

Curriculum vitae
MICHAEL JAMES MISAMORE

Dept. of Biology, Texas Christian University
2800 S. University Dr, WSH410, Fort Worth, TX 76129
Phone: (817) 257-6173 Fax: (817) 257-6177
e-mail: m.misamore@tcu.edu

ACADEMIC BACKGROUND

A. Education

Ph.D. Zoology, Louisiana State University (1998)

Dissertation: Early fertilization events in the freshwater zebra mussel, *Dreissena polymorpha*.
Advisor: John W. Lynn

M.S. Marine Biology, College of Charleston (1993)

Thesis: Contributions to the reproductive biology of two litopenaeid species, *Penaeus vannamei* and *Penaeus setiferus*: Evaluating the hybridization potential. Advisor: Craig L. Browdy

B.S. Zoology, University of Wisconsin – Madison (1989)

B. Professional Experience

- 2009- present Associate Professor, Dept. of Biology, Texas Christian University
2003-2009 Assistant Professor, Dept. of Biology, Texas Christian University
1998-2003 NIH Postdoctoral Fellow, Dept. of Cell Biology, Univ. of Texas-Southwestern Medical Center at Dallas. Sponsor: William J. Snell.
1993-1998 Teaching Assistant, Dept. of Biological Sciences, Louisiana State University.
1991-1993 Research Assistant, James Waddell Experimental Mariculture Center, South Carolina Dept. of Natural Resources, Bluffton, SC.
1990-1991 Teaching Assistant, Dept. of Biology, College of Charleston, SC.

TEACHING

A. Courses

Primary Teaching Responsibilities

Developmental Biology
Invertebrate Biology
Cell, Molecular and Developmental Biology
Marine Biology of the Tropics

Additional Courses Taught

Introductory Biology I & II
Histology
Tropical Biology
Intro. Marine Sciences
Marine Ecology

B. Graduate Theses Directed

- a. Julianna Martinez, Master of Science, May 2020.
“Effects of Copper and Temperature on the Life Stages of the invasive Zebra Mussel.”
- b. Condred Roberts, Master of Science, December 2009.
“Characterization of three sexually sterile mutants of the green alga *Chlamydomonas reinhardtii*.”
- c. Lindsey Fallis, Master of Science, August 2007.
“Identification and distribution of carbohydrates on the surface of gametes in the zebra mussel, *Dreissena polymorpha*.”
- d. Kevyn McAnlis, Master of Science, December 2007.
“Surface carbohydrate distribution on the gametes of freshwater and marine bivalves.”
- e. Jennifer Szopinski, Master of Science, May 2006.

“Identification of three *Chlamydomonas reinhardtii* genes encoding actin-associated proteins.”

C. Undergraduate Honors Theses Directed

Courtney Kopyay (2020), Mai Nguyen (2020), Sarah Gallagher (2015), Ben Clifford (2014), Nathan Cress (2013), Lindsay Bailey (2012), Sarah Barnard (2010), Bich Dieu (2010), Whitney Graham (2007), Yen Phan (2010), Ryan Seaver (2009)

D. TCU Internal Educational Grants

Funded

2019 Preservation and Enhancement of TCU Invertebrate Collection.” \$2,524

2017 Identification of Biological Research Station for Marine Biology. ” \$3550

2009 TCU Instructional Development Grant, “Evaluation of Costa Rica field station for Tropical Biology coursework.” \$3,600.

2006 TCU Instructional Development Grant, “Identification of biological research station for tropical biology field work.” \$3,400.

2006 TCU Provost Instructional Equipment Grant, “Microscopy and imaging equipment for teaching laboratories,” \$29,000.

RESEARCH

A. Refereed Publications

Misamore, M., W.H. Wong, S. Gerstenberger, S. Madsen. 2024. Effects of x-ray irradiation on fertilization and early development in quagga mussels (*Dreissena bugensis*). *Management of Biological Invasions* 15(3):397-413.

Misamore, M., E. Couch, and S. Barnard. "Reproductive Biology of Quagga Mussels (*Dreissena rostriformis bugensis*) with an Emphasis on Lake Mead" in *Biology and Management of Invasive Quagga and Zebra Mussels in the Western United States*. W.H. Wong, S.L. Gerstenberg, editors. CRC Press. 2015, Boca Raton, FL, p.53-70.

Stewart-Malone, A, **M. Misamore,** S. Wilmoth, A. Reyes, W.H. Wong, and J. Gross, 2015, The Effect of UV-C Exposure on Larval Survival of the Dreissenid Quagga Mussel, *PLOS* v.10 (7)

Liu, Y. J., **M. J. Misamore,** and W. J. Snell, 2010, Membrane fusion triggers rapid degradation of two gamete-specific, fusion-essential proteins in a membrane block to polygamy in *Chlamydomonas*, *Development* 137:1473-1481.

McAnlis, K.M.K., J.W. Lynn, **M.J. Misamore,** 2010, Lectin labeling of surface carbohydrates on gametes of three bivalves, *Crassostrea virginica*, *Mytilus galloprovincialis*, and *Dreissena bugensis*, *Journal of Shellfish Research* 29:193-201.

Fallis, L.C., K.K. Stein, J.W. Lynn, and **M.J. Misamore.** 2010. Identification and role of carbohydrates on the surface of gametes in the zebra mussel, *Dreissena polymorpha*, *Biological Bulletin* 218:61-74.

Seaver, R.W., G.W. Ferguson, W.H. Gehrman, and **M.J. Misamore,** 2009, Effects of ultraviolet radiation on gametic function during fertilization in zebra mussels (*Dreissena polymorpha*), *Journal of Shellfish Research* 28(3): 625-633.

Misamore, M.J., K.K. Stein, J.W. Lynn, 2006, Sperm incorporation and pronuclear development

during fertilization in the freshwater bivalve *Dreissena polymorpha*, *Molecular Reproduction and Development*, 73(9):1140-8. 2006.

Misamore, M.J., and WJ Snell, 2003, The *Chlamydomonas* Fus1 protein is present on the mating type plus fusion organelle and required for a critical membrane adhesion event during fusion with minus gametes, *Molecular Biology of the Cell* 14:2530-42.

Pan J., **M.J. Misamore**, Q. Wang, and W.J. Snell, 2003, Protein transport and signal transduction during fertilization in *Chlamydomonas*. *Traffic* 4:452-9.

Misamore, M.J., and J.W. Lynn. 2000, Role of the cytoskeleton in sperm entry during fertilization in the freshwater bivalve *Dreissena polymorpha*. *Biological Bulletin* 199:144-156.

Misamore, M.J. and C.L. Browdy. 1997. Evaluating hybridization potential between *Penaeus setiferus* and *Penaeus vannamei* through natural mating, artificial insemination and *in vitro* fertilization. *Aquaculture* 150:1-10.

Misamore, M., H. Silverman, and J.W. Lynn. 1996. Analysis of fertilization and polyspermy in serotonin-spawned eggs of the zebra mussel, *Dreissena polymorpha*. *Molecular Reproduction and Development* 43:205-216.

Misamore, M.J. and C.L. Browdy. 1996. Mating behavior in the white shrimps *Penaeus setiferus* and *Penaeus vannamei*: Generalized model for *Penaeus* mating. *Journal of Crustacean Biology* 16:61-70.

Wang, Q., **M.J. Misamore**, C.Q. Jiang, and C.L. Browdy. 1995. Egg water induced reaction and biostain assay of sperm from marine shrimp *Penaeus vannamei*: dietary effects on sperm quality. *Journal of the World Aquaculture Society* 26:261-271.

B. Non-Refereed Publications (since 2003)

Misamore, M., J. Martinez, S. Pracillo, D. Le, E. Ehrensing (2023)Using Fertilization and Early Development to Aid in the Control of the Invasive Freshwater Zebra and Quagga Mussels. *Molecular Biology of the Cell*, v.35(1).

Misamore, M., J. Martinez, S. Pracillo, D.(2023) Factors effecting the survival and reproduction of the invasive zebra mussels in Texas waters. *Integrative and Comparative Biology*. Vol. 63(1).

Misamore, M. (2022) Growth, survival, and reproductive success of zebra mussels in Texas lakes. Technical Report, Texas Parks and Wildlife. https://tpwd.texas.gov/landwater/water/aquatic-invasives/media/Misamore_ZebraMusselsSurvivalGrowthReproductionCalcium_FinalReport_Apr2022.pdf

J., E. Couch, H. Quinn. 2017. Comparison of fertilization in the invasive zebra and quagga mussels. *Molecular Biology of the Cell*, v.26(25).

Gallagher, S., N. Cress, **M.J. Misamore**, 2015, Fertilization in quagga mussels (*Dreissena rostriformis bugensis*) - Effects of temperature and sperm concentration. *Molecular Biology of the Cell*, v.26(25), P743.

Misamore, M., D. Wong, 2012, Early developmental events in zebra and quagga mussels and possible targets for control, *Journal Of Shellfish Research* v.31, p.324.

Liu, Y., **M. J. Misamore**, R. R. Elliot, J. Moy, J. Pan, C. Silflow, W. J. Snell, 2006, Proteins Essential for Gamete Fusion in *Chlamydomonas*: Implications for Fertilization in Plants and Apicomplexan Parasites, *Molecular Biology of the Cell* v.17

Fallis, L. C., K. M. Kendro-McAnlis, J. W. Lynn, **M. J. Misamore**, 2006, Identification and distribution of carbohydrates on the surface of gametes in the zebra mussel *Dreissena polymorpha* and the oyster *Crassostrea virginica*, *Molecular Biology of the Cell*, v.17

Liu, Y., **M.J. Misamore**, and W.J. Snell, 2004, Fus1 protein is involved directly in the gamete fusion process in *Chlamydomonas reinhardtii*, *Molecular Biology of the Cell*, v.15, 73A.

Misamore, M.J., S. Gupta, W.J. Snell, 2003, FUS1, the cell surface protein required for *Chlamydomonas* fertilization, contains invasion-like internal repeats and requires actin for its localization, *Molecular Biology of the Cell*, v.13, 111A-112A

C. Selected Mussel Presentations

Comparison of reproductive biology of the invasive zebra and quagga mussels from warm and cold environments. Maddie Comeaux,* Molly Corrier,* Aubryanne Leugers,* and Mike Misamore. American Society for Cell Biology. Philadelphia, PA.*TCU Undergraduate.

Factors effecting the survival and reproduction of the invasive zebra mussels in Texas waters. Mike Misamore, Julianna Martinez**, Sophia Pracilio.* Society for Integrative and Comparative Biology, San Antonio, TX. 2023. TCU Undergraduate student, **TCU Graduate Student, *TCU Undergraduate.

Survival and Reproduction of zebra mussels in Texas Waters. **Misamore, MJ.**; Evan Ehrensing*. Zebra Mussel Prevention and Management Partner Meeting. 2022. Invited speaker. *TCU Undergraduate.

Environmental Factors effecting the survival and reproductive success of the invasive zebra mussel *Dreissena polymorpha*. 2020. Martinez, J**; Kopllyay, C*; **Misamore, M.** Society for Integrative and Comparative Biology. Austin, TX. *TCU Undergraduate student, **TCU Graduate Student, *TCU Undergraduate.

Misamore, M.J., E. Couch, H. Quinn. 2017. Comparison of fertilization in the invasive zebra and quagga mussels. American Society for Cell Biology. Philadelphia, PA.

Gallagher, S. , N. Cress, **M.J. Misamore**, December, 2015, Fertilization in Quagga Mussels (*Dreissena rostriformis bugensis*) - Effects of temperature and sperm concentration. American Society for Cell Biology, San Diego, CA.

Stewart-Malone, A., **M. Misamore**, D. Wong, S. Wilmoth, J. Gross, August, 2014, “The Effect of UV-C on Larval Survival of the Quagga Mussel”, American Fisheries Society Quebec City, Canada.

Misamore, M., D. Wong, March, 2012, “Early Developmental Events In Zebra And Quagga Mussels

And Possible Targets For Control”, National Shellfisheries Association Annual Meeting, Seattle WA.

Barnard, S. , A. Davila, and **M.J. Misamore**. June, 2011, "Fertilization in the invasive quagga mussel, *Dreissena bugensis*." Gordon Conference on Fertilization & Activation of Development, Holderness, NH.

McAnlis, K.M.K., J.W. Lynn, **M.J. Misamore**, Jan. 2007, “Carbohydrate Distribution on the Gametes in Four Species of Bivalves: Zebra Mussel (*Dreissena polymorpha*), Quagga Mussel (*Dreissena bugensis*), Blue Mussel (*Mytilus galloprovincialis*), and the Oyster (*Crassostrea virginica*),” Society for Integrative and Comparative Biology, San Antonio, TX.

Fallis, L. C., K. M. Kendro-McAnlis, J. W. Lynn, **M. J. Misamore**, July 2007, “Distribution of carbohydrates on the surface of gametes in four species of bivalves, zebra mussel *Dreissena polymorpha*, Quagga Mussel *Dreissena bugensis*, Blue Mussel *Mytilus galloprovincialis*, and the Oyster *Crassostrea virginica*,” Gordon Conference on Fertilization, Holderness, NH.

Fallis, L. C., K. M. Kendro-McAnlis, J. W. Lynn, **M. J. Misamore**, 2006, “identification and distribution of carbohydrates on the surface of gametes in the zebra mussel *Dreissena polymorpha* and the oyster *Crassostrea virginica*,.” American Society for Cell Biology Annual Meeting, San Diego, CA.

Liu, Y., **M.J. Misamore**, W.J. Snell, July 2005, “Properties of the *Chlamydomonas* mt+ gamete cell fusion protein, Fus1,” Gordon Research Conference on Fertilization, Holderness, NH.

Workshops

- 100th Meridian Initiative National Meeting, 2009, Lakewood, CO.
- Early Detection of Dreissenids in the West, 2009, Lakewood, CO.
- Western Regional Panel on Aquatic Invasive Species Meeting, 2008, Fort Collins, CO. Host of Workshop entitled “*Dreissena* Mussel Early Detection Monitoring Methods & Quality Assurance Workshops” sponsored by the U.S. Fish and Wildlife Dept. and the 100th Meridian Initiative. (Feb 2012). Local coordinator.

D. Extramural Grants

“Growth, survival and reproductive success of zebra mussels in Texas lakes.” Texas Parks and Wildlife (2019). \$57,425

“Assaying Effectiveness of Copper treatment for controlling Zebra Mussels.” Tarrant Regional Water District. (2018) \$5970

“Effects of North Texas Reservoir Water on Growth and Survival of Zebra Mussels (*Dreissena polymorpha*). (2017) Tarrant Regional Water District. \$5,423

“UV Treatment Technologies for Invasive Mussel Control.” Michael J. Misamore. United States Geological Survey. Sept. 2011 to Sept 2012. Awarded \$31,078.

“Sterile male release technique (SMRT) with irradiation as a potential novel method for attenuating invasive quagga mussels – A laboratory experiment.” Mike Misamore¹, David Wong², Shawn Gerstenberger², Steen Madsen³. ¹Department of Biology, Texas Christian University, ²Department of Environmental and Occupational Health, University of Nevada Las Vegas, ³Department of Physical Therapy, University of Nevada Las Vegas. Grant Submitted through the University of Nevada Las Vegas to the Utah Division of Wildlife Resources. Funded for \$3,541.(2011)

E. Intramural Grants (Research & Creative Activities Fund)

- 2023-2024 RCAF. "Determination of reproductive status of the Invasive Zebra Mussel." (\$4,300).
- 2016-2017 RCAF. "Reproduction in Dreissenid Mussels." (\$3,400)
- 2015-2016 RCAF. "Microscopic Analysis of Quagga Mussel Larvae."(\$2,853).
- 2014-2015 RCAF. "Detection of live zebra/quagga mussel veligers." (\$3,915).
- 2011-2012 RCAF. "Regulation and Localization of Fertilization Molecules" (\$4,000)
- 2010-2011 RCAF. "Development of Zebra/Quagga Mussel Larvae Culture Techniques" (\$2,000)
- 2009-2010 RCAF. "Early detection of zebra and quagga mussel veligers." (\$4,000)
- 2008-2009 RCAF. "Establishment of Early Development in the Quagga Mussel." (\$4,000).
- 2007-2008 RCAF, "Reproductive biology of the invasive zebra and quagga mussels. " (\$4,000).
- 2006-2007 RCAF. "Comparative study of fertilization mechanisms between freshwater and marine bivalves." (\$4,000).
- 2005-2006 RCAF. "Genomic screening for fertilization molecules in *Chlamydomonas*." (\$3,000)
- 2004-2005 RCAF. "The role of microvilli in *Chlamydomonas* fertilization." (\$3,000)
- 2003-2004 RCAF. "Cell-Cell Interactions during fertilization in *Chlamydomonas*." (\$2,500)