CURRICULUM VITAE

David James Coughlin

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EDUCATION

1987-91 Ph.D. in Marine Biology, Boston University Marine Program. (Supervisor: Prof. J. Rudi Strickler)

1989 Master of Arts in Biology, Boston University.

1983-86 Bachelor of Science in Biology, St. Louis University; *summa cum laude*. (Supervisor: Prof. Nevin Aspinwall)

EXPERIENCE

Sept 2006- Professor of Biology, Widener University, Chester, PA. Teaching Comparative Vertebrate Anatomy, Mammalian Anatomy, Animal Physiology, Introductory Biology, Research Methods, Biomechanics, Values Seminar and various laboratories. Research interests: molecular basis of variations in muscle function; muscle function during locomotion; and the energetics of swimming mode.

2017-2019 Cynthia H. Sarnoski Science Faculty Fellow, Widener University, Chester, PA.

2004-2009 Biology Coordinator / Chair, Widener University, Chester, PA.

2000-2006 Associate Professor of Biology, Widener University, Chester, PA.

1995-2000 Assistant Professor of Biology, Widener University, Chester, PA.

1994-1995 Assistant Professor of Biology, La Salle University, Philadelphia, PA. One-year replacement position to teach Marine Biology, Zoology, Ecology, Environmental Biology, Biostatistics and participating in anatomy and physiology laboratories.

1993-1994 NIH Postdoctoral Fellow at the Marine Biological Laboratory, Woods Hole, MA, and the University of Pennsylvania, Philadelphia, PA. Studied muscle during swimming in fish. (Prof. Lawrence Rome).

1992-1993 NSF - NATO Postdoctoral Fellow at the University of Victoria, Victoria, B.C. Examined visual coding by the retina of salmonids (Prof. Craig Hawryshyn).

1991-1992 NSERC Postdoctoral Fellow at University of Victoria. Researched vision and swimming and feeding behavior of young salmon (Prof. Craig Hawryshyn).

Membership in Society for Integrative and Comparative Biology, Society for Experimental Biology, American Physiological Society and Sigma Xi. Member of *Phi Beta Kappa*, *Phi Kappa Phi*, *Alpha Sigma Nu* and *Beta Beta Beta* honorary societies.

GRANTS

1995-2020 2022-present	Annual funding from Widener University Provost Grant and Faculty Development Grant programs
2018	National Science Foundation Research in Undergraduate Institutions Grant. Collaborative Project: How energy economy and muscle properties shape fish swimming strategies in the field Widener Budget, 3 yrs, $173,000)
2004	National Science Foundation Research Experiences for Undergraduates. Supplemental funding for NSF-RUI Grant (1 yr, $9,750)
2003	National Science Foundation Research Experiences for Undergraduates. Supplemental funding for NSF-RUI Grant (1 yr, $6,000)
2002	National Science Foundation Research Experiences for Undergraduates. Supplemental funding for NSF-RUI Grant (1 yr, $10,250)
2001	National Science Foundation Research in Undergraduate Institutions Operating Grant. Project: Molecular Mechanisms for Physiological Variations in the Swimming Musculature of Fishes (3 yrs, $140,000)
1999	National Science Foundation Research Experiences for Undergraduates. Supplemental funding for NSF-RUI Grant. (1 yr, $5,000)
1997	National Science Foundation Research in Undergraduate Institutions Operating Grant. Project: Swimming in Rainbow Trout: Ontogeny and Muscle Function. (3 yrs, $99,500)
1993	National Institute of Health Postdoctoral Fellowship. Project: Design of White Muscle in Fish (2 yrs, $58,500)
1992	Medical Research Council of Canada Fellowship. Project: Developmental Changes in Retinal Color Coding in Fish. (3 yrs, Can$ 96,000, declined)
1992	NSF-NATO Fellowship. Project: Polarized light vision in fishes. (1 yr, $36,000)
1989	Olin Fellowship from the Atlantic Salmon Federation. Project: Ontogenetic development of feeding behavior in larval fish. ($2,000.00)

THESES

Coughlin, D.J. 1991. The ontogeny of feeding behavior of larval fishes. Ph.D. Dissertation, Boston University (Prof. J.R. Stickler).

Coughlin, D.J. 1986. A comparative study of the courtship behavior of two sympatric species of African killifish, Genus *Aphyosemion*. B.S. Thesis, St. Louis University (Prof. N. Aspinwall).

PUBLICATIONS (peer reviewed, undergraduate authors underlined)

Coughlin, D.J., K. Santarcangelo, E. B. Wilcock, D. Tum Suden, and D. J. Ellerby, D. J. 2023. Muscle power production during intermittent swimming in bluegill. *Journal of Experimental Zoology Part A, Ecological and Integrative Physiology.*

Moran, C. J., D. J. Coughlin, K. E. Jebb, L. Travitz and S. P. Gerry. 2023. Impacts of thermal acclimatization on fish skeletal muscle. *Comparative Biochemistry and Physiology Part A* 280: 111409.

Olsen, L., M. Levy, J. K. Medley, H. Hassan, Alexander, R., Wilcock, E., … D. J. Coughlin and N. Rohner. 2023. Metabolic reprogramming underlies cavefish muscular endurance despite selective loss of muscle mass and contractility. *Proceedings of the National Academy of Sciences* 120, e2204427120.

PUBLICATIONS (peer reviewed, cont'd)

Coughlin, D. J., K. A. Hittle, M. Kitchin, E. S. Kwon, E. McCann, A. Scheerer, and E. B. Wilcock. 2023. Thermal acclimation in brook trout myotomal muscle varies with fiber type and age. *Comparative Biochemistry and Physiology Part A* 276: 111354.

Gabler-Smith, M., F. Fish, D. Coughlin. 2022. Morphological and histochemical characterization of the pectoral fin muscle of batoids. *J. Morphology* 2022: e21548.

Coughlin, D.J., Chrostek, J.D. and Ellerby, D.J. 2022. Intermittent propulsion in largemouth bass, *Micropterus salmoides*, increases power production at low swimming speeds. *Biol. Lett*. 18: 20210658.

Fouladi, K. and D. J. Coughlin. 2021. CFD Investigation of Trout-Like Configuration Holding Station near an Obstruction. *Fluids* 6: fluids6060204.

Hittle, K. A., E. S. Kwon and D. J. Coughlin. 2021. Climate change and anadromous fish: how does thermal acclimation affect the mechanics of myotomal muscle of Atlantic salmon, *Salmo salar*? *Journal Experimental Zoology* 335(3): 311-318.

Currier, M., J. Rouse and D. J. Coughlin. 2020. Group swimming behaviour and energetics in bluegill *Lepomis macrochirus* and rainbow trout *Oncorhynchus mykiss. Journal of Fish Biology* 98: jfb14641.

Moran, C. J., K. E. Jebb, L. S. Travitz, D. J. Coughlin and S. P. Gerry. 2020 Thermal acclimation leads to variable muscle responses in two temperate labrid fishes. *Journal of Experimental Biology* 223: jeb235226.

Coughlin, D. J., L.T. Wilson, E. S. Kwon, L. S. Travitz. 2020. Thermal acclimation of rainbow trout myotomal muscle, can trout acclimate to a warming environment? *Comparative Biochemistry and Physiology, Part A* 245: 110702.

Coughlin, D. J., L.K. Nicastro, P.J. Brookes, M.A. Bradley, J.L. Shuman, E.R. Steirer, H.L. Mistry. 2019. Thermal acclimation and gene expression in rainbow smelt: Changes in the myotomal transcriptome in the cold. *Comparative Biochemistry and Physiology, Part D Genomics and Proteomics* 31: 100610.

Shuman, J. L and D. J. Coughlin. 2018. Red muscle function and thermal acclimation to cold in rainbow smelt, *Osmerus mordax*, and rainbow trout, *Oncorhynchus mykiss*. *Journal Experimental Zoology* 329(10): 547-556.

Lykens, N. M., D. J. Coughlin, J. M. Reddi, G. J. Lutz and M. K. Tallent. 2017. AMPA GluA1-flip targeted oligonucleotide therapy reduces neonatal seizures and hyperexcitability. *PLoS ONE* 12(2): e0171538.

Goodrich, K., L. Ortiz and D. J. Coughlin. 2016. Unusual twig "twistiness" in pawpaw (*Asimina triloba*) provides biomechanical protection for distal foliage in high winds. *American Journal of Botany* 103(11): 1872-1879.

Coughlin, D. J., G.M. Long, N. L. Gezzi, P. M. Modi and K. N. Woluko. 2016. Elevated Osmolytes in rainbow smelt: the effects of urea, glycerol and trimethylamine oxide on muscle contractile properties. *Journal of Experimental Biology* 219: 1014-1021.

Coughlin, D. J., L. P. Shiels, S. Nuthakki and J. L. Shuman. 2016. Thermal acclimation to cold alters myosin content and contractile properties of rainbow smelt, *Osmerus mordax*, red muscle. *Comparative Biochemistry and Physiology, Part A* 196: 46–53.

Coughlin, D. J. and M. Akhtar. 2015. Contractile properties of the myotomal muscle of sheepshead, *Archosargus probatocephalus Journal of Experimental Zoology* 323:169-178.

PUBLICATIONS (peer reviewed, cont'd)

PUBLICATIONS (peer reviewed, cont'd)

Woytanowski, J. R. and D. J. Coughlin. 2013. Thermal acclimation in rainbow smelt, *Osmerus mordax*, leads to faster myotomal muscle contractile properties and improved swimming performance. *Biology Open* 2**:** 343–350.

Campion, L., S. Choi, H. L. Mistry and D. J. Coughlin. 2012. Myosin heavy chain and parvalbumin expression in swimming and feeding muscles of *Centrarchid* fishes: the molecular basis of the scaling of contractile properties. *Comparative Biochemistry and Physiology, Part A* 163: 223–230.

Cook, C. L. and D. J. Coughlin. 2010. Rainbow trout *Oncorhynchus mykiss* consume less energy when swimming near obstructions. *Journal of Fish Biology* 77: 1716-1723.

Schoenman, E. R., J. A. Chiaro, A. Jones, L. D. Bastin, D. J. Coughlin. 2010. A Comparative Analysis of Parvalbumin Expression in Pinfish (*Lagodon rhomboides*) and Toadfish (*Opsanus* sp.). *Comparative Biochemistry and Physiology, Part A* 155: 91–99.

Carroll, A.M., A. M. Ambrose, T. A. Anderson and D. J. Coughlin. 2009. Feeding muscles scale differently from swimming muscles in sunfish (Centrarchidae). *Biol. Letters* 5: 274-277.

Donato, M. E., J. Schiavi, A. D. Ulerich, F. E. Weaver and D. J. Coughlin. 2008. Myosin Regulatory Light Chain Expression in Trout Muscle. *Journal of Experimental Zoology* 309A:64–72

Coughlin, D. J., S. Solomon and J. L. Wilwert. Parvalbumin Expression in Trout Swimming Muscle Correlates with Relaxation Rate. 2007. *Comparative Biochemistry and Physiology, Part A* 147: 1074–1082.

Coughlin, D. J. and A. M. Carroll. 2006. *in vitro* Estimates of Power Output by Epaxial Muscle During Feeding in Largemouth Bass. *Comparative Biochemistry and Physiology, Part A* 145: 533-539.

Wilwert, J. L., N. M. Madhoun and D. J. Coughlin. 2006. Parvalbumin correlates with relaxation rate in the swimming muscle of sheepshead and kingfish . *Journal of Experimental Biology* 209: 227-237.

Coughlin, D. J., N. D. Caputo, K. L. Bohnert and F. E. Weaver. 2005. Troponin T Expression in Trout Red Muscle Correlates with Muscle Activation. *Journal of Experimental Biology* 208: 409-417.

Coughlin, D. J., A. Spiecker and J. M. Schiavi. 2004. Aerobic Muscle in Salmonids: Muscle Recruitment during Steady Swimming Correlates with Rostral-Caudal Patterns of Power Production. *Comparative Physiology and Biochemistry, Part A* 137: 151-160.

Coughlin, D. J. 2002. A Molecular Mechanism for Variations in Muscle Function in Rainbow Trout. *Integrative and Comparative Biology* 42: 190-198. (*invited*).

Coughlin, D. J. 2002. Aerobic Muscle Function During Steady Swimming in Fishes. Fish and Fisheries 3: 63-78. *(invited review article)*.

Thys T. M., J. M. Blank, D.J. Coughlin and F. H. Schachat. 2001. Longitudinal variation in muscle protein expression and contraction kinetics of largemouth bass axial muscle. *Journal of Experimental Biology* 204: 4249-4257.

Weaver, F. A., K. A. Stauffer and D. J. Coughlin. 2001. Myosin heavy chain expression in the red muscle of juvenile Rainbow Trout. *Journal of Experimental Zoology* 290 (7): 751-758.

Coughlin, D.J., J. A. Forry, S. M. McGlinchey, J. Mitchell, K. A. Saporetti and K. A. Stauffer. 2001. Thyroxine induces transitions in red muscle kinetics and steady swimming kinematics in rainbow trout (*Oncorhynchus mykiss*). *Journal of Experimental Zoology* 290: 115-124.

McGlinchey, S. M., K. A. Saporetti, J. A. Forry, J. A. Pohronezny and D.J. Coughlin. 2001. Red muscle function during steady swimming in brook trout, *Salvelinus fontinalis*. *Comparative Biochemistry and Physiology* 129: 727-738.

PUBLICATIONS (peer reviewed, cont'd)

Coughlin, D.J., J. Burdick, K. E. Stauffer and F.E. Weaver. 2001. Rainbow trout display a developmental shift in red muscle kinetics, swimming kinematics and myosin heavy chain isoform. *Journal of Fish Biology* 58: 701-715.

Coughlin, D.J. 2000. Power production during steady swimming in largemouth bass and rainbow trout. *Journal of Experimental Biology* 203: 617-629.

Rome, L.C., D. Swank and D.J. Coughlin. 2000. The influence of temperature on power production during swimming II. Mechanics of red muscle fibres *in vivo*. *Journal of Experimental Biology* 203: 333-345.

Coughlin, D.J. and L.C. Rome.1999. Recruitment of pink and red muscle in swimming scup varies with temperature and swimming speed. *Biological Bulletin* 196: 145-152.

Coughlin, D.J., L. Valdes and L.C. Rome. 1996. Muscle length changes during swimming in scup: sonomicrometry verifies the anatomical high-speed ciné technique. *Journal of Experimental Biology* 199: 459-463.

Coughlin, D.J., G. Zhang and L.C. Rome. 1996. Contraction kinetics and power production by pink muscle of the scup (*Stenotomus chrysops*). *Journal of Experimental Biology* 199: 2703-2712.

Coughlin, D.J. and L.C. Rome. 1996. (*invited*) The roles of pink and red muscle in powering steady swimming in scup (*Stenotomus chrysops*). *American Zoologist* 36: 666-677.

Coughlin, D.J., and C.W. Hawryshyn. 1995. A cellular basis for polarized light vision in rainbow trout. *Journal of Comparative Physiology A* 176(2): 261-272.

Coughlin, D.J. 1994. Suction prey capture by clownfish (*Amphiprion perideraion*) larvae. *Copeia* 1994(1): 100-104.

Coughlin, D.J., and C.W. Hawryshyn. 1994. Contribution of short and ultraviolet cone mechanisms to color vision in rainbow trout, *Oncorhynchus mykiss*. *Brain, Behavior and Evolution* 43: 219-232.

Coughlin, D.J., and C.W. Hawryshyn. 1994. Ultraviolet sensitivity in the torus semicircularis of rainbow trout (*Oncorhynchus mykiss*). *Vision Research* 34(11): 1407-1413.

Coughlin, D.J. 1993. Prey location space in pink clownfish (*Amphiprion perideraion*) larvae. *Journal of Plankton Research* 15: 117-123.

Bundy, M.H., T.F. Gross, D.J. Coughlin and J.R. Strickler. 1993. Quantifying copepod searching efficiency using swimming pattern and perceptive ability. *Bulletin of Marine Science* 53: 15-28.

Hwang, J.-S., J.T. Turner, J.H. Costello, D.J. Coughlin and J.R. Strickler. 1993. A cinematographic comparison of behavior by the calanoid copepod *Centropages hamatus* Lilljeborg: Tethered versus free-swimming animals. *Journal of Experimental Marine Biology and Ecology* 167: 277-288.

Trager, G.C., D.J. Coughlin, A. Genin, Y. Achituv and A. Gangopadayhy. 1992. Foraging to the rhythm of ocean waves: porcelain crabs and barnacles synchronize feeding motions with flow oscillations. *Journal of Experimental Marine Biology and Ecology* 164: 73-86.

Coughlin, D.J., J.R. Strickler and B. Sanderson. 1992. Swimming behavior and search patterns in first feeding clownfish (*Amphiprion perideraion*) larvae. *Animal Behavior* 44: 427-440.

Fourcassie, V., D.J. Coughlin and J.F.A. Traniello. 1992. Fractal analysis of search patterns in ants. *Naturwissenschaften* 79: 87-89.

Coughlin, D.J. 1991. The ontogeny of feeding behavior in first feeding Atlantic salmon (*Salmo salar*) alevins. *Canadian Journal of Fisheries and Aquatic Sciences* 48: 1896-1904.

Coughlin, D.J. and J.R. Strickler. 1990. Zooplankton capture by a coral reef fish: an adaptive response to evasive prey. *Environmental Biology of Fishes* 29: 35-42.

PUBLICATIONS (book chapter)

Coughlin, D. J. 2003. Steady Swimming by Fishes: Kinetic Properties and Power Production by the Aerobic Musculature. Pages 55-72 in *Fish Adaptations* (eds. B. G. Kapoor and A. L. Val). Science Publishers, Inc., Plymouth, UK.

SYMPOSIA

Foraging During the Early Life History of Fishes. Organized by D.J. Coughlin for the May 1994 Ecological and Evolutionary Ethology of Fishes Meeting, University of Victoria, Victoria, B.C.

ABSTRACTS (presentations with published abstracts)

Moore, C., D. J. Coughlin, A. Pfister, Z. Reynolds, D. J. Ellerby, and B. M. Wood. 2023. Intermittent Swimming Kinematics of Bluegill Sunfish (Lepomis macrochirus): Energetics Versus Maneuverability. Presented at SEB, Edinburgh, Scotland, July 2023.

Coughlin, D. J., E. Peyton and Jalen Wright. 2023. Thermal acclimation studies in brook trout: Can they predict the fate of native fish? Presented at SEB, Edinburgh, Scotland, July 2023.

Coughlin, D. J. 2023. Seeing Fishes in Nature Informs Studies of Muscle Function During Locomotion. Presented at ASLO, Palma, Mallarca, Spain, June 2023.

Coughlin, D. J., K. Santarcangelo, E. B. Wilcock, D. Tum Suden and D. J. Ellerby. 2022. Muscle Power Production during Intermittent Swimming in Bluegill. Presented at SEB, Montpelier, FR, July 2022.

Coughlin, D. J., and M. Dutterer. 2022. Intermittent Swimming and Muscle Power Output in Brook Trout, *Salvelinus fontinalis*. Presented at SICB, January 2022.

Coughlin, D. J., K. Santarcangelo, E. B. Wilcock and D. J. Ellerby. 2021. Muscle Power Production during Intermittent Swimming in Bluegill. Presented at SICB – Virtual, January 2021.

Coughlin, D. J., J D. Chrostek and D. J. Ellerby. 2020. Intermittent Propulsion in Largemouth Bass. Presented at SICB, Austin, TX, January 2020.

Coughlin, D. J. 2020. Thermal Acclimation Studies in Cold-Water Fishes: Do They Reveal the Potential Impact of Climate Change? Presented at SICB, Austin, TX, January 2020.

Hittle, K., E. Kwon and D. J. Coughlin. 2019. Climate Change and Anadromous Fish: How Does Thermal Acclimation Affect the Mechanics of Myotomal Muscle of Atlantic Salmon, *Salmo salar?* Presented at SICB, Tampa, FL, January 2019.

Travitz, L., C. Moran, S. Gerry and D. J. Coughlin. 2019. Seasonal Changes in Pectoral Fin Muscle Histology in Temperate Labrid Fishes. Presented at SICB, Tampa, FL, January 2019.

Coughlin, D. J. 2018. Thermal acclimation in rainbow smelt, *Osmerus mordax*, myotomal muscle. Presented at SEB, Florence, IT, July 2018.

Coughlin, D. J. 2018. Analysis of gene expression in rainbow smelt: assembly of a non-model organism transcriptome using Trinity. Presented at SICB, San Francisco, CA, Jan. 2018.

Wilson, L. T., and D. J. Coughlin. 2018. The thermal sensitivity of the mechanics of red skeletal muscle in rainbow trout. Presented at SICB, San Francisco, CA, Jan. 2018.

Coughlin, D. J., J. L. Shuman and M. A. Bradley. 2017. Thermal acclimation and gene expression in rainbow smelt, *Osmerus mordax.* Presented at SICB, New Orleans, LA, Jan. 2017.

Shuman, J. L., and D. J. Coughlin. 2017. Comparative analysis of thermal acclimation and red muscle function in rainbow smelt, *Osmerus mordax*, and rainbow trout, *Oncorhynchus mykiss.* Presented at SICB, New Orleans, LA, Jan. 2017.

Coughlin, D. J., M. A. Bradley, J. L. Shuman and H. L. Mistry. 2016. Presented at ICVM, Washington, DC. July 2016.

ABSTRACTS (presentations with published abstracts, cont'd)

Coughlin, D. J., and J. Rouse. 2016. Do fish benefit from swimming in groups? Presented at SICB, Portland, OR, Jan. 2016.

Shuman, J. L., L. P. Shiels, L. K. Nicastro, H. Mistry and D. J. Coughlin. 2016. Thermal acclimation and red muscle function in rainbow smelt (*Osmerus mordax*). Presented at SICB, Portland, OR, Jan. 2016.

Coughlin, D. J., L. P. Shiels, G. M. Long, N. Gezzi, K. Woluko and S. Nuthakki. 2015. Muscle function in rainbow smelt, *Osmerus mordax*, during winter. Presented at SICB, West Palm Beach, FL, Jan. 2015.

Goodrich, K. R. and D. J. Coughlin. 2015. Biomechanical properties of distal woody twigs in pawpaw (*Asimina triloba*). Presented at SICB, West Palm Beach, FL, Jan. 2015.

Nicastro, L. K. and D. J. Coughlin. 2015. The effects of thermal acclimation on gene expression in rainbow smelt, *Osmerus mordax* , muscle. Presented at SICB, West Palm Beach, FL, Jan. 2015.

Gabler, M, F. E. Fish and D. J. Coughlin. 2014. Pectoral fin muscular architecture of batoids in relation to ecological lifestyle. Presented at SICB, Austin, TX, Jan. 2014.

Coughlin, D.J., G. M. Long and N. L. Gezzi. 2014. Smelt muscle in winter: the effects of urea, glycerol and trimethylamine oxide on contractile properties. Presented at SICB, Austin, TX, Jan. 2014.

Coughlin, D. J and J.R. Woytanowski. 2013. Thermal acclimation in rainbow smelt, *Osmerus mordax*, leads to faster myotomal muscle contractile properties and improved swimming performance. Presented at SICB, San Francisco, CA, Jan 2013.

Ortiz, L.A., D. J. Coughlin and K.R. Goodrich. 2013. Twisty Twigs: Biomechanics of Storm Resistance in Distal Branches of Pawpaw. Presented at SICB, San Francisco, CA, Jan 2013.

Coughlin, D. J., H. L. Mistry, L.A. Campion and S. Choi. 2012. Contractile Properties and Myosin Expression in Swimming and Feeding Muscles of *Centrarchid* Fishes. Presented at SICB, Charleston, SC, Jan 2012.

Coughlin, D. J., N. M. Lykens, J. M. Reddi, G. J. Lutz and M. K. Tallent. 2011. Manipulation of Alternative Splicing in Multiexon Genes: Altering the Kinetics of Synaptic Transmission by Hippocampal CA-1 Neurons. Presented at SICB, Salt Lake City, UT, Jan 2011.

Lykens, N.M., D. J. Coughlin, J. M. Reddi, G. J. Lutz and M. K. Tallent. 2010 Anti-epileptic activity of a novel oligonucleotide that modulates AMPA channel properties by redirecting splicing of the GluR1 subunit. Epilepsy Foundation of America, San Antonio, TX, November 2010.

Coughlin, D. J. 2009. Does urea affect the calcium binding properties of parvalbumin and thereby alter muscle relaxation in trout? Presented at SICB, Boston, MA, Jan. 2009.

Utell, J, P. Dyer, R. Batch and D. J. Coughlin. 2008. Interdisciplinary Conversations on Bringing Students into a Community of Writers Presented at: Writing Research Across Borders, February 2008, Santa Barbara. CA, Feb. 2008.

Coughlin, D. J., A. M. Carroll, A. M. Ambrose and T. A. Anderson. 2008. Scaling properties of sunfish feeding muscles. Presented at SICB, San Antonio, TX, Jan. 2008.

Solomon, S., M. Sirohi, D. J. Coughlin, and L. D. Bastin. 2008. Parvalbumin in Fish Muscle: Characterization of Binding Properties and Role in Muscle Relaxation . Presented at SICB, San Antonio, TX, Jan. 2008.

Batch, R. A. and D. J. Coughlin. 2008. Teaching Evolution: Historical Perspectives on 19th and 20th Century Biology. Presented at SICB, San Antonio, TX, Jan. 2008.

ABSTRACTS (presentations with published abstracts, cont'd)

Solomon, S., M. Sirohi, D. J. Coughlin, and L. D. Bastin. 2007. Parvalbumin in Fish Muscle: Characterization of Binding Properties and Role in Muscle Relaxation. Presented at Undergraduate Research at the Capitol of Pennsylvania, Oct. 2007.

Coughlin, D. J. Muscle, Power and Steady Swimming in Fishes. 2006. Presented at the VII International Conference on the Biology of Fish, St. John's, Newfoundland, Canada, July 2006 (invited).

Coughlin, D. J. and A. M. Carroll. 2006. *in vitro* Estimates of Power Output by Epaxial Muscle During Feeding in Bass. Presented at SICB, Orlando, FL, January 2006.

Madhoun, N., J. L. Wilwert and D. J. Coughlin. 2005. Parvalbumin Correlates with Relaxation Rate in the Swimming Muscle of Sheepshead and Kingfish. Presented at SICB, San Diego, CA, January 2005.

Coughlin, D. J., M. Donato, A. Ulerich, J. Schiavi and F. E. Weaver. 2005. Developmental Transitions in Myosin Light Chain 2 Expression in Trout Muscle. Presented at SICB, San Diego, CA, January 2005.

Coughlin, D. J., N. D. Caputo, K. L. Bohnert and F. E. Weaver. 2004. Troponin-T and Longitudinal Variation in the Contractile Properties of Trout Muscle. Presented at SICB, New Orleans, LA, January 2004.

Schiavi, J. M., D. J. Coughlin and G. J. Lutz. 2004. Cloning of Trout Red Muscle Regulatory Myosin Light Chain and an *in vivo* System to Study its Function. Presented at SICB, New Orleans, LA, January 2004.

Schiavi, J. M. with D. J. Coughlin and F. E. Weaver. 2003. Myosin Light Chain 2 Expression in Aerobic Muscle of Rainbow Trout, *Oncorhynchus mykiss.* Presented at NCUR, Salt Lake City, UT, March 2003.

Coughlin, D. J., A. Spiecker and J. M. Schiavi. 2003. Aerobic Muscle Recruitment During Steady Swimming In Trout. Presented at SICB, Toronto, Ontario, Canada, January 2003.

Caputo, N. D., F. E. Weaver and D. J. Coughlin. 2003. Muscle Contraction and Troponin T Expression in Rainbow Trout Red Muscle. Presented at SICB, Toronto, Ontario, Canada, January 2003.

Caputo. N. D. and J. Wilwert with D. J. Coughlin and F. E. Weaver. 2002. Muscle Contraction and Troponin T Expression in Rainbow Trout (*Oncorhynchus mykiss*) Red Muscle. Presented at NCUR, White Water, WI, April 2002.

Coughlin, D. J. 2001. A Molecular Mechanism for Variations in Muscle Function in Rainbow Trout. Presented at SICB, Chicago, IL, January 2001. *Invited.*

Stauffer, K.A., F. E. Weaver and D.J. Coughlin. 1999. Developmental changes in red muscle of rainbow trout are associated with variations in myosin heavy chain expression. Presented at SICB, Denver, CO, January 1999.

Coughlin, D.J. 1999. Power production during steady swimming in largemouth bass and rainbow trout. Presented at SICB, Denver, CO, January 1999.

Coughlin, D.J., J. W. Mitchell and K. A. Stauffer. 1998. Thyroxine-induced changes in the red muscle of rainbow trout, *Oncorhynchus mykiss*. Presented at Experimental Biology, San Francisco, CA, April 1998.

Coughlin, D.J. 1998.Ontogenetic and thyroxine-induced changes in the red muscle of rainbow trout, *Oncorhynchus mykiss*. Presented at SICB, Boston, MA, January 1998.

Coughlin, D.J., and J. Burdick. 1996. Muscle mechanics and power production in swimming rainbow trout, *Oncorhynchus mykiss*. Presented at SICB (formerly ASZ), Albuquerque, NM, December 1996.

Coughlin, D. J. 1995. The role of pink and red muscle in powering swimming. Presented at ASZ, Washington, DC, December 1995. *Invited.*

ABSTRACTS (presentations with published abstracts, cont'd)

Coughlin, D.J. and L.C. Rome.1995. Pink muscle kinetics, power production and recruitment during swimming in Scup. Presented at ASZ, St. Louis, MO, January 1995.

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