiologist; Cash awards: $2000 - $3000 (2000-2009)
Runner-up for Best Paper Award, North American Journal of Aquaculture, Volume 61 (2000)
Sigma Xi (1998)
Gamma Sigma Delta (1996)

SERVICE:

Major Assignments:

International:

Student Presentation Award Committee (Chair); American Fisheries Society Physiology and Culture Sections; Aquaculture 2013 (2013)
American Fisheries Society Award of Excellence Committee (2013)
Student Presentation Award Committee (Chair); American Fisheries Society Physiology Section; 10th International Congress on the Biology of Fish (2012)
Student Presentation Award Committee (Chair); American Fisheries Society Physiology and Culture Sections; Aquaculture 2010 (2010)
Student Travel Award Committee; 2006 International Congress on the Biology of Fishes (2006)

National:
North Central Regional Aquaculture Center Technical Committee (2012-2015)
USAS Achievement Awards Sub-Committee; United States Aquaculture Society (2009)
USGS Upper Midwest Environmental Sciences Center (UMESC) strategic review (Ad-hoc Reviewer) (2007)
Student Presentation Awards Committee; United States Aquaculture Society (2005-2009)
Genetics Information Exchange Group (Facilitator), SERA-IEG-9 (2004)
Student Presentation Awards Committee; United States Aquaculture Society (2002)
Nutrition Information Exchange Group (Facilitator), SERA-IEG-9 (2001)

Institutional:
Fish and Wildlife Sciences Website Committee, UI (2016-present)
College of Natural Resources Wetlab Committee, UI (2016-present)
Idaho EPSCoR Director Search Committee, UI (2018-2019)
University Farm's Leadership Committee, SIU (2014)
i2i Planning Committee, SIU (2014)
Didactic Program in Dietetics (DPD) Instructor Search Committee, SIU (2014)
Department of Plant, Soil, and Agricultural Systems Instructors Search Committee, SIU (2014)
COAS Advisors Search Committee, SIU (2014)
Chancellor's Research Advisory Council, SIU (2014)
Acting Director of the Center for Fisheries, Aquaculture and Aquatic Sciences Search Committee, SIU (2014)
Plant, Soil and Ag Systems Chair Search Committee, SIU (2013)
Forest Recreation Tenure-Track Committee, SIU (2013)
Associate Dean of the College of Agricultural Sciences Search Committee, SIU (2013)
Acting Director of the Cooperative Wildlife Research Laboratory Search Committee, SIU (2013)
Human Nutrition and Dietetics Tenure-Track Search Committee, SIU (2012-2013)
Equine Tenure-Track Search Committee, SIU (2012-2013)
Equine Instructor Search Committee, SIU (2012)
Dean of the College of Agricultural Sciences Search Committee, SIU (2012)
College of Agricultural Sciences Faculty Policy Committee, SIU (2011-2013)
Forest Recreation Land Use Planning Instructor Search Committee, SIU (2011)
Forest Economics Instructor Search Committee, SIU (2011)
Community Forester Search Committee, SIU (2011)
Animal Science, Food and Nutrition (HND) Instructor Search Committee, SIU (2011)
Animal Science Instructor Search Committee, SIU (2011)
Graduate Education Committee, ASFN, SIU (2010-2013)
Silviculture Instructor Search Committee, SIU (2010)
Human Nutrition and Dietetics Tenure-Track Search Committee, SIU (2010)
Human Nutrition and Dietetics Instructor Search Committee, SIU (2010)
CoLead Scientist; USDA, ARS "Genetics, Physiology, and Health Research to Improve Catfish Production" CRIS project ($3.5M) (2008-2009)
Authorized Departmental Officer's Designated Representative (ADODR); USDA-ARS congressionally mandated specific cooperative agreement with the University of Mississippi entitled "Hill Area Aquaculture" ($775,000) (2006-2009)
USDA-ARS Mid-South Area Research Project Peer Review Panel (2004)
Onsite Director of Graduate Student Research; Thad Cochran National Warmwater Aquaculture Center (2002-2004)
Committee to write the "Growth, Development, and Nutrition" program component of the ARS Aquaculture

National Program (106) Action Plan (2002)
Committee to write the "Reproduction and Early Development" program component of the ARS Aquaculture National Program (106) Action Plan (Chair) (2002)
Institutional Animal Care and Use Committee; USDA-ARS Catfish Genetics Research Unit (Chair) (2001-2009)
USDA-ARS Mid-South Area Safety Committee (Unit Safety Officer) (2000-2001)

Professional and Scholarly Organizations:

President, Sigma Xi, Southern Illinois University Chapter (2015)
President, American Fisheries Society Physiology section (2012-2014)
Editorial Board Member, Aquaculture (2010-Present)
Member, American Fisheries Society - Fish Culture (1998-present) and Physiology (2000-present) sections
Member, United States Aquaculture Society (1998-present)
Member, World Aquaculture Society (1998-present)
Member, Sigma Xi (1998-present)
Member, North American Society for Comparative Endocrinology (2011-2012)
President-elect, American Fisheries Society Physiology section (2010-2012)
Advisor, Nature Reader Advisory Panel (2009-2010)
Editorial Board Member, Comparative Biochemistry and Physiology (2007-Present)
Project Leader, Southern Regional Aquaculture Center; "Improving reproductive efficiency of finfish" project (2007-2010)
Member, Catfish Farmers of Arkansas (2000-2010)
Member, Society for Integrative and Comparative Biology (2000-2010)
Member; Joint Subcommittee on Aquaculture's Working Group on Aquaculture Drugs, Biologics and Pesticides (formerly: JSA Working Group on Quality Assurance in Aquaculture Production), (2005-2008)
Associate Editor; North American Journal of Aquaculture (2001-2005)