

# CURRICULUM VITAE

University of Idaho

**NAME:** Brian C. Small

**DATE:** 11/9/2023

**RANK OR TITLE:** Director/Professor

**DEPARTMENT:** Aquaculture Research Institute / Fish and Wildlife Sciences

**OFFICE LOCATION AND CAMPUS ZIP:**

Aquaculture Research Institute  
Hagerman Fish Culture Experiment Station  
3059F National Fish Hatchery Road  
Hagerman, ID 83332

**OFFICE PHONE:** 208-837-9096 ext. 1108

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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 Aquaculture Research Institute, University of Idaho, Hagerman, ID (3/2020 – present)

Director of the Hagerman Fish Culture Experiment Station, Aquaculture Research Institute, University of Idaho, Hagerman, ID (1/2017 – 3/2020)

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, Nutrition, Endocrinology

#### Courses Taught and Developed:

##### University of Idaho:

Fish Physiology, FISH 511 (2020, 2021-present (odd years))  
 Fish Physiology, FISH 411 (2019-present)  
 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:

Daniel Assan, Ph.D. in Natural Resources, U. Idaho (2023-Present)  
 Jose Ortiz, M.S. in Natural Resources, U. Idaho (2021-Present)  
 Jonathan Massingale, Ph.D. in Natural Resources, U. Idaho (2020-Present)  
 Christine Trahan, M.S. in Natural Resources, U. Idaho (2018-Present)  
 Melanie Moffit, Ph.D. in Natural Resources, U. Idaho (2016-Present)  
 Carlie Sharpes, M.S. in Environmental Sciences, U. Idaho (2020-2022)  
 Jeongwhui Hong, Ph.D. in Natural Resources, U. Idaho (2017-2022)  
 Jacob Bledsoe, Ph.D. in Natural Resources, U. Idaho (2016-2020)  
 Jenny Paul, Ph.D., Zoology, Southern Illinois University (2015-2017)  
 Adam Bean, M.S. in Animal Science, Southern Illinois University (2014-2017)  
 Dallas Henderson, M.S. in Animal Science, Southern Illinois University (2014-2016)  
 Jacob Beldsoe, M.S. in Animal Science, Southern Illinois University (2013-2015)  
 Julie Schroeter, M.S. in Animal Science, Southern Illinois University (2013-2015)  
 Carlin Fenn, M.S. in Animal Science, Southern Illinois University (2011-2013)  
 Luke Nelson, M.S., Animal Science, Southern Illinois University (2011-2013)  
 Elliott Kittel, M.S. in Animal Science, Southern Illinois University (2010-2013)  
 Marinela Barrero-Monzón, Ph.D. in Wildlife and Fisheries, Mississippi State University (2003-2006)

##### Served on graduate committee (completion):

Eric Ignatz, Ph.D. in Marine Biology, Memorial University of Newfoundland and Labrador  
 Ayodeji Fagbohun, Ph.D. in Animal Sciences, University of California, Davis  
 Elyse Barker, Ph.D. in Biological Sciences, U. Idaho  
 Nicole Nance, M.S. in Animal Physiology, U. Idaho  
 Brent Vulgar, M.S. in Natural Resources, U. Idaho  
 Nicholas Hoffman, M.S. in Biology, U. Idaho  
 Rance Bare, Ph.D. in Biological Engineering, U. Idaho  
 Neil Ashton, Ph.D. in Natural Resources, U. Idaho  
 Tracy Kennedy, M.S. in Natural Resources, U. Idaho  
 Kimia Kajbaf, Ph.D. in Animal Physiology, U. Idaho (2023)  
 Alexander Wooding, M.S. in Biological Sciences, Idaho State University (2022)  
 Tsung-Yu Tsai, M.S. in Animal Science, U. Idaho (2022)

Sinem Gulen, M.S. in Natural Resources, U. Idaho (2019)  
 Sarah Hanchet, Ph.D. in Natural Resources, U. Idaho (2019)  
 Patrick Blaufuss, Ph.D. in Animal Physiology, U. Idaho (2019)  
 Kevin Kingsland, Ph.D. in Zoology, Southern Illinois University  
 Allison Asher, Ph.D. in Zoology, Southern Illinois University (2019)  
 Anthony Porreca, Ph.D. in Zoology, Southern Illinois University (2017)  
 Artur Rombenso, Ph.D. in Zoology, Southern Illinois University (2016)  
 Megan Czerniejewski, M.S. in Chemistry, Southern Illinois University  
 Tauseef B. Shah, M.S. in Animal Sciences, Southern Illinois University (2015)  
 Saulo Silva, Ph.D. in Agricultural Sciences, Southern Illinois University (2015)  
 Michael Page, M.S. in Zoology, Southern Illinois University (2015)  
 Jennifer Eichelberger, Ph.D. in Zoology, Southern Illinois University (2014)  
 William Hintz, Ph.D. in Zoology, Southern Illinois University (2014)  
 Bonnie Mulligan, M.S. in Zoology, Southern Illinois University (2013)  
 Kenson Kanczuzewski, M.S. in Zoology, Southern Illinois University (2013)  
 Fred Chu, Ph.D. in Zoology, Southern Illinois University (2012)  
 Curtis Crouse, M.S. in Zoology, Southern Illinois University (2012)  
 Patrick Blaufuss, M.S. in Zoology, Southern Illinois University (2011)  
 Matthew Krampe, M.S. in Zoology, Southern Illinois University (2011)

#### Undergraduate Students:

Alexandra Bishop, Fish and Wildlife Sciences, U. Idaho (2022)  
 Rebekah Windover, Fish and Wildlife Sciences, U. Idaho (2021)  
 Victor Azevedo, Fish and Wildlife Sciences, U. Idaho (2021)  
 Veronika Valdez, College of Southern Idaho, U. Idaho (2021)  
 Malulani Jenkins, Fish and Wildlife Sciences, U. Idaho (2020)  
 Ricardo Alvarez, Fish and Wildlife Sciences, U. Idaho (2019)  
 Jose Ortiz, Fish and Wildlife Sciences, U. Idaho (2018-2020)  
 Samanth Kevin, Animal Science, Southern Illinois University (2014-2015)  
 Ashani Hamilton, Animal Science, Southern Illinois University (2013-2014)  
 Chyenne Adams, Zoology, Southern Illinois University (2012-2013)  
 Laura Archdale, Forestry, Southern Illinois University (2012-2013)  
 Julie Schroeter, Animal Science, Southern Illinois University (2011-2013)  
 Jentzi Schumm, Animal Science, Southern Illinois University (2011-2012)  
 Carlin Fenn, Animal Science, Southern Illinois University (2010-2011)  
 Luke Nelson, Zoology, Southern Illinois University (2010-2011)  
 Kira Johnson, Computer Information Sequence, Delta State University (2002-2005)

#### Postdoctoral Trainees:

Marina Supramaniam, U Idaho (2023-Present)  
 Ali Hamidoghli, U Idaho (2023-Present)  
 Nathan Redman, U Idaho (2023-Present)  
 Jeongwhui Hong, U Idaho (2023)  
 Zhongqi Chen, U Idaho (2019-2023)  
 Sakhawat Hossain, U Idaho (2019-2022)  
 Seunghan Lee, U Idaho (2017-2019)  
 Vikas Kumar, U Idaho (2017-2018)  
 Josh Boyce, USDA-ARS and Southern Illinois University Carbondale (2009-2010)  
 Christopher Murdock, USDA-ARS (2004-2006)

#### Visiting Scholars:

Dr. Mo Peng, Associate Professor, Jiangxi Agricultural University, China (2019-2020)  
 Dr. Gang Yang, Assistant Professor, Nanchang University, China (2018-2020)  
 Dr. Abdolsamad Keramat Amirkolaie, Associate Professor, Sari Agricultural University, Iran (2018-2019)  
 Ms. Mariela Puebla, Bioquímico PUCV, Investigador Instituto de Biotecnología de la región de Tarapacá- CORDUNAP, Iquique, Chile (2010)

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

Keynote Speaker, International Conference on Fisheries and Aquaculture, Bali, Indonesia (2023)  
 Invited presentations, focus group discussions and farm visits, Adjara region of the Republic of Georgia, in support of a USDA-FAS Caucasus Agricultural Development Initiative (2022)  
 Invited speaker, US-Japan Natural Resources (UJNR) Aquaculture Panel (2022)  
 Invited speaker, US Soybean Export Council Southeast Asia Aquaculture Technical Broadcast Series (2020)  
 Invited speaker, Fish Nutrition and Feed Technology course, College of Fisheries, Dholi (RPCAU, Bihar, India) (2020)  
 Invited speaker, IV Congreso Argentino de Nutrición Animal, Congreso CAENA 2013, Buenos Aires, Argentina (2013)  
 Invited lecturer, 2-day Fish Nutrition Workshop, The National University of La Plata, Argentina (2013)  
 Invited speaker, Yangtze Fisheries Research Institute, Wuhan, China (2013)  
 Invited speaker, Institute of Hydrobiology, Chinese Academy of Science, Wuhan, China (2013)  
 Invited speaker, China-US Forum on the Innovation for Mandarin-fish and bass/Perch Production, Wuhan, China (2013)  
 Invited lecturer, Workshop on Fish Nutrition, Asociación de la Cadena de la Soja Argentina, Posadas, Argentina (2012)  
 Invited expert testimony, Argentine National Congress, Buenos Aires, Argentina (2012)  
 Keynote speaker, Seminario de Biotecnología, Instituto de Biotecnología de Tarapaca / CORDUNAP, Inquique, Chile (2010)  
 Invited speaker, symposium on Endocrine Regulation of Feeding and Growth in Fish, 6th International Symposium on Fish Endocrinology (2008)  
 Invited speaker, Special Program for Trainees, 6th International Symposium on Fish Endocrinology (2008)  
 Invited Speaker, Immunology and the Endocrine System, 5th International Symposium on Fish Endocrinology (2004)

**National:**

US Trout Farmers Association Fall Meeting, Hershey, PA (2023)  
 US Trout Farmers Association Fall Meeting, Twin Falls, ID (2022)  
 US Trout Farmers Association Fall Meeting, Branson, Missouri (2021)  
 US Trout Farmers Association Fall Meeting, Twin Falls, ID (2018)  
 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:**

Idaho Aquaculture Association meeting, Twin Falls, ID (2023)  
 Coldwater Aquaculture Workshop 2022, Hagerman, ID (2022)  
 Sand Point Rotary Club, ID (2022)  
 Coeur d'Alene Rotary Club, ID (2021)  
 Twin Falls Rotary Club, ID (2021)  
 Hemingway Trout Unlimited, Ketchum, ID (2021)  
 ICAFS BroodStock Management Workshop 2020, Coeur d'Alene, ID (2020)  
 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:**

Paul Harris Fellow, The Rotary Foundation of Rotary International (2020)  
 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.

Small, B.C. 2022. Nutritional Physiology. Pages 593-642 in: Hardy, R.H., S.J. Kaushik (Eds), *Fish Nutrition*, 4th Edition. Academic Press, London.

Small, B.C. and A. Hamidoghli. 2023. Bioenergetics in Aquaculture Settings, in S. Alderman and T. Gillis, editors. *Encyclopedia of Fish Physiology*, 2nd Edition. Elsevier Science Publishers, Amsterdam, The Netherlands. <https://doi.org/10.1016/B978-0-323-90801-6.00079-3>

Bledsoe, J.W., Small, B.C. 2023. Finfish Microbiota and Direct-Fed Microbial Applications in

Aquaculture. In: Callaway, T.R., Ricke, S.C. (eds) Direct-Fed Microbials and Prebiotics for Animals. Springer, Cham. [https://doi.org/10.1007/978-3-031-40512-9\\_10](https://doi.org/10.1007/978-3-031-40512-9_10)

**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. Kawachi, 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 IGF-BPs 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 *Edwardsiella 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 nycthemeral 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. Waldbieser, 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 somatotrophic axis to alterations in feed intake of channel catfish (*Ictalurus punctatus*). *Comp. Biochem. Physiol. A.* 153:457-463.
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- Small, B.C. 2020. Soybean antinutritional factors and strategies for improving soy utilization in sensitive fishes. U.S. Soybean Export Council (USSEC), Technical Bulletin.

#### **Patent Applications and Invention Disclosures:**

- Hong, J. Iassonova, D., and Small, B. U.S. Patent Application No.: PCT/US2022/079475. HIGH PLANT PUFA FISH FOOD (Filed November 8, 2022)

#### **Grants and Contracts Awarded:**

- 2023-2024 The Andersons. (\$64,535); P.I. B.C. Small coPI: Ali Hamidoghli
- 2023-2024 USDA Agricultural Research Service. (\$57,961); P.I. B.C. Small
- 2023-2024 Nuseed, (\$57,523); P.I. B.C. Small, co-PI: V. Kumar
- 2023-2024 Columbia River Inter-Tribal Fish Commission. (\$955,240); P.I. B.C. Small
- 2022-2023 University of Kansas. (\$61,769); P.I. J. Bledsoe coPI: B.C. Small
- 2022-2023 USDA Agricultural Research Service. (\$62,018); P.I. B.C. Small
- 2022-2023 USDA Foreign Agriculture Service. (\$94,295); P.I. B.C. Small coPIs: J. Bledsoe, Madison Powell
- 2022-2023 Marquis Energy. (\$69,310); P.I. B.C. Small
- 2022-2023 US Fish & Wildlife Service. (\$22,000); P.I. B.C. Small
- 2022-2023 USDA Agricultural Research Service. (\$18,000); P.I. B.C. Small
- 2022 Ziegler Bros., Inc. (\$23,904); P.I. B.C. Small
- 2022 Columbia River Inter-Tribal Fish Commission. (\$1,013,161); P.I. B.C. Small
- 2022 Ohio Soybean Council (\$105,031); P.I. V. Kumar, CoP.I. B.C. Small
- 2021-2023 Soy Aquaculture Alliance, (\$290,543); P.I. V. Kumar, CoP.I. B.C. Small
- 2021-2022 USDA Agricultural Research Service. (\$62,018). P.I. B.C. Small
- 2021-2022 Nuseed, (\$57,523); P.I. B.C. Small

- 2021-2022 Ohio Soybean Council (\$60,948); P.I. V. Kumar, CoP.I. B.C. Small
- 2021-2022 Beta Hatch, (\$63,748); P.I. B.C. Small
- 2021-2022 USDA Agricultural Research Service. (\$59,998); P.I. B.C. Small
- 2021-2022 USDA Agricultural Research Service. (\$18,000); P.I. B.C. Small
- 2021-2022 Merk Animal Health, (\$47,799); P.I. B.C. Small
- 2021-2022 Columbia River Intertribal Fish Commission, (\$1,013,161); P.I. B.C. Small
- 2021-2022 Cargill. (\$76,104); P.I. B. Small and K. Overturf
- 2020-2022 Illinois Corn Marketing Board, National Corn Ethanol Research Center subaward. (\$57,174); P.I. B.C. Small
- 2020-2021 Prairie Aquatech. (\$55,311); P.I. B.C. Small
- 2020-2021 Ziegler Bros., Inc. (\$35,567); P.I. B.C. Small
- 2020-2021 USDA Agricultural Research Service. (\$29,797); P.I. B.C. Small
- 2020-2021 USDA Agricultural Research Service. (\$18,000); P.I. B.C. Small
- 2019-2024 USDA Agricultural Research Service (\$1,446,600); P.I. B. Small.
- 2019-2020 Cargill. (\$59,999); P.I. B. Small and K. Overturf
- 2019-2020 Ohio Soybean Council. (\$69,939); P.I. V. Kumar, co-PI's B. Small, R. Hardy, S. Lee
- 2019-2020 Ziegler Bros., Inc. (\$68,852); P.I. B.C. Small
- 2018-2023 NSF-EPSCoR. RII Track-1. (\$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. (299,790); P.I. V. Kumar, co-PI's R. Hardy, B. Small
- 2018-2020 Soy Aquaculture Alliance. (\$124,159); P.I. V. Kumar; co-PIs R. Hardy, B. Small
- 2018-2019 Ziegler Bros., Inc. (\$68,852); P.I. B.C. Small
- 2018-2019 Enviroflight. (\$34,806); P.I. V. Kumar, co-PI R. Hardy, B. Small, S. Lee
- 2018-2019 Oreka Solutions. (\$22,373); P.I. V. Kumar; co-PIs R. Hardy, B. Small. S. Lee
- 2018-2019 Great Salt Lake Brine Shrimp Cooperative, Inc. (\$21,970); P.I. V. Kumar, co-PI's R. Hardy, B. Small
- 2018-2019 University of Idaho Office of Research and Economic Development. (\$38,790). P.I. K. Cain, co-P.I. B. Small
- 2018-2019 Ajinomoto Animal Nutrition North America. (\$53,859); P.I. R.W. Hardy, co-PI's B.C. Small, V. Kumar
- 2018-2019 Guild BioSciences. (\$39,988); P.I. B.C. Small, co-PI's V. Kumar, R.W. Hardy
- 2018-2019 Soy Aquaculture Alliance. (\$92,998); P.I. K. Cain, co-PIs B. Small, R. Hardy, T. Bruce
- 2018-2019 Soy Aquaculture Alliance. (\$78,806); P.I. B.C. Small
- 2018-2019 USDA Agricultural Research Service. (\$51,770); P.I. B.C. Small
- 2018-2019 USDA Agricultural Research Service. (\$18,000); P.I. B.C. Small
- 2018 GeneSys Consulting, LLC dba Sasya, LLC. (\$39,994). P.I. R.W. Hardy, co-PI's B.C. Small, V. Kumar
- 2018 Ziegler Bros., Inc. (\$36,589); P.I. B.C. Small, co-PI V. Kumar
- 2018 USDA-NIFA. (\$150,000); P.I. B.C. Small, co-PI's R.W. Hardy, K.D. Cain
- 2018 Sasya, LLC. (\$24,227); P.I. R.W. Hardy, Co-PI's: B.C. Small, Kumar, Vikas
- 2017-2019 USDA Agricultural Research Service. (\$578,640); P.I. B.C. Small
- 2017 Ohio Soybean Council. (110,999.00) P.I. B.C. Small, co-PI's V. Kumar, R. Hardy.
- 2017 USDA Agricultural Research Service. (\$15,000); P.I. B.C. Small
- 2017 United Soybean Board/Soy Aquaculture Alliance. (\$25,851); P.I. M.S. Powell, Co-PI's: B.C. Small, G. Gaylord, W. Sealey
- 2017 Jefe Nutrition Inc. (\$86,927); P.I. R.W. Hardy, Co-PI's: B.C. Small, B. Patro
- 2017 United Soybean Board/Soy Aquaculture Alliance. (\$87,255); P.I. R.W. Hardy, Co-PI's: B.C. Small, B. Patro
- 2017 Evonik Nutrition and Care GmbH. (\$104,249); P.I. R.W. Hardy, Co-PI's: B.C. Small, B. Patro
- 2016 United Soybean Board/Soy Aquaculture Alliance. (\$152,945); P.I. R.W. Hardy, Co-PI's: K. Overturf, B. Small, J. Abernathy.
- 2014-2016 USDA-NIFA, (\$155,000); P.I.: B.C. Small, Co-P.I.'s: H. Wang, D. Glover, P. Hitchens
- 2013-2016 National Science Foundation. REU Site. (\$353,660); P.I.: Clay Nielson; Co-P.I.: Sara Baer; Senior Personnel: B. Small, E. Holzmuller, 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). (\$20,000). P.I. B.C. Small
- 2013 Illinois Sustainable technology Center. (\$2,343); P.I.: B.C. Small
- 2012-2013 Illinois-Indiana Sea Grant competitive funding program. (\$25,000); P.I.: N.Rajagopalan, Co-P.I.'s: B. Small, K. Quagraine
- 2011-2012 Illinois Soybean Center FY '11 Competitive Soy Support Program. (\$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). (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. (\$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. (\$21,920); P.I.: B.C. Small
- 2009-2010 USDA-ARS research associate competitive funding program (\$100,000); P.I.: B.C. Small
- 2008-2011 USDA-CREES, Southern Regional Aquaculture Center (SRAC) funding program (\$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. Torrains, G. Waldbieser, C. Watson, P. Zimba
- 2008 USDA Office of Technology Transfer Professional Activities Award program. (\$5000); P.I.: B.C. Small
- 2004-2008 USDA-CREES, Southern Regional Aquaculture Center (SRAC) funding program. (\$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. (\$100,000); P.I.: B.C. Small
- 2004-2005 USDA-CREES, Southern Regional Aquaculture Center (SRAC) Publications, Videos, and Computer Software Project. (\$2,000); P.I.: B.C. Small
- 2003-2005 USDA Small Business Innovation Research (SBIR) program. (\$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. (\$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. (\$14,000); P.I.: J.H. Soares, CoP.I.s: B.C. Small and E. Papatryphon
- 1990-1991 NSF Research Experience for Undergraduates (REU). (\$4,000); P.I.: J.R. Slemmon, Undergraduate Investigator: B.C. Small

### **Honors and Awards:**

Paul Harris Fellow, The Rotary Foundation of Rotary International (2020)

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:**

Presentation Award Committee, International Conference on Fisheries and Aquaculture, Bali, Indonesia (2023)  
 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:**

Board of Directors, Western Regional Aquaculture Center (2023-Present)  
 Chair, Executive Committee, Western Regional Aquaculture Center (2022-2023)  
 Ocean Resources Enhancement and Hatchery Program (OREHP) Scientific Advisory Committee (SAC), State of California, Department of Fish and Game (2022)  
 Coordinating Committee, National Animal Nutrition Program (NANP), National Research Support Project (NRSP-9) (2021-present)  
 Panel Manager, USDA-NIFA Animal Nutrition, Growth and Lactation (A1231) panel (2021 & 2022)  
 Western Regional Aquaculture Center Executive Committee (2020-present)  
 USDA-ARS Evaluation Panel for Research Leader Search, Small Grains and Potato Germplasm Research Unit in Aberdeen, ID (2020-2021)  
 USDA-ARS Evaluation Panel for Fish Nutritionist search, Trout Grains Program, Bozeman, MT (2020)  
 Western Regional Aquaculture Center Technical Committee (2018-present)  
 Feed Composition Committee, National Animal Nutrition Program (NANP), National Research Support Project (NRSP-9) (2015-present)  
 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:**

University of Idaho Leadership Forum (2023-Present)  
 University of Idaho Research Council, UI (2022-Present)  
 President's Magic Valley Center Working Group, UI (2022-2023)  
 College of Natural Resources Leadership Plus committee, UI (2020-Present)  
 Dean Search Committee, College of Natural Resources, UI (2020)  
 EPSCoR Director Search Committee, UI (2020)  
 Fish and Wildlife Sciences Website Committee, UI (2016-2019)  
 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:**

Review Editor; Frontiers in Animal Science – Animal Nutrition (2020-present)  
 President, Sigma Xi, Southern Illinois University Chapter (2015)  
 President, American Fisheries Society Physiology section (2012-2014)  
 Editorial Board Member, Aquaculture (2010-2023)  
 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)